



Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Preliminary Review of Proposals
Submitted for Fiscal Years 2007-2009 Funding through the
Columbia River Basin Fish and Wildlife Program

**PART 2. Recommendations and
Comments on Individual Proposals**

ISRP 2006-4B
June 2, 2006

ISRP Preliminary Review of FY 2007-2009 Proposals

Part 2: Recommendations and Comments on Individual Proposals

This document is the second part of the ISRP's Preliminary Review of FY 2007-2009 Proposals. It contains ISRP comments and recommendations for each of the 540 proposals submitted. Part 1 of the report describes the ISRP's review process and criteria, recommendation categories, and other information needed to best understand and use this portion of the report. Part 1 also identifies programmatic issues that cut across the set of proposals and are intended to inform Fish and Wildlife Program development.

This document starts with a table of the proposals that provides some basic information on the proposal, the ISRP's preliminary recommendation, and the page number for comments on the proposal. The table is organized by proposal number. Summary comments on each proposal follow the table. These start with mainstem and systemwide proposals (organized by topic) and then are organized by province (from the Estuary upstream to the Mountain Columbia), subbasin (alphabetical), and topic/program (roughly artificial production, wildlife, monitoring and habitat). This organization is intended to give a picture of all the proposed activity in a subbasin or systemwide.

The ISRP's comments and recommendations are also available on-line through a table that can be sorted various ways; see www.nwcouncil.org/library/isrp/isrp2006-4.htm.

A page index by proposal number is at end of document.

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Table of proposals and recommendations

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
198201301	Coded-Wire Tag Recovery	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$2,783,640	\$2,894,985	\$3,010,785	Fundable	96
198201302	Annual Stock Assessment - Coded Wire Tag Program (ODFW)	Oregon Department of Fish & Wildlife (ODFW)	Mainstem/ Systemwide	Systemwide	\$245,680	\$250,593	\$255,604	Fundable (Qualified)	98
198201303	Coded Wire Tag - USFWS	US Fish & Wildlife Service (USFWS)	Mainstem/ Systemwide	Systemwide	\$115,538	\$121,315	\$127,987	Fundable (Qualified)	100
198201304	Coded Wire Tag - WDFW	Washington Department of Fish and Wildlife (WDFW)	Mainstem/ Systemwide	Systemwide	\$386,607	\$389,092	\$412,992	Fundable (Qualified)	101
198331900	New Marking & Monitoring Tech	National Oceanic & Atmospheric Administration (NOAA)	Mainstem/ Systemwide	Systemwide	\$768,685	\$1,357,243	\$1,596,791	Fundable	112
198335000	Nez Perce Tribal Hatchery Operations & Maintenance	Nez Perce Tribe	Mountain Snake	Clearwater	\$2,033,220	\$2,094,217	\$2,177,986	Response requested	502
198335003	Nez Perce Tribal Hatchery M&E	Nez Perce Tribe	Mountain Snake	Clearwater	\$1,996,183	\$2,031,097	\$2,066,835	Fundable	504
198343500	Umatilla Hatchery Satellite Facilities O&M	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$1,059,166	\$1,102,743	\$1,143,182	Fundable (Qualified)	391
198343600	Umatilla Passage O&M	Westland Irrigation District	Columbia Plateau	Umatilla	\$502,253	\$512,298	\$522,544	Response requested	400
198402100	Mainstem, Middle Fork, John Day Rivers Fish Habitat Enhancement Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	John Day	\$486,515	\$519,262	\$537,463	Not fundable	364
198402500	ODFW Blue Mountain Oregon Fish Habitat Improvement	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$377,900	\$391,600	\$410,300	Response requested	483
198503800	Colville Hatchery	Colville Confederated Tribes	Intermountain	Columbia Upper	\$1,015,504	\$1,056,124	\$1,098,369	Fundable in part	638
198506200	Juvenile Fish Screen Evaluations in Columbia Plateau Province	Pacific Northwest National Laboratory	Columbia Plateau	None Selected	\$91,717	\$94,608	\$97,981	Fundable	383

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198605000	White Sturgeon Mitigation and Restoration in the Columbia and Snake Rivers Upstream from Bonneville Dam	Oregon Department of Fish & Wildlife (ODFW)	Mainstem/Systemwide	Systemwide	\$1,613,363	\$1,591,637	\$1,613,212	Fundable	135
198710001	Umatilla Anadromous Fish Habitat - CTUIR	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$372,245	\$385,085	\$405,960	Response requested	410
198710002	Umatilla Subbasin Fish Habitat Improvement Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$321,767	\$335,282	\$349,395	Response requested	411
198712700	Smolt Monitoring By Non-Federal	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$2,345,710	\$2,436,778	\$2,550,951	Fundable (Qualified)	117
198802200	Umatilla Fish Passage Operations	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$380,238	\$399,249	\$419,211	Response requested	401
198805301	Grande Ronde/Imnaha Endemic Spring Chinook Supplementation - Northeast Oregon Hatchery	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$9,809,858	\$3,478,059	\$1,014,268	Response requested	466
198805303	Hood River Production M&E - Warm Springs	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Hood	\$585,897	\$544,920	\$556,421	Response requested	320
198805304	Hood River Production Program - ODFW M&E	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Hood	\$536,935	\$583,381	\$609,659	Response requested	321
198805305	Northeast Oregon (NEOH) Outplanting Facilities Master Plan	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$18,870	\$18,870	\$18,870	Response requested	473
198805307	Hood River Production O&M - Warm Springs/ODFW	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Hood	\$270,282	\$277,906	\$285,530	Response requested	323
198805308	Hood River Powerdale Dam Fish Trap/Oak Springs/Pelton Ladder - Operation and Maintenance	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Hood	\$562,860	\$589,337	\$598,649	Fundable	325
198805315	Hood River Adult Salmonid Trapping Facilities/Parkdale Fish Facility Expansion	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Hood	\$750,000	\$250,000	\$150,000	Not fundable	325
198806400	Kootenai River Native Fish Restoration and	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$1,970,800	\$2,739,146	\$3,523,054	Response requested	695

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	Conservation Aquaculture								
198806500	Kootenai R White Sturgeon Inventory	Idaho Department of Fish & Game	Mountain Columbia	Kootenai	\$1,165,360	\$1,169,924	\$1,179,198	Fundable	699
198810804	StreamNet (CIS/NED)	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$2,901,154	\$3,040,961	\$3,198,011	Response requested	206
198811525	YKFP - Design & Construction (Nelson Springs replacement facility)	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$628,701	\$0	\$0	Fundable (Qualified)	428
198811535	Klickitat Fishery YKFP Design	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$5,611,530	\$5,615,562	\$5,619,753	Response requested	329
198812025	YKFP Management, Data, Habitat	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,237,239	\$1,268,041	\$2,284,582	Fundable (Qualified)	428
198812035	YKFP Klickitat Management, Data, and Habitat	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$445,344	\$458,674	\$472,433	Response requested	332
198902401	Evaluation of Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River Basin	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$549,550	\$398,065	\$416,435	Fundable	393
198902700	Power Repay Umatilla Basin Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$1,560,000	\$1,560,000	\$1,560,000	Response requested	404
198903500	Umatilla Hatchery Operation and Maintenance and Fish Liberations	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$951,664	\$981,110	\$1,011,412	Fundable (Qualified)	391
198906201	Annual Work Plan CBFWA	Columbia Basin Fish & Wildlife Authority (CBFWA)	Mainstem/Systemwide	Systemwide	\$2,253,787	\$2,253,787	\$2,253,787	Response requested	215
198909600	Genetic Monitoring of Snake River Chinook Salmon and Steelhead	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$513,210	\$527,980	\$543,280	Fundable	54
198909800	Idaho Supplementation Studies	Idaho Department of Fish and Game/NPT/SBT/USF WS	Mountain Snake	Salmon	\$2,014,483	\$2,098,127	\$2,207,751	Fundable (Qualified)	553
198910700	Statistical Support For Salmonid Survival Studies	University of Washington	Mainstem/Systemwide	Systemwide	\$371,546	\$382,507	\$391,038	Fundable	117
199000500	Umatilla Hatchery - M&E	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$684,278	\$714,367	\$745,852	Fundable (Qualified)	392

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19900501	Umatilla Basin Natural Production Monitoring and Evaluation Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$779,657	\$795,314	\$831,704	Response requested	393
199001800	Lake Roosevelt Rainbow Trout Habitat/Passage Improvement Program	Colville Confederated Tribes	Intermountain	Sanpoil	\$641,886	\$742,850	\$542,850	Not fundable	659
199004400	Coeur D'Alene Reservation Habitat Enhancement (Coeur d'Alene Subbasin)	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$1,439,899	\$1,483,127	\$1,524,634	Not fundable	632
199004401	Lake Creek Land Acquisition	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$1,208,514	\$1,215,826	\$1,367,427	Fundable	632
199005500	Idaho Steelhead Monitoring and Evaluation Studies	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$810,260	\$830,638	\$759,695	Response requested	500
199007700	Develop Systemwide Predator Control for Northern Pikeminnows	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$3,884,045	\$3,990,748	\$4,102,784	Response requested	153
199008000	Columbia Basin Pit-Tag Information System	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$2,531,577	\$2,692,839	\$2,800,553	Fundable (Qualified)	113
199009200	Wanaket Wildlife Area	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$233,337	\$242,653	\$251,401	Fundable	395
199101901	Hungry Horse Mitigation/Flathead Lake	Salish & Kootenai Confederated Tribes	Mountain Columbia	Flathead	\$174,000	\$408,000	\$412,000	Not fundable	691
199101903	Hungry Horse Mitigation Program	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	Flathead	\$1,655,000	\$1,815,000	\$1,905,000	Response requested	687
199101904	Hungry Horse Mitigation - Stocking of Offsite Waters - Creston NFH	Creston NFH	Mountain Columbia	Flathead	\$139,393	\$143,619	\$148,001	Response requested	688
199102800	Pit Tagging Wild Chinook	National Oceanic & Atmospheric Administration (NOAA)	Mountain Snake	Salmon	\$591,990	\$609,749	\$628,043	Fundable	559
199102900	Research, monitoring, and evaluation of emerging issues and measures to recover the Snake River fall Chinook salmon ESU	US Fish & Wildlife Service (USFWS)	Mainstem/ Systemwide	Systemwide	\$499,731	\$499,731	\$499,731	Fundable	78
199104600	Spokane Tribal (Galbraith Springs) Hatchery	Spokane Tribe	Intermountain	Columbia Upper	\$974,000	\$640,280	\$670,720	Fundable in part	638
199104700	Sherman Creek Hatchery -	Washington	Intermountain	Columbia	\$280,780	\$294,816	\$309,558	Fundable in part	639

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	O&M	Department of Fish and Wildlife (WDFW)		Upper					
199105100	M&E Statistical Support For Life-Cycle Studies	University of Washington	Mainstem/ Systemwide	Systemwide	\$473,086	\$485,492	\$498,267	Fundable	195
199106000	Pend Oreille Wetlands Wildlife Mitigation Project - Kalispel	Kalispel Tribe	Intermountain	Pend Oreille	\$112,967	\$118,445	\$124,000	Response requested	649
199106100	Swanson Lake Wildlife Mitigation Project (Swanson Lakes Wildlife Area)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$258,085	\$236,322	\$244,596	Fundable	343
199106200	Spokane Tribe Wildlife Mitigation	Spokane Tribe	Intermountain	Spokane	\$2,360,000	\$2,363,300	\$2,366,700	Response requested	660
199107100	Snake River Sockeye Salmon Habitat and Limnological Monitoring	Shoshone Bannock Tribes	Mountain Snake	Salmon	\$450,900	\$456,591	\$460,458	Not fundable	553
199107200	Redfish Lake Sockeye Salmon Captive Broodstock Program	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$1,086,118	\$1,135,362	\$1,172,418	Not fundable	549
199107300	Idaho Natural Production Monitoring	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$960,900	\$1,008,950	\$1,059,410	Response requested	557
199107800	Burlington Bottoms Wildlife Mitigation Project	Oregon Department of Fish & Wildlife (ODFW)	Lower Columbia	Willamette	\$112,735	\$110,631	\$111,609	Response requested	282
199200900	Yakima Phase II/Huntsville Screen Operation & Maintenance	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$177,011	\$182,322	\$187,792	Fundable	437
199201000	Habitat Improvement/Enhancement - Fort Hall, Idaho	Shoshone Bannock Tribes	Upper Snake	Snake Upper	\$245,641	\$295,641	\$283,718	Response requested	681
199202601	Grand Ronde Model Watershed Program Habitat Restoration - Planning, Coordination and Implementation	Grande Ronde Model Watershed Foundation	Blue Mountain	Grande Ronde	\$1,346,055	\$1,349,369	\$1,352,869	Response requested	484
199202603	Upper Salmon Basin Watershed Project (USBWP) provides technical and administrative support with project implementation guidance to landowners to implement	Idaho Soil Conservation Commission	Mountain Snake	Salmon	\$1,367,036	\$1,377,730	\$1,388,744	Response requested	560

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	fish habitat projects on private lands								
199202604	Investigate Life History Of Spring Chinook Salmon and Summer Steelhead in the Grande Ronde River Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$861,203	\$900,222	\$941,130	Fundable	478
199204000	Redfish Lake Sockeye Salmon Captive Broodstock Rearing and Research	National Oceanic & Atmospheric Administration (NOAA)	Mountain Snake	Salmon	\$824,994	\$857,994	\$892,312	Not fundable	551
199204800	Colville Confederated Tribes Wildlife Mitigation Project	Colville Confederated Tribes	Intermountain	Columbia Upper	\$1,180,000	\$1,200,000	\$1,200,000	Response requested	641
199205900	Amazon Basin/Eugene Wetlands	Nature Conservancy	Lower Columbia	Willamette	\$98,764	\$583,766	\$91,267	Response requested	283
199206100	Albeni Falls Wildlife Mitigation	Albeni Falls Interagency Work Group	Intermountain	Pend Oreille	\$7,949,297	\$8,103,022	\$8,342,004	Response requested	649
199206200	Yakama Nation - Riparian/Wetlands Restoration	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,575,163	\$1,623,313	\$1,673,842	Response requested	438
199206800	Willamette Basin Mitigation	Oregon Department of Fish & Wildlife (ODFW)	Lower Columbia	Willamette	\$2,816,657	\$4,000,143	\$4,012,310	Response requested	284
199302900	Survival Estimates for the Passage of Juvenile Salmonids Through Snake and Columbia River Dams and Reservoirs	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$1,688,376	\$1,739,026	\$1,791,197	Fundable	118
199303501	Red River Restoration O & M	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$104,993	\$107,412	\$56,870	Response requested	526
199304000	Fifteenmile Creek Habitat Restoration and Monitoring Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Fifteenmile	\$375,687	\$388,463	\$395,156	Fundable (Qualified)	313
199305600	Research to advance hatchery reform, including captive broodstocks	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$1,474,045	\$1,512,513	\$1,567,424	Fundable (Qualified)	50
199306000	Select Area Fisheries Enhancement Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Estuary	Columbia Estuary	\$1,804,868	\$1,779,000	\$1,827,028	Response requested	239
199306600	Oregon Fish Screens Project	Oregon Department of	Columbia	John Day	\$1,015,374	\$1,073,876	\$1,136,071	Fundable	365

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		Fish & Wildlife (ODFW)	Plateau						
199401500	Idaho Fish Screening and Passage Improvements	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$974,740	\$1,015,982	\$998,842	Response requested	560
199401805	Continued Implementation of Prioritized Asotin Creek Watershed Habitat Projects	Asotin County Conservation District (ACCD)	Blue Mountain	Asotin	\$275,000	\$275,000	\$275,000	Response requested	457
199401806	Tucannon Stream and Riparian Protection, Enhancement, and Restoration	Columbia Conservation District	Columbia Plateau	Tucannon	\$330,780	\$348,928	\$365,502	Response requested	387
199401807	Improve Habitat For Fall Chinook, Steelhead in the Lower Snake and Tucannon Subbasins	Pomeroy County Soil & Water Conservation District (SWCD)	Columbia Plateau	Tucannon	\$199,345	\$200,237	\$201,154	Response requested	388
199402600	Pacific Lamprey Research and Restoration Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$528,041	\$507,930	\$533,161	Response requested	396
199404200	Trout Creek Fish Habitat Restoration Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Deschutes	\$475,545	\$499,050	\$533,900	Response requested	353
199404300	Lake Roosevelt Fisheries Evaluation Program (formerly Data Collection)	Spokane Tribe	Intermountain	Columbia Upper	\$1,171,031	\$1,219,306	\$1,239,716	Response requested	634
199404400	Enhance, protect and maintain shrub-steppe habitat on the Sagebrush Flat Wildlife Area (SFWA)	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$382,479	\$225,977	\$239,628	Fundable	569
199404700	Lake Pend Oreille Fishery Recovery Project: purpose to restore fisheries impacted by the federal hydropower system within the Idaho portion of the Pend Oreille drainage	Idaho Department of Fish & Game	Intermountain	Pend Oreille	\$944,262	\$980,176	\$975,483	Fundable	650
199404900	Kootenai River Ecosystem Improvements Project	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$1,785,104	\$1,782,556	\$1,831,206	Response requested	702
199405000	Salmon River Habitat Enhancement	Shoshone Bannock Tribes	Mountain Snake	Salmon	\$408,911	\$425,702	\$393,311	Fundable in part	561
199405400	Migratory Patterns, Structure, Abundance and Status of Bull Trout	Oregon Department of Fish & Wildlife (ODFW)	Mainstem/ Systemwide	Systemwide	\$466,260	\$460,337	\$453,849	Response requested	160

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	Populations in Subbasins of the Columbia Gorge, Columbia Plateau and Blue Mountain Provinces								
199405900	Yakima Basin Environmental Education Program	Eco-Northwest	Columbia Plateau	Yakima	\$177,000	\$177,000	\$177,000	Fundable	438
199500100	Kalispel Tribe Resident Fish Program	Kalispel Tribe	Intermountain	Pend Oreille	\$520,815	\$544,049	\$568,061	Not fundable	648
199500400	Libby Mitigation Program	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	Kootenai	\$816,935	\$841,925	\$843,710	Response requested	704
199500900	Lake Roosevelt Rainbow Trout	Lake Roosevelt Development Association	Intermountain	Columbia Upper	\$144,000	\$145,000	\$146,000	Response requested	639
199501100	Chief Joseph Kokanee Enhancement	Colville Confederated Tribes	Intermountain	Columbia Upper	\$599,802	\$681,642	\$599,802	Not fundable	637
199501300	Resident Fish Substitution Program	Nez Perce Tribe	Mountain Snake	Clearwater	\$252,725	\$260,406	\$268,369	Not fundable	505
199501500	Duck Valley Fisheries Project - Operations, Maintenance, Monitoring and Evaluation	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$508,497	\$518,066	\$527,779	Fundable	671
199502700	Lake Roosevelt White Sturgeon Recovery Project	Spokane Tribe	Intermountain	Columbia Upper	\$547,517	\$484,318	\$477,305	Response requested	642
199502800	Piscivorous Avian Resource Utilization of Moses Lake and the Relationship to Other Systems	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$298,000	\$298,000	\$298,000	Not fundable	346
199503300	O&M Yakima Basin Fish Screens	Bureau of Reclamation	Columbia Plateau	Yakima	\$95,480	\$98,350	\$101,300	Fundable	439
199505700	S Idaho Wildlife Mitigation	Idaho Department of Fish & Game	Upper Snake	Snake Upper	\$400,738	\$406,360	\$371,961	Fundable	680
199505701	S Idaho Wildlife Mitigation	Idaho Department of Fish & Game	Middle Snake	Boise	\$21,614	\$21,570	\$22,131	Response requested	663
199505702	Southern Idaho Wildlife Mitigation	Shoshone-Bannock Tribes	Upper Snake	Snake Upper	\$2,050,000	\$2,050,000	\$2,050,000	Not fundable	681
199505703	Southern Idaho Wildlife Mitigation	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$2,581,215	\$2,664,071	\$2,668,763	Fundable	672
199506001	Iskuulpa Watershed Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$180,983	\$187,222	\$193,764	Fundable	395

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199506325	Yakima Klickitat Fisheries Project - Monitoring And Evaluation	Yakama Nation and WDFW	Columbia Plateau	Yakima	\$4,529,256	\$4,548,515	\$4,703,475	Fundable (Qualified)	431
199506335	YKFP - Klickitat Subbasin Monitoring and Evaluation	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$2,594,240	\$1,350,659	\$1,367,010	Response requested	334
199506425	YKFP Policy/Plan/Technical	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$234,101	\$241,404	\$248,877	Fundable (Qualified)	433
199601100	Walla Walla Juvenile and Adult Passage Improvements	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$270,000	\$950,000	\$1,105,000	Fundable (Qualified)	416
199601900	Technical Management Team (TMT)	University of Washington	Mainstem/ Systemwide	Systemwide	\$597,642	\$552,925	\$578,067	Fundable (Qualified)	196
199602000	Pit Tagging Spring/Summer Chin	Columbia River Fisheries Program Office	Mainstem/ Systemwide	Systemwide	\$1,757,000	\$1,788,425	\$1,831,615	Response requested	115
199602100	Gas Bubble Disease Research & Monitoring of Juvenile Salmonids	Columbia River Research Laboratory	Mainstem/ Systemwide	Systemwide	\$23,946	\$25,081	\$26,906	Fundable	121
199603501	Yakama Reservation Watersheds Project	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,074,742	\$1,140,151	\$1,211,446	Fundable	439
199604000	Mid-Columbia Coho Restoration Project	Yakama Confederated Tribes	Columbia Cascade	Wenatchee	\$3,500,945	\$2,962,228	\$2,884,222	Fundable in part	615
199604200	Restore and Enhance Anadromous Fish Populations and Habitat in Salmon Creek	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$371,425	\$474,922	\$1,961,653	Fundable (Qualified)	612
199604300	Johnson Creek Artificial Propagation Enhancement Project	Nez Perce Tribe	Mountain Snake	Salmon	\$1,275,001	\$1,330,000	\$1,287,999	Fundable in part	554
199604601	Walla Walla River Basin Fish Habitat Enhancement	Pacific Northwest Electric Power	Columbia Plateau	Walla Walla	\$321,373	\$337,443	\$354,315	Response requested	414
199606700	Manchester Spring Chinook Captive Broodstock Project	National Oceanic & Atmospheric Administration (NOAA)	Multiprovince	Multiprovince	\$795,407	\$636,326	\$572,694	Fundable (Qualified)	52
199607000	Mckenzie Focus Watershed	McKenzie Watershed Alliance	Lower Columbia	Willamette	\$162,070	\$169,121	\$176,474	Fundable	303
199607702	Protect & Restore Lolo Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$675,877	\$693,099	\$634,355	Response requested	527
199607703	Protect & Restore Waw'aalamnime to	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$367,843	\$367,843	\$367,844	Response requested	528

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	Imnamatnoon Creek Analysis Area								
199607705	Restore McComas Meadows/ Meadow Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$700,463	\$660,022	\$732,452	Response requested	529
199608000	NE Oregon Wildlife Project (NPT) Precious Lands	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$431,426	\$492,872	\$499,203	Fundable	480
199608300	CTUIR Grande Ronde Subbasin Restoration Project	Confederated Tribes of the Umatilla Indian Reservation	Blue Mountain	Grande Ronde	\$190,000	\$200,000	\$200,000	Response requested	487
199608600	Clearwater Focus Program, Idaho SCC	Idaho Soil Conservation Commission	Mountain Snake	Clearwater	\$107,136	\$107,136	\$107,136	Admin (see comments)	511
199608701	Montana Focus Watershed Coordi	Salish & Kootenai Confederated Tribes	Mountain Columbia	Flathead	\$95,650	\$101,460	\$106,450	Admin (see comments)	692
199609401	Scotch Creek Wildlife Area	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Okanogan	\$407,693	\$385,890	\$426,739	Fundable	608
199700100	Idaho Chinook Salmon Captive Rearing	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$594,773	\$612,747	\$631,665	Response requested	548
199700400	Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams	Kalispel Tribe	Intermountain	None Selected	\$622,049	\$692,120	\$663,233	Fundable	647
199701100	Shoshone-Paiute Habitat Enhancement	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$309,587	\$315,926	\$323,149	Fundable (Qualified)	674
199701325	Yakima/Klickitat Fisheries Project Operations and Maintenance	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$2,823,155	\$2,865,761	\$2,999,028	Fundable (Qualified)	433
199701335	Klickitat Fishery YKFP O & M	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$0	\$0	\$250,000	Response requested	333
199701501	Imnaha River Smolt to Adult Return Rate and Smolt Monitoring Project	Nez Perce Tribe	Blue Mountain	Imnaha	\$324,987	\$340,062	\$355,135	Response requested	493
199701900	Evaluate the Life History of Native Salmonids in the Malheur Subbasin	Burns Paiute Tribe	Middle Snake	Malheur	\$352,558	\$312,261	\$257,719	Response requested	670
199702400	Avian Predation on Juvenile Salmonids in the Lower Columbia River	Oregon State University	Mainstem/ Systemwide	Systemwide	\$700,000	\$860,000	\$900,000	Fundable (Qualified)	154
199703000	Chinook Salmon Adult Abundance Monitoring [Formerly - Listed Stock	Nez Perce Tribe	Mountain Snake	Salmon	\$305,071	\$314,076	\$323,350	Response requested	558

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	Adult Escapement]								
199703800	Listed Stock Chinook Salmon Gamete Preservation	Nez Perce Tribe	Multiprovince	Multiprovince	\$339,525	\$354,522	\$362,233	Fundable (Qualified)	53
199705100	Yakima Basin Side Channels	Yakama Nation -YKFP	Columbia Plateau	Yakima	\$1,050,000	\$1,050,000	\$1,050,000	Fundable	440
199705600	Klickitat Watershed Enhancement	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$559,671	\$1,076,040	\$1,067,747	Response requested	336
199706000	Focus Watershed Coordinator - Nez Perce Tribe	Nez Perce Tribe	Multiprovince	Multiprovince	\$411,315	\$431,469	\$459,510	Admin (see comments)	497
199800200	Snake River Native Salmonid Assessment	Idaho Department of Fish & Game	Middle Snake	Snake Upper Middle	\$341,520	\$351,766	\$362,320	Fundable	677
199800300	Spokane Tribe Wildlife Mitigation Operations & Maintenance	Spokane Tribe	Intermountain	Spokane	\$287,588	\$295,522	\$303,710	Response requested	661
199800401	Columbia Basin Bulletin	Intermountain Communications	Mainstem/ Systemwide	Systemwide	\$150,000	\$150,000	\$150,000	Fundable (Qualified)	212
199800702	Grand Ronde Supplementation - Lostine O&M/M&E	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Blue Mountain	Grande Ronde	\$622,578	\$640,219	\$657,320	Response requested	475
199800703	Grande Ronde Supplementation Operations and Maintenance	Confederated Tribes of the Umatilla Indian Reservation	Blue Mountain	Grande Ronde	\$766,699	\$637,577	\$676,840	Response requested	476
199800704	Grande Ronde Basin Endemic Spring Chinook Supplementation Project: Northeast Oregon hatcheries implementation- ODFW	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$222,041	\$232,878	\$244,321	Response requested	477
199801001	Grande Ronde Captive Brood O&M	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$829,250	\$867,556	\$907,684	Response requested	464
199801003	Spawning distribution of Snake River fall Chinook salmon	US Fish & Wildlife Service (USFWS)	Blue Mountain	Snake Hells Canyon	\$52,000	\$52,000	\$52,000	Fundable (Qualified)	496
199801004	Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Fall Chinook Acclimation Facilities	Nez Perce Tribe	Blue Mountain	Snake Hells Canyon	\$371,780	\$365,467	\$373,361	Response requested	495

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199801005	Pittsburg Landing Fall Chinook Acclimation Project (FCAP)	Nez Perce Tribe	Blue Mountain	Snake Hells Canyon	\$760,629	\$786,486	\$809,565	Response requested	496
199801006	Captive Broodstock Artificial Propagation	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$182,861	\$187,940	\$193,173	Response requested	466
199801400	Ocean Survival Of Salmonids	National Oceanic & Atmospheric Administration (NOAA)	Mainstem/ Systemwide	Systemwide	\$2,499,879	\$2,578,533	\$2,655,894	Fundable (Qualified)	222
199801600	Salmonid Productivity, Escapement, Trend, and Habitat Monitoring in the John Day River Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	John Day	\$997,800	\$1,034,705	\$1,082,220	Fundable (Qualified)	382
199801700	North Fork/Mid-John Day Fish Passage Improvement	Monument & Wheeler SWCDs	Columbia Plateau	John Day	\$516,795	\$498,720	\$313,249	Fundable	365
199801800	John Day Watershed Restoration	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$1,011,616	\$962,383	\$924,329	Response requested	367
199801900	Wind River Watershed Restoration	Underwood Conservation District	Columbia Gorge	Wind	\$767,217	\$775,382	\$849,551	Fundable (Qualified)	339
199802100	Hood River Fish Habitat	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Hood	\$699,852	\$699,825	\$699,799	Response requested	325
199802200	Pine Creek Conservation Area: Wildlife Habitat and Watershed Management on 33,557-acres to benefit grassland, shrub-steppe, riparian, and aquatic species	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$278,836	\$309,615	\$409,792	Fundable	363
199802800	Trout Creek Watershed Restoration Project	Jefferson County Soil & Water Conservation District (SWCD)	Columbia Plateau	Deschutes	\$263,287	\$281,870	\$295,428	Response requested	355
199803100	Implement Wy-Kan-Ush-Mi Wa-Kish-Wit	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/ Systemwide	Systemwide	\$234,205	\$234,205	\$234,205	Response requested	219
199900301	Evaluate Spawning of Fall Chinook and Chum Salmon Just Below the Four Lowermost Mainstem Dams	Oregon Department of Fish & Wildlife (ODFW)	Mainstem/ Systemwide	Systemwide	\$1,183,925	\$1,216,893	\$1,263,378	Fundable	82
199901000	Pine Hollow/Jackknife Habitat	Sherman County Soil & Water Conservation	Columbia Plateau	John Day	\$23,609	\$23,609	\$23,609	Fundable	368

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		District (SWCD)							
199901500	Big Canyon Fish Habitat	Nez Perce Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$376,943	\$370,826	\$369,583	Response requested	512
199901600	Protect & Restore Big Canyon Creek Watershed	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Clearwater	\$455,312	\$478,301	\$507,369	Response requested	513
199901700	Protect & Restore Lapwai Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$738,199	\$760,332	\$797,824	Response requested	514
199901900	Restore Salmon River (Challis, Idaho)	Custer County Soil & Water Conservation District (SWCD)	Mountain Snake	Salmon	\$480,295	\$480,295	\$480,295	Not fundable	562
199902000	Analyze Chinook Salmon Spatial and Temporal Dynamics and Persistence	US Forest Service (USFS) - Rocky Mt Research Station	Mainstem/ Systemwide	Systemwide	\$88,154	\$92,485	\$97,035	Fundable (Qualified)	76
199902500	Sandy River Delta Habitat Restoration	US Forest Service (USFS) - Hood River	Lower Columbia	Sandy	\$188,350	\$133,950	\$2,091,250	Response requested	279
200000100	Anadromous Fish Habitat & Passage	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$186,330	\$187,502	\$190,440	Fundable (Qualified)	614
200000400	Monitor, Protect, and Rehabilitation of Bull Trout and Westslope Cutthroat Trout Habitat in the Upper Kootenay River Subbasin	Ministry of Environment	Mountain Columbia	Kootenai	\$63,000	\$180,000	\$297,000	Response requested	705
200000900	Logan Valley Wildlife Mitigation Site	Burns Paiute Tribe	Middle Snake	Malheur	\$146,840	\$146,840	\$146,840	Response requested	666
200001200	Evaluate Factors Limiting Columbia River Chum Salmon	USFWS-Columbia River Fisheries Program Office	Lower Columbia	Columbia Lower	\$304,626	\$319,879	\$335,131	Fundable	261
200001400	Evaluate Population Dynamics And Habitat Use Of Lampreys In Cedar Creek (Lewis River Subbasin), Washington	USFWS-Columbia River Fisheries Program Office	Lower Columbia	Lewis	\$295,350	\$254,000	\$268,400	Response requested	274
200001500	Oxbow Conservation Area Management	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$264,366	\$211,073	\$341,261	Fundable	369
200001600	Tualatin River NWR Additions	Tualatin River NWR	Lower Columbia	Willamette	\$145,361	\$96,685	\$372,304	Response requested	285
200001700	Recondition Wild Steelhead Kelt	Columbia River Inter-Tribal Fish	Mainstem/ Systemwide	Systemwide	\$945,906	\$953,835	\$985,931	Response requested	63

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		Commission (CRITFC)							
200001900	Tucannon River Spring Chinook Captive Broodstock Program	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Tucannon	\$125,000	\$102,000	\$58,000	Response requested	385
200002100	Securing Wildlife Mitigation Sites - Oregon Ladd Marsh WMA and Grande Ronde Subbasin Wetlands	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$95,551	\$97,650	\$100,691	Response requested	481
200002600	Rainwater Wildlife Area Operations and Maintenance	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$304,926	\$304,926	\$304,926	Fundable	413
200002700	Acquisition Of Malheur River Wildlife Mitigation Project	Burns Paiute Tribe	Middle Snake	Malheur	\$324,607	\$324,607	\$324,607	Response requested	667
200002800	Evaluate Pacific Lamprey In Clearwater	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$140,365	\$137,932	\$144,829	Fundable in part	505
200003100	North Fork John Day Basin Anadromous Fish Habitat Enhancement Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	John Day	\$269,609	\$283,090	\$297,244	Fundable	372
200003300	Walla Walla River Fish Passage Operations	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$122,983	\$129,132	\$135,588	Fundable (Qualified)	417
200003500	Rehabilitate Newsome Creek	Nez Perce Tribe	Mountain Snake	Clearwater	\$766,830	\$657,029	\$463,784	Response requested	530
200003600	Protect & Restore Mill Creek	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$245,076	\$231,573	\$112,707	Response requested	532
200003800	NEOH Walla Walla Hatchery - Three Step Master Planning Process	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$268,675	\$225,375	\$254,950	Not fundable	412
200003900	Walla Walla Subbasin Collaborative Salmonid Monitoring & Evaluation Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$1,417,375	\$1,377,482	\$1,421,356	Response requested	422
200100300	Adult Pit Detector Installation	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$245,491	\$184,235	\$134,742	Response requested	114
200102100	15 Mile Creek Riparian Buffers	Wasco County Soil & Water Conservation District (SWCD)	Columbia Gorge	Fifteenmile	\$86,168	\$88,500	\$91,887	Response requested	315
200102600	Status, Genetics, and Life	US Geological Survey	Columbia	Columbia	\$258,294	\$259,033	\$252,916	Not fundable	308

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	History of Coastal Cutthroat Trout above Bonneville Dam	(USGS) - Cook	Gorge	Gorge					
200102700	Western Pond Turtle Recovery - Columbia River Gorge - Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Columbia Gorge	\$194,387	\$175,260	\$175,260	Response requested	306
200102800	Banks Lake Fishery Evaluation Project	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$482,076	\$609,631	\$471,756	Not fundable	342
200102900	Ford Hatchery Operations & Maintenance	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$121,190	\$127,254	\$133,623	Fundable in part	640
200103100	Intermountain Province Resident Fish Conference and E-Library	Lake Roosevelt Forum	Intermountain	Columbia Upper	\$25,000	\$45,000	\$45,000	Fundable	646
200103200	Coeur D'Alene Fisheries Enhancement, Hangman Creek	Coeur D'Alene Tribe	Intermountain	Spokane	\$542,020	\$607,168	\$671,139	Response requested	661
200103300	Hangman Restoration Project	Coeur D'Alene Tribe	Intermountain	Spokane	\$1,359,863	\$1,500,050	\$1,507,841	Response requested	661
200104101	Forrest Conservation Area Management	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$318,783	\$278,947	\$200,597	Fundable	372
200105300	Reintroduction of Chum Salmon into Duncan Creek	Pacific States Marine Fisheries Commission (PSMFC)	Lower Columbia	Columbia Lower	\$326,113	\$350,266	\$375,029	Fundable	257
200200200	Restore Natural Recruitment of Kootenai River White Sturgeon	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$3,452,000	\$3,642,000	\$3,593,000	Fundable in part	700
200200300	Secure & Restore Resident Fish Habitat	Salish & Kootenai Confederated Tribes	Mountain Columbia	Flathead	\$5,265,000	\$5,905,000	\$5,911,000	Response requested	693
200200800	Reconnect Kootenai River with the historic floodplain	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$241,500	\$512,000	\$551,500	Fundable in part	706
200201100	Kootenai Floodplain Operational Loss Assessment	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$774,699	\$785,361	\$801,901	Fundable	694
200201301	Water Entity (RPA 151) NWPCC	National Fish & Wildlife Foundation	Mainstem/Systemwide	Systemwide	\$5,000,000	\$5,000,000	\$5,000,000	Fundable (Qualified)	165
200201400	Sunnyside Wildlife Mitigation	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$375,540	\$363,884	\$316,590	Response requested	436
200201500	Provide Coordination and	Sherman County Soil &	Columbia	John Day	\$112,352	\$116,360	\$118,799	Response	374

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	Technical Assistance to Watershed Councils and Individuals in Sherman County, Oregon	Water Conservation District (SWCD)	Plateau					requested	
200201600	Evaluate the Status of Pacific Lamprey in the Lower Deschutes River Subbasin, Oregon	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	Deschutes	\$167,016	\$157,686	\$161,351	Response requested	349
200201800	Tapteal Greenway Riparian Corridor Enhancement, Protection and Education Outreach--Phase II (Tapteal Bend and Horn Rapids)	Sunday & Associates, Inc for NPO Tapteal Greenway Association	Columbia Plateau	Yakima	\$300,813	\$43,785	\$43,785	Fundable (Qualified)	441
200201900	Wasco Riparian Buffers	Wasco County Soil & Water Conservation District (SWCD)	Columbia Plateau	Deschutes	\$85,582	\$87,782	\$91,032	Response requested	357
200202501	Yakima Tributary Access & Habitat Program	South Central Washington Resource Conservation and Development	Columbia Plateau	Yakima	\$1,008,500	\$1,054,300	\$1,105,000	Response requested	442
200202600	Morrow County Riparian Buffers Umatilla County Riparian Buffers	Morrow County Soil & Water Conservation District (SWCD)	Columbia Plateau	Umatilla	\$176,471	\$175,097	\$178,516	Response requested	405
200202700	Forecasting Hydrosystem Operations to Benefit Anadromous Fish Migration	US Department of Energy (DOE)	Mainstem/ Systemwide	Systemwide	\$446,547	\$451,931	\$454,888	Fundable	120
200203000	Develop Progeny Marker for Salmonids to Evaluate Supplementation	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$304,726	\$319,563	\$335,711	Fundable	55
200203100	Growth modulation in salmon supplementation	National Oceanic & Atmospheric Administration (NOAA)	Columbia Plateau	Yakima	\$355,378	\$373,601	\$392,693	Fundable (Qualified)	56
200203200	Snake River fall Chinook salmon life history investigations	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$4,416,192	\$3,991,426	\$4,094,349	Fundable	79
200203400	Wheeler Co Riparian Buffers	Wheeler County Soil & Water Conservation District (SWCD)	Columbia Plateau	John Day	\$89,780	\$94,769	\$94,094	Response requested	376
200203500	Gilliam Co Riparian Buffers	Gilliam Soil & Water Conservation District	Columbia Plateau	John Day	\$80,221	\$84,806	\$91,839	Response requested	378
200203600	Restore Walla Walla River	Walla Walla Basin	Columbia	Walla Walla	\$469,458	\$469,458	\$469,458	Response	417

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	Flow	Watershed Council	Plateau					requested	
200203700	Freshwater Mussel Research and Restoration Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$294,953	\$293,713	\$352,316	Fundable (Qualified)	149
200204500	Coeur D'Alene Fish Habitat Acquisition	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$1,018,210	\$1,021,167	\$1,024,283	Response requested	634
200205000	Continued Riparian Buffer Projects on Couse/Tenmile and other Salmonid Bearing Streams in Asotin County	Asotin County Conservation District (ACCD)	Blue Mountain	Asotin	\$240,000	\$240,000	\$240,000	Response requested	459
200205300	Assess Salmonids Asotin Creek Watershed	Washington Department of Fish and Wildlife (WDFW)	Blue Mountain	Asotin	\$320,516	\$213,711	\$221,572	Fundable	462
200205400	Protect & Restore Asotin Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Blue Mountain	Asotin	\$392,575	\$399,703	\$376,783	Response requested	460
200205900	Yankee Fork Salmon River Dredge Tailings Restoration Project	Shoshone Bannock Tribes	Mountain Snake	Salmon	\$1,182,328	\$1,943,014	\$1,305,292	Not fundable	563
200206000	Nez Perce Harvest Monitoring	Nez Perce Tribe	Multiprovince	Multiprovince	\$336,447	\$346,538	\$356,934	Response requested	109
200206100	Restore Potlatch R Watershed	Latah County Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$482,106	\$476,576	\$485,376	Fundable	517
200207000	Lapwai Cr Anadromous Habitat	Nez Perce Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$485,610	\$483,672	\$453,104	Response requested	518
200207200	Protect & Restore Red River Watershed	Nez Perce Tribe	Mountain Snake	Clearwater	\$592,236	\$633,002	\$550,207	Response requested	533
200207400	Protect & Restore Crooked Fork to Colt Killed Analysis Area	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$484,395	\$484,395	\$484,395	Fundable	535
200300100	Manastash Creek Passage & Screening	Kittitas County Conservation District	Columbia Plateau	Yakima	\$1,181,220	\$492,290	\$445,190	Response requested	442
200300600	Effectiveness Monitoring of Estuary Restoration in the Grays River and Chinook River Watersheds	Columbia River Estuary Study Taskforce (CREST)	Columbia Estuary	Columbia Estuary	\$163,946	\$163,946	\$163,946	Response requested	244
200300700	Lower Columbia River and Estuary Ecosystem Monitoring	Lower Columbia River Estuary Partnership (LCREP)	Columbia Estuary	Columbia Estuary	\$1,557,223	\$2,277,718	\$1,734,127	Response requested	246
200300900	Canada-USA Shelf Salmon Survival Study	Canada Department Of Fisheries & Oceans	Mainstem/ Systemwide	Systemwide	\$604,400	\$598,900	\$604,400	Fundable in part	227

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200301000	Historic Habitat Opportunities and Food-Web Linkages of Juvenile Salmon in the Columbia River Estuary and Their Implications for Managing River Flows and Restoring Estuarine Habitat	National Oceanic & Atmospheric Administration (NOAA)	Columbia Estuary	Grays	\$769,214	\$750,067	\$756,971	Fundable (Qualified)	236
200301100	Columbia R/Estuary Habitat	Lower Columbia River Estuary Partnership (LCREP)	Columbia Estuary	Columbia Estuary	\$1,532,265	\$2,077,056	\$2,028,879	Response requested	240
200301200	Shillapoo Wildlife Area	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$262,023	\$291,239	\$280,776	Fundable	258
200301300	Grays River Watershed Restoration	Columbia River Estuary Study Taskforce (CREST)	Columbia Estuary	Grays	\$589,092	\$537,621	\$175,054	Fundable	256
200301700	Integrated Status and Effectiveness Monitoring Program (ISEMP): The design and evaluation of monitoring tools for salmon populations and habitat in the Interior Columbia River Basin	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$3,950,858	\$4,520,935	\$4,749,337	Fundable (Qualified)	187
200302200	Okanogan Basin Monitoring and Evaluation Project (OBMEP)	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$870,710	\$897,898	\$924,641	Fundable	611
200302300	Chief Joseph Hatchery Program	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$2,752,798	\$16,811,650	\$11,748,946	Response requested	605
200302900	Assess the feasibility of the Upper Malheur Watershed to support the reintroduction of anadromous Fish populations above the Beulah and Warm Springs Reservoirs	Burns Paiute Tribe	Middle Snake	Malheur	\$91,384	\$91,385	\$0	Not fundable	671
200303600	CBFWA Collaborative Systemwide Monitoring and Evaluation Program	Columbia Basin Fish & Wildlife Authority (CBFWA)	Mainstem/ Systemwide	Systemwide	\$1,024,245	\$1,024,245	\$1,024,245	Fundable (Qualified)	188
200303800	Evaluate Restoration Potential of Snake River	Pacific Northwest National Laboratory	Mainstem/ Systemwide	Systemwide	\$289,960	\$378,972	\$311,739	Fundable	81

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	Fall Chinook Salmon Spawning Habitat								
200303900	Monitor Reproduction In Wenatchee/Tucannon/Kalispel	WDFW and NOAA	Columbia Cascade	Wenatchee	\$572,670	\$582,399	\$592,537	Fundable	616
200304100	Evaluate Delayed (Extra) Mortality Associated with Passage of Yearling Chinook Salmon through Snake River Dams	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$1,328,500	\$1,346,306	\$1,364,645	Response requested	119
200305000	Evaluation Of Reproduction Of Steelhead	University of Washington	Mainstem/Systemwide	Systemwide	\$320,447	\$259,894	\$259,978	Fundable	64
200305400	Reproduction Of Steelhead In Hood River	Oregon State University	Mainstem/Systemwide	Systemwide	\$339,575	\$353,157	\$371,558	Response requested	65
200306000	Evaluating relative reproductive success of wild and hatchery origin Snake River fall Chinook spawners upstream of Lower Granite Dam	Washington Department of Fish and Wildlife (WDFW)	Mainstem/Systemwide	Systemwide	\$0	\$0	\$0	Fundable (Qualified)	57
200306200	Evaluate the Relative Reproductive Success of Reconditioned Kelt Steelhead	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$612,083	\$645,912	\$672,115	Response requested	67
200306500	Klickitat River Cooperative Evaluation Program (Formerly Bull Trout Presence, Origin, and Movements In Bonneville Reservoir)	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Klickitat	\$305,000	\$320,249	\$336,261	Not fundable	335
200307200	Habitat and Biodiversity Information System For Columbia River Basin	Northwest Habitat Institute	Mainstem/Systemwide	Systemwide	\$997,107	\$1,068,287	\$1,030,199	Fundable	210
200311400	Acoustic Tracking For Survival	Kintama Research	Mainstem/Systemwide	Systemwide	\$1,499,816	\$1,499,816	\$1,499,816	Response requested	230
200400200	PNAMP Funding	US Geological Survey (USGS) - Cook	Mainstem/Systemwide	Systemwide	\$50,000	\$50,000	\$50,000	Fundable	221
200500100	Pilot Study for Research, Monitoring, and Evaluation of Subyearling Salmon in Tidal Freshwater of the Columbia River	Pacific Northwest National Laboratory	Lower Columbia	Columbia Lower	\$737,298	\$705,440	\$735,950	Not fundable	264

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200500200	Operation of the Lower Granite Dam Adult Trap	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$283,220	\$291,717	\$300,469	Fundable	120
200600100	Mcintyre Dam Feasibility Study	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$1,565,050	\$428,385	\$72,360	Fundable	610
200600300	Desert Wildlife Area O&M (Wetland Enhancement)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$320,138	\$365,205	\$222,705	Response requested	344
200600400	Wenas Wildlife Area O&M	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$482,857	\$529,755	\$533,300	Response requested	437
200600500	Asotin Creek Wildlife Area O&M (Schlee Acquisitions)	Washington Department of Fish and Wildlife (WDFW)	Blue Mountain	Asotin	\$150,532	\$106,147	\$109,049	Fundable	456
200600600	Habitat Evaluation Procedures (HEP)	Columbia Basin Fish & Wildlife Authority (CBFWA)	Multiprovince	Multiprovince	\$341,828	\$348,308	\$364,036	Fundable in part	190
200600800	Evaluation of the Biological Effects of the Northwest Power and Conservation Council's Mainstem Amendment on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams, Montana	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	Flathead	\$396,500	\$396,500	\$336,500	Fundable	690
200700100	Aquatic survey protocol comparison	US Forest Service - National Headquarters	Mainstem/Systemwide	Systemwide	\$450,000	\$450,000	\$450,000	Not fundable	191
200700300	Dworshak Dam Resident Fish Mitigation	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$405,100	\$1,300,600	\$257,100	Response requested	523
200700700	Determine Status and Limiting Factors of Pacific Lamprey in Fifteenmile Subbasin, Oregon	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Fifteenmile	\$136,798	\$122,850	\$125,548	Not fundable	312
200700900	Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids (Oncorhynchus spp.) in the Columbia River Basin	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$102,930	\$52,930	\$29,273	Not fundable	155
200701300	Convert BPA Term	John Day Basin Trust	Columbia	John Day	\$433,690	\$427,811	\$433,145	Response	380

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	Riparian Lease Agreements to Permanent Riparian Conservation Easements		Plateau					requested	
200701400	Stock specific run timing and upstream migration mortality of adult Chinook and sockeye salmon and steelhead through PIT tagging and genetic analyses at Bonneville Dam	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$318,986	\$314,300	\$334,609	Fundable (Qualified)	83
200701700	Lower Columbia Slough Off-Channel and Floodplain Habitat Restoration Project - Phase Two	Columbia Slough Watershed Council	Lower Columbia	Willamette	\$97,000	\$36,000	\$20,000	Fundable	292
200701800	Stock Assessment for salmon, steelhead, and other fish species in Lower Crab Creek, WA	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$269,000	\$259,000	\$254,000	Fundable (Qualified)	346
200702000	Manastash Instream Flow Enhancement	Kittitas County Conservation District	Columbia Plateau	Yakima	\$529,950	\$666,195	\$496,750	Response requested	443
200702200	Characterizing stress responses in lampreys: assessments based on cDNA microarrays	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$191,116	\$226,225	\$225,658	Not fundable	141
200702300	Integrated Fruit Production in Fifteenmile and Hood River Subbasin Orchards	Wyeast Resource Conservation & Development Area Council	Columbia Gorge	Hood	\$141,860	\$141,860	\$141,290	Fundable (Qualified)	327
200702400	Coeur d'Alene Trout Ponds	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$201,345	\$236,007	\$220,998	Response requested	631
200702500	Project Compliance Monitoring	XLSolutions	Mainstem/Systemwide	Systemwide	\$459,790	\$459,790	\$403,883	Not fundable	191
200702600	Historic Changes in Organic Nutrient Sources and Productivity Proxies in the Columbia River Estuary in Relation to Juvenile Salmon Habitat Restoration Priorities	Pacific Northwest National Laboratory	Columbia Estuary	Columbia Estuary	\$100,177	\$95,896	\$103,205	Not fundable	238
200702700	Colville Confederated Tribes Acquisition Project	Colville Confederated Tribes	Intermountain	Columbia Upper	\$1,500,000	\$1,500,000	\$1,500,000	Fundable	641
200702800	Pend Oreille River Basin	Kalispel Tribe	Intermountain	Pend Oreille	\$336,890	\$285,550	\$292,265	Not fundable	654

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	Watershed Protection and Enhancement Project								
200703000	Determination of steelhead smolt production and smoltification genes in the Yakima River	Columbia River Inter-Tribal Fish Commission (CRITFC)	Columbia Plateau	Yakima	\$172,950	\$219,400	\$201,720	Not fundable	434
200703100	Identifying prioritized action plans from subbasin strategies using a scenario-based decision support system	Northwest Fisheries Science Center	Lower Columbia	Columbia Lower	\$226,116	\$296,840	\$234,464	Fundable (Qualified)	259
200703200	Potential effects of the invasive New Zealand mudsnail in tributaries of Bonneville Reservoir and the Deschutes River, (Potamopyrgus antipodarum)	US Geological Survey (USGS) - Cook	Columbia Gorge	Columbia Gorge	\$27,500	\$27,500	\$25,000	Response requested	307
200703300	Monitor sub adult and adult bull trout passage through Lower Granite, Little Goose and Lower Monumental juvenile bypass facilities	US Fish & Wildlife Service (USFWS)	Mainstem/Systemwide	Systemwide	\$141,912	\$113,729	\$120,090	Response requested	161
200703400	Columbia Cascade Pump Screen Correction	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$316,666	\$300,416	\$309,428	Response requested	575
200703500	UPA Project - Methow Basin Riparian Enhancement	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$252,464	\$197,243	\$158,932	Fundable in part	592
200703600	Mid-Columbia Trophic Dynamics Project	Washington Department of Fish and Wildlife (WDFW)	Multiprovince	Multiprovince	\$633,000	\$533,000	\$533,000	Not fundable	167
200703700	North Fork Toutle River Fish Passage	Steward and Associates	Lower Columbia	Cowlitz	\$98,910	\$89,670	\$121,270	Fundable	271
200703800	Preserving/Enhancing Bull Trout and Westslope Cutthroat Trout within the Upper Pend Oreille Basin	Idaho Department of Fish & Game	Intermountain	Pend Oreille	\$373,233	\$356,401	\$330,308	Response requested	653
200704000	Upper Columbia Landowner Incentive Program	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$450,227	\$450,227	\$450,227	Response requested	645
200704100	Kalispell Riparian Road	Washington	Intermountain	Pend Oreille	\$73,117	\$159,093	\$20,781	Response	655

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	Removal	Department of Fish and Wildlife (WDFW)						requested	
200704200	UPA Wenatchee Passage Program	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$60,131	\$501,187	\$25,931	Fundable in part	618
200704300	Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program	Lower Columbia Fish Enhancement Group	Lower Columbia	None Selected	\$150,000	\$150,000	\$150,000	Not fundable	276
200704400	Kettle River Tributaries Riparian Habitat Improvement Project	Ferry Conservation District	Intermountain	Columbia Upper	\$52,617	\$32,817	\$15,817	Not fundable	647
200704500	Beebe Property Upland, Riparian, and Wetland Enhancements	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$739,765	\$120,432	\$58,488	Response requested	577
200704600	Steelhead Spawning Ground Surveys, Flow, and Temperature Monitoring of Small Tributaries of the Upper Middle Mainstem Columbia River	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$60,350	\$56,699	\$57,776	Fundable	574
200704700	Hydrography Spatial Data Enhancement Project - WDFW & WDNR Operational Data Updates and Integration to the PNW Hydrography Clearinghouse for the WA Columbia Basin	Interagency Committee (IAC)	Mainstem/Systemwide	Systemwide	\$606,879	\$477,786	\$261,511	Not fundable	211
200704800	Transboundary Watershed Coordination in the Kootenai River Basin	Kootenai River Network, Inc.	Mountain Columbia	Columbia Upper	\$300,000	\$300,000	\$300,000	Admin (see comments)	686
200704900	Efficacy of carcass analogs for restoring the productivity of nutrient limited salmonid streams	Columbia River Research Laboratory	Columbia Gorge	Wind	\$442,707	\$476,635	\$501,996	Fundable	170
200705100	Assessment of Interactions between Hatchery and Wild Summer Steelhead in the John Day River Subbasin	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$265,615	\$219,285	\$223,802	Response requested	69
200705200	Chum Salmon Evaluations Within Bonneville Reservoir	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Columbia Gorge	\$246,972	\$259,320	\$272,286	Not fundable	306

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200705300	Upper Lolo Creek Watershed Restoration	US Forest Service: Lolo National Forest	Mountain Columbia	Bitterroot	\$447,453	\$184,553	\$142,953	Response requested	683
200705400	Entiat River - UPA - Stillwater Restoration Project	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$267,544	\$32,320	\$9,459	Response requested	585
200705500	Entiat River - UPA - Lower Entiat River Off-Channel Restoration Project	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$54,580	\$5,388	\$0	Response requested	586
200705600	IDL Pend Oreille Area Fish Passage #2	Idaho Department of Lands	Intermountain	Pend Oreille	\$0	\$250,000	\$100,000	Response requested	655
200705700	Potlatch River Basin Conservation Easement	Potlatch Corporation	Mountain Snake	Clearwater	\$4,008,000	\$0	\$0	Not fundable	524
200705900	Abiotic and Biotic Factors Affecting the Success of Reintroductions of Anadromous Salmonids in Cle Elum Lake, Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$373,544	\$367,132	\$364,075	Not fundable	426
200706000	Lake Pend Oreille Invasive Fish	Idaho Department of Fish & Game	Intermountain	Pend Oreille	\$182,400	\$190,529	\$199,035	Not fundable	652
200706100	Deschutes Sub-basin Riparian Restoration through USDA Conservation Reserve Enhancement Program (CREP)	Wyeast Resource Conservation & Development Area Council	Columbia Plateau	Deschutes	\$103,557	\$99,257	\$99,257	Response requested	359
200706300	Use of drift nets to monitor production and limiting factors in recruitment of larval Pacific lamprey	Oregon State University	Mainstem/Systemwide	Systemwide	\$122,284	\$124,379	\$126,713	Fundable in part	145
200706400	Protect & Restore Slate Creek	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Salmon	\$223,768	\$330,044	\$399,440	Response requested	564
200706500	Coordinate and implement tributary habitat restoration in the Little Salmon River and lower Salmon River Idaho	Idaho Soil and Water Conservation District	Mountain Snake	Salmon	\$409,363	\$407,362	\$423,362	Response requested	565
200706700	Lawyer Creek Idaho A-Run Steelhead Spawning and Rearing Restoration and Enhancement	Lewis Soil Conservation District	Mountain Snake	Clearwater	\$220,692	\$220,692	\$220,692	Response requested	525

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200706900	Determine status of migratory bull trout in the South Fork Payette River	Idaho Department of Fish & Game	Middle Snake	Payette	\$137,197	\$108,061	\$107,955	Not fundable	676
200707000	Fish Passage Facility Final Design and Construction - Clear Lake Dam (NF Tieton R.)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$0	\$0	\$1,930,000	Response requested	444
200707200	Flathead Subbasin Flowering Rush and Yellowflag Iris Project	Salish Kootenai College/University of Montana	Mountain Columbia	Flathead	\$332,640	\$291,358	\$291,360	Not fundable	694
200707300	Dynamics of Gravel Spawning Beds in Lake Pend Oreille, ID	Woods Hole Oceanographic Institution	Intermountain	Pend Oreille	\$235,068	\$361,079	\$290,357	Not fundable	652
200707700	Hemlock Dam Removal	Gifford Pinchot National Forest	Columbia Gorge	Wind	\$345,000	\$2,351,000	\$56,000	Fundable (Qualified)	338
200707800	Characterizing the Geographic Distribution of Freshwater Mussels in the Columbia Basin Using Museum Collection Data	Washington Department of Fish and Wildlife (WDFW)	Mainstem/ Systemwide	Systemwide	\$30,500	\$8,200	\$0	Response requested	150
200707900	Salmon & Steelhead Habitat Restoration and Protection in the Yakima Basin	Mid-Columbia Fisheries Enhancement Group	Columbia Plateau	Yakima	\$78,000	\$184,400	\$185,100	Not fundable	446
200708100	WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Coweeman River	Lower Columbia Fish Enhancement Group	Lower Columbia	Cowlitz	\$161,000	\$14,000	\$0	Not fundable	272
200708300	Grande Ronde Cooperative Salmonid Monitoring and Evaluation Project	Confederated Tribes of the Umatilla Indian Reservation	Blue Mountain	Grande Ronde	\$455,000	\$477,750	\$501,642	Fundable (Qualified)	479
200708400	Shrubsteppe Habitat Acquisition for Terrestrial Species in Need of Conservation in the Upper Mid-Columbia Subbasin	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$44,400	\$1,776,700	\$42,400	Fundable	571
200708500	UPA Nason Creek Oxbow Reconnection Project	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$1,212,692	\$10,000	\$0	Fundable (Qualified)	619
200708600	UPA Wenatchee Subbasin Riparian Enhancement Proposal	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$99,898	\$96,648	\$96,646	Fundable in part	620
200708900	Monitoring Invasive	US Geological Survey	Mainstem/	Systemwide	\$350,902	\$403,695	\$221,763	Response	155

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	Species in the mainstem Columbia River: the development of a design to monitor the status and trends and provide for the early detection of invasive species	(USGS) - Cook	Systemwide					requested	
200709000	Effects of the marine environment on the growth and survival of Columbia Basin spring Chinook and sockeye salmon stocks	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$70,319	\$58,694	\$9,124	Not fundable	235
200709100	The evaluation of limiting factors on resident and anadromous salmonids in Lake Wenatchee, Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Wenatchee	\$489,210	\$433,814	\$447,380	Response requested	617
200709200	Restore Selway River Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$306,650	\$317,511	\$318,092	Response requested	536
200709300	Restore Middle Fork Clearwater Face Drainages	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$308,484	\$379,436	\$372,786	Response requested	537
200709400	Protect & Restore Clear Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$284,000	\$405,276	\$411,834	Response requested	538
200709600	Wildlife Inventory and Habitat Evaluation of Duck Valley Indian Reservation	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$159,480	\$162,666	\$142,228	Response requested	673
200709700	Restoring connectivity to a floodplain wetland on Multnomah Channel	Ducks Unlimited, Inc.	Lower Columbia	Willamette	\$30,000	\$160,000	\$5,000	Fundable	293
200709900	Gold Creek (Lakeview District) Bull Trout Habitat and Migration Protection	Idaho Department of Environmental Quality	Intermountain	Pend Oreille	\$599,826	\$0	\$0	Response requested	656
200710200	Subbasin Scale Monitoring and Plan Implementation Monitoring for the Yakima Subbasin Plan	Yakima Subbasin Fish and Wildlife Planning Board	Columbia Plateau	Yakima	\$288,500	\$146,500	\$130,000	Not fundable	455
200710300	Skookumchuck Watershed	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$700,000	\$30,198	\$31,426	Fundable (Qualified)	578
200710400	Protect & Restore White Bird Creek	Nez Perce Tribe Dept. Fisheries Resource Management	Mountain Snake	Salmon	\$246,804	\$215,897	\$285,294	Response requested	565

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		Watershed Division							
200710500	Protect & Restore Wallowa River Watershed	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$881,762	\$897,291	\$926,487	Response requested	489
200710600	Spokane Tribe Fish and Wildlife Planning and Coordination	Spokane Tribe	Mainstem/Systemwide	Systemwide	\$93,100	\$93,100	\$93,100	Admin (see comments)	217
200710700	What was old is new again: evaluate the pound net and beach seine as innovative live capture selective harvest gears	Washington Department of Fish and Wildlife (WDFW)	Mainstem/Systemwide	Systemwide	\$365,514	\$405,459	\$406,792	Response requested	102
200710800	Regional Coordination for Upper Columbia United Tribes	Upper Columbia United Tribes	Mainstem/Systemwide	Systemwide	\$69,594	\$73,346	\$80,053	Admin (see comments)	216
200710900	Aquatic Nuisance Species monitoring and outreach program for the Mountain Columbia province (Montana portion) of the Columbia River Basin	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	None Selected	\$51,739	\$43,473	\$43,473	Fundable	707
200711000	Differences in Functional Genes Between Hatchery and Wild Chinook Salmon	University of Idaho - Aquaculture Research Institute	Mainstem/Systemwide	Systemwide	\$472,018	\$611,167	\$506,241	Response requested	59
200711100	Assess impacts of flow augmentation on bull trout in the North Fork and Lower Clearwater Rivers	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$188,269	\$186,264	\$185,210	Not fundable	510
200711200	Teanaway Watershed - Protect critical habitat from development, reduce water temperatures and increase instream flows, restore habitat forming processes in the floodplain	Kittitas Conservation Trust	Columbia Plateau	Yakima	\$828,000	\$724,000	\$492,000	Fundable (Qualified)	446
200711300	Cowiche Restoration and Protection Project (Easement/Fee Simple Acquisition)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$300,000	\$0	\$0	Fundable	447
200711400	Vulcan Mountain Weed Control for Mule Deer and Bighorn Sheep Habitat Improvement	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$35,465	\$33,713	\$33,713	Not fundable	642

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200711600	Lostine River Watershed Restoration	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$1,077,679	\$1,102,253	\$1,132,926	Response requested	492
200711700	Comprehensive Assessment of Coho Salmon Restoration Efforts in the Mid-Columbia and Mid-Snake River Basins	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$59,421	\$65,898	\$71,683	Response requested	54
200711800	Protect & Restore Anadromous Fish Habitat in Little Naches River Watershed	US Forest Service (USFS) - Wenatchee National Forest	Columbia Plateau	Yakima	\$30,000	\$130,000	\$5,155,000	Not fundable	449
200711900	Restore Access to Upper Musselshell Creek	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$125,998	\$132,972	\$124,617	Response requested	538
200712000	Malheur Subbasin Habitat Restoration and Fish Enhancement / Logan Valley Project	Burns Paiute Tribe	Middle Snake	Malheur	\$2,029,209	\$91,206	\$246,181	Not fundable	669
200712200	White Salmon River watershed assessment above and below Condit Dam before anadromous fish reintroduction	Columbia River Research Laboratory	Columbia Gorge	Big White Salmon	\$341,115	\$305,689	\$323,804	Fundable	305
200712400	Okanogan County Irrigation Water Management Improvement Project	Okanogan Soil & Water Conservation District (SWCD)	Columbia Cascade	Methow	\$281,209	\$373,909	\$372,659	Not fundable	594
200712500	Protect & Restore Tucannon River Watershed - Nez Perce Tribe	DFRM Watershed Division	Columbia Plateau	Tucannon	\$174,527	\$204,106	\$216,106	Fundable (Qualified)	390
200712600	Protect & Restore Lower Snake Tributary and Pataha Streams/Watersheds - Nez Perce Tribe	Nez Perce Tribe DFRM Watershed Division	Columbia Plateau	Snake Lower	\$217,823	\$215,022	\$180,102	Response requested	384
200712700	Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Salmon	\$325,000	\$489,200	\$332,800	Fundable	566
200712800	Protect & Restore Little Salmon Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Salmon	\$327,000	\$318,600	\$365,600	Response requested	567
200713100	Screening diversions for conservation of fish populations in the Columbia	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$407,735	\$375,200	\$338,824	Fundable (Qualified)	171

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	River Basin: entrainment losses, prioritization, and the efficacy of alternative technology designs								
200713200	NEOH Monitoring & Evaluation Implementation (Formerly a component of 198805301)	Tribe: Nez Perce Tribe, State: Oregon Department of Fish and Wildlife	Blue Mountain	Grande Ronde	\$1,806,428	\$1,770,842	\$1,892,140	Response requested	471
200713300	Systemwide distribution of genetic variation within and among populations of the white sturgeon (<i>Acipenser transmontanus</i>)	University of California at Davis	Mainstem/ Systemwide	Systemwide	\$303,737	\$247,741	\$245,704	Not fundable	136
200713400	Restore and Protect Crooked River Watershed	Nez Perce Tribe	Mountain Snake	Clearwater	\$525,397	\$453,405	\$300,813	Response requested	539
200713500	Lower Columbia Salmon Recovery Planning: Habitat Restoration Project List Development and Modeling	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	None Selected	\$323,994	\$289,031	\$309,730	Fundable (Qualified)	278
200713600	Beavers as stream restorationists? Determining systemwide status and trends in beaver impoundments in tributary streams, and the relationships between beaver impoundment and salmonids	University of Idaho	Mainstem/ Systemwide	Systemwide	\$106,695	\$105,890	\$85,889	Fundable in part	172
200713700	Open Channels	Friends of the Teton River	Upper Snake	Snake Headwaters	\$150,000	\$150,000	\$0	Response requested	678
200713900	Rock Creek Stabilization and Habitat Rehabilitation	Skamania County	Columbia Gorge	Columbia Gorge	\$143,814	\$489,330	\$190,868	Not fundable	309
200714100	Bull Trout Effective Population Size in Isolated Populations	Columbia River Fisheries Program Office	Blue Mountain	Imnaha	\$302,000	\$238,000	\$253,000	Not fundable	494
200714200	Restore and Protect American River Watershed	Nez Perce Tribe	Mountain Snake	Clearwater	\$335,008	\$348,016	\$341,424	Response requested	540
200714400	Evaluation of water temperature exposure in the Columbia River hydrosystem on reproductive success of	University of Idaho	Mainstem/ Systemwide	Systemwide	\$132,630	\$136,825	\$141,161	Fundable	121

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	adult and juvenile Chinook salmon and steelhead								
200714500	Okanogan Livestock and Water	Okanogan Soil & Water Conservation District (SWCD)	Columbia Cascade	Okanogan	\$63,820	\$54,520	\$34,520	Fundable (Qualified)	613
200714600	Bull Trout Population Status Monitoring in the Snake River Basin of Southeast Washington	Washington Department of Fish and Wildlife (WDFW)	Multiprovince	Multiprovince	\$129,372	\$129,991	\$125,590	Response requested	159
200714700	Willamette Flow Management Project	Nature Conservancy	Lower Columbia	Willamette	\$141,200	\$121,375	\$147,250	Response requested	294
200714800	Monitoring and Models for Restoration and Adaptive Management of White Sturgeon in the Columbia River Basin	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$153,282	\$281,257	\$264,040	Fundable (Qualified)	138
200714900	Pend Oreille Nonnative Fish Suppression Project	Kalispel Tribe	Intermountain	Pend Oreille	\$596,785	\$405,591	\$400,959	Fundable in part	652
200715000	Expand Salmonid Monitoring in Grays River to Meet Monitoring Needs Identified in the Lower Columbia Salmon Recovery and Subbasin Plan and maintain an at risk Chum Salmon Pop. through Supplementation	Washington Department of Fish and Wildlife (WDFW)	Columbia Estuary	Grays	\$305,800	\$191,100	\$200,400	Response requested	255
200715100	Nutrient Enhancement Business Plan	Lower Columbia Fish Enhancement Group	Mainstem/ Systemwide	Systemwide	\$100,000	\$50,000	\$0	Not fundable	175
200715300	Cardwell Hills Wildlife Mitigation and regional Biodiversity Protection Project	David Evans and Associates, Inc.	Lower Columbia	Willamette	\$1,903,141	\$3,916,068	\$2,798,459	Fundable	286
200715400	Douglas County Multi Species Habitat Conservation Plan, Previously referred to as the Foster Creek Habitat Conservation Plan (FCHCP)	Foster Creek Conservation District	Columbia Cascade	Columbia Upper Middle	\$125,000	\$125,000	\$125,000	Not fundable	571
200715500	Develop a Master Plan for a Rearing Facility to Enhance	Columbia River Inter-Tribal Fish	Mainstem/ Systemwide	Systemwide	\$141,687	\$145,040	\$148,491	Not fundable	139

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	Selected Populations of White Sturgeon in the Columbia River Basin	Commission (CRITFC)							
200715600	Rock Creek Fish and Habitat Assessment for the Prioritization of Restoration and Protection	Yakama Confederated Tribes	Columbia Plateau	Columbia Lower Middle	\$291,307	\$254,940	\$287,504	Fundable in part	341
200715700	Bull Trout Status and Abundance Monitoring in the Waters in and Bordering the Warm Springs Reservation, Oregon	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	Deschutes	\$150,330	\$138,374	\$151,519	Response requested	352
200716000	Evaluation of spawning success in Pacific salmon using electromyogram telemetry	Pacific Northwest National Laboratory	Mainstem/ Systemwide	Systemwide	\$199,983	\$205,896	\$212,652	Not fundable	63
200716200	Kalispel Tribe Fish and Wildlife Coordination	Kalispel Tribe	Mainstem/ Systemwide	Systemwide	\$90,000	\$93,100	\$96,200	Admin (see comments)	218
200716400	Determination of Steelhead Production and Productivity Response to Habitat Manipulations in the Upper Potlatch River, Idaho	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$262,126	\$237,926	\$241,767	Fundable in part	518
200716500	Relative abundance, distribution, and population structure of lampreys in the Columbia River Basin	Columbia River Research Laboratory	Mainstem/ Systemwide	Systemwide	\$667,711	\$900,464	\$1,001,775	Fundable in part	143
200716600	Lower Columbia River Coastal Cutthroat Trout Population Response to Habitat Restoration	Columbia River Fisheries Program Office	Columbia Estuary	Columbia Estuary	\$413,500	\$383,000	\$408,500	Response requested	249
200716800	Using otolith microstructure and microchemistry to delineate growth patterns and spatial structure of Snake River Fall Chinook salmon	National Oceanic & Atmospheric Administration (NOAA)	Mainstem/ Systemwide	Systemwide	\$459,527	\$447,564	\$460,992	Fundable	77
200716900	Total Dissolved Gas Effects on Incubating Chum Salmon Below Bonneville Dam	Pacific Northwest National Laboratory	Lower Columbia	Columbia Lower	\$451,147	\$235,341	\$164,912	Fundable (Qualified)	88
200717000	South Fork Snake River	Idaho Department of	Upper Snake	Snake	\$1,105,100	\$1,107,400	\$1,011,700	Fundable	679

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	Yellowstone cutthroat trout recruitment and survival improvement	Fish & Game		Headwaters					
200717100	Malheur River Subbasin Habitat Restoration and Fish Enhancement / Stinkingwater Project	Burns Paiute Tribe	Middle Snake	Malheur	\$3,965,560	\$99,972	\$194,887	Not fundable	668
200717200	UPA Project - MVID West Canal Diversion and Headworks	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$249,900	\$10,900	\$14,950	Fundable (Qualified)	596
200717300	Upper South Fork McKenzie Channel Restoration	US Forest Service (USFS) - Willamette	Lower Columbia	Willamette	\$31,900	\$11,900	\$9,400	Fundable	295
200717500	DNA typing to identify native inland Oncorhynchus mykiss	Washington State University	Mainstem/ Systemwide	Systemwide	\$80,445	\$124,266	\$129,235	Fundable	73
200717600	Freshwater Mussel Watch for Biomonitoring in the Columbia River Basin	Confederated Tribes of the Umatilla Indian Reservation	Mainstem/ Systemwide	Systemwide	\$276,971	\$313,691	\$302,043	Not fundable	151
200717700	Protect wild steelhead populations by minimizing the behavioral differences between hatchery and wild populations	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$285,438	\$309,678	\$318,997	Response requested	68
200717800	Monitoring fine sediment delivery in the Entiat subbasin	US Forest Service (USFS) - Pacific Northwest Research Station	Columbia Cascade	Entiat	\$265,570	\$145,830	\$154,010	Fundable (Qualified)	581
200718000	Evaluating and prioritizing restoration of riparian habitat for improving in-stream conditions for anadromous salmonids in the Columbia River basin	US Forest Service (USFS) - Pacific Northwest Research Station	Mainstem/ Systemwide	Systemwide	\$190,328	\$197,144	\$210,019	Fundable	176
200718100	Lower Lawyer Creek Stream Restoration Project	Flying B Ranch	Mountain Snake	Clearwater	\$782,500	\$782,500	\$22,793	Not fundable	520
200718300	Restoration of Historical Salmonid Habitat in South West Idaho	Southwest Idaho RC&D	Multiprovince	Multiprovince	\$382,000	\$336,000	\$338,000	Not fundable	499
200718600	Middle Fork Willamette River Bull Trout Passage and Habitat Restoration	US Forest Service	Lower Columbia	Willamette	\$365,000	\$50,000	\$50,000	Fundable (Qualified)	296

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200718700	Use of Mainstem Habitats by Juvenile Pacific Lamprey (<i>Lampetra tridentata</i>)	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$144,910	\$166,255	\$100,033	Fundable	144
200718800	Lower Willamette River Fish Passage and Floodplain Reconnection at Oaks Bottom Wildlife Refuge	City of Portland	Lower Columbia	Willamette	\$390,000	\$765,000	\$45,000	Response requested	298
200719000	Icicle Creek Ecological Recovery and Fish Population Monitoring	Washington Trout	Columbia Cascade	Wenatchee	\$213,500	\$170,786	\$170,786	Response requested	622
200719300	Evaluate potential to enhance spawning of summer/fall chinook salmon in the tailrace of Chief Joseph Dam, Columbia River, WA	Colville Confederated Tribes	Columbia Cascade	Columbia Upper Middle	\$284,377	\$234,762	\$275,258	Fundable	572
200719400	Oak Flats Acquisition and Habitat Enhancement	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$620,800	\$23,500	\$7,770	Response requested	449
200719700	Evaluating the sublethal impacts of current use pesticides on the environmental health of salmonids in the Columbia River Basin	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$336,400	\$354,000	\$366,000	Response requested	178
200719800	Next Steps in Subbasin Planning: Umatilla Pilot Project	Confederated Tribes of the Umatilla Indian Reservation	Mainstem/Systemwide	Systemwide	\$382,432	\$420,675	\$462,742	Not fundable	192
200720000	Idaho Subbasin Planning and Comprehensive Wildlife Conservation Strategy (CWCS) Data Distribution System	Idaho Department of Fish & Game	Mainstem/Systemwide	Systemwide	\$139,489	\$146,464	\$153,787	Fundable	212
200721000	Mores Creek Watershed Floodplain and Habitat Restoration: Design and Implementation	West Central Highlands Resource Conservation and Development Council	Middle Snake	Boise	\$1,042,400	\$830,800	\$868,300	Fundable (Qualified)	664
200721200	Develop a locally-adapted summer steelhead program to supplement natural production throughout the	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$300,736	\$227,561	\$1,132,242	Fundable in part	607

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	Okanogan River basin								
200721300	Assessing Recruitment Failure Across White Sturgeon Populations: Differences in Prey Availability and Physical Habitat Among Areas with Consistent, Inconsistent, and no Annual Recruitment to Age-1	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$547,057	\$773,105	\$727,882	Fundable in part	140
200721400	UPA Project - Fender Mill Floodplain Restoration - Phase 1	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$127,141	\$12,630	\$17,100	Response requested	598
200721500	Adult Steelhead Monitoring in Trout Creek	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Wind	\$61,500	\$344,120	\$11,620	Fundable (Qualified)	340
200721600	Pacific Northwest Aquatic Monitoring Partnership-Fish Population Monitoring (FPM)--RME Design and Protocols. Programmatic and Standardized Work Products for PNW and the Columbia Basin	Pacific Northwest Aquatic Monitoring Partnership (PNAMP)	Mainstem/ Systemwide	Systemwide	\$19,718	\$28,718	\$28,718	Admin (see comments)	192
200721700	Operation and Maintenance for Walla Walla Basin Passage Projects	Gardena Farms Irrigation Dist. and Hudson Bay Dist. Improvement Co.	Columbia Plateau	Walla Walla	\$182,725	\$182,725	\$182,725	Fundable (Qualified)	417
200721800	Development of single nucleotide polymorphism (SNPs) genetic markers diagnostic between coastal rainbow trout and interior redband trout	Idaho Department of Fish & Game	Mountain Columbia	Kootenai	\$60,689	\$25,392	\$0	Fundable	74
200721900	Clackamas Watershed Prioritized Fish Passage Barrier Removal	Clackamas River Basin Council	Lower Columbia	Willamette	\$21,520	\$164,520	\$20,020	Fundable (Qualified)	299
200722000	Water and Economic Optimization Project to Restore Streamflow in Fifteenmile Creek in the Fifteenmile Subbasin	Wyeast Resource Conservation & Development Area Council	Columbia Gorge	Fifteenmile	\$339,993	\$179,673	\$160,573	Fundable (Qualified)	316

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200722100	Native Trout Restoration in the Methow, Entiat, and Wenatchee Subbasins	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Methow	\$178,892	\$188,260	\$209,787	Not fundable	590
200722300	Genetic characteristics and movement patterns of bull trout populations between Chief Joseph and McNary Dams, within the Columbia Cascade and Columbia Plateau Provinces	US Fish & Wildlife Service (USFWS)	Mainstem/Systemwide	Systemwide	\$400,298	\$404,786	\$395,429	Not fundable	163
200722400	Implementation of the Okanogan Subbasin Plan. Initiate a Programmatic and Sequenced set of Key Habitat Restoration and Protection Actions	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$296,705	\$700,505	\$804,490	Fundable	609
200722700	Rapid DNA Profiling of Hatchery and Wild Salmon Stocks with Single Nucleotide Polymorphism (SNP) Profiling	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$213,250	\$232,194	\$66,755	Not fundable	61
200722900	Development of protocols and priorities for re-establishing naturally reproducing populations of Upper Willamette River Chinook Salmon above US Army Corps of Engineers dams in the Willamette Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Lower Columbia	Willamette	\$364,001	\$522,125	\$509,700	Fundable	300
200723000	Selective Gear Demonstration Project: Reef Net Fishing Gear for Lower Columbia River Commercial Salmon Fishery	Washington Sea Grant Program	Mainstem/Systemwide	Systemwide	\$50,697	\$53,716	\$35,028	Not fundable	105
200723100	UPA Entiat Subbasin Riparian Enhancement Program	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$71,053	\$82,257	\$82,257	Fundable in part	587
200723200	Okanogan-Similkameen Habitat Protection Project - Fish and wildlife habitat	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Okanogan	\$625,000	\$877,500	\$877,500	Response requested	608

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	protection through fee simple and conservation easement purchases								
200723300	Distribution and Abundance Monitoring of Oncorhynchus mykiss within the Lower Clearwater Subbasin	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Clearwater	\$373,367	\$350,615	\$350,615	Fundable	509
200723400	Assessing Habitat and Environmental Suitability for Northern Leopard Frogs in the Crab Creek and Pend O'reille Subbasins of Eastern Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$179,751	\$183,075	\$190,644	Fundable	344
200723500	Proposal to Create a Sub-Basin Plan for the Blackfoot River Sub-Basin	Trout Unlimited	Mountain Columbia	Blackfoot	\$32,133	\$29,133	\$32,134	Fundable	684
200723600	Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change	Portland State University	Mainstem/ Systemwide	Systemwide	\$490,430	\$491,812	\$477,808	Fundable	181
200723700	UPA Project - Elbow Coulee Floodplain Restoration	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$122,662	\$3,800	\$8,900	Fundable (Qualified)	600
200723800	Providing Services to Assist Record Keeping of Over the Bank Sales in Zone 6 Tribal Fisheries	Steven Vigg & Company	Multiprovince	Multiprovince	\$74,027	\$74,027	\$74,026	Response requested	108
200724100	Well modifications to improve aquatic habitat for Toppenish/Simcoe Creeks	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,120,727	\$100,000	\$40,695	Not fundable	451
200724200	Fifteenmile Subbasin Efficient Irrigation Technology	Wasco County Soil & Water Conservation District (SWCD)	Columbia Gorge	Fifteenmile	\$423,912	\$424,413	\$425,005	Response requested	318
200724300	Crab Creek Subbasin Plan 2007	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$5,778	\$0	\$0	Not fundable	345
200724500	Protect & Restore Joseph Creek Watershed	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$834,666	\$859,236	\$889,872	Response requested	493
200724600	Restoration of bull trout passage at Albeni Falls Dam using a trap-and-haul	Kalispel Tribe	Intermountain	Pend Oreille	\$756,658	\$385,662	\$411,495	Not fundable	657

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	approach in conjunction with investigations to assess effectiveness of rapid genetic analysis in assigning natal tributary								
200724700	Priscilla Peak Wildlife Habitat Restoration (Prescribed Fire)	US Forest Service	Mountain Columbia	Clark Fork	\$103,000	\$103,000	\$104,500	Response requested	685
200724900	Evaluation of Live Capture, Selective Fishing Gear	Colville Confederated Tribes	Mainstem/Systemwide	Systemwide	\$394,600	\$254,800	\$264,000	Fundable (Qualified)	106
200725000	Genetic Evaluation of Chinook Salmon Supplementation in Idaho Rivers	Idaho Department of Fish and Game / Nez Perce Tribe	Mountain Snake	Salmon	\$1,287,711	\$959,465	\$966,814	Response requested	547
200725100	UPA Project - Methow Valley Irrigation District East Diversion Dam Replacement	Methow Valley Irrigation District	Columbia Cascade	Methow	\$44,800	\$542,800	\$29,800	Fundable	603
200725200	Multi-scale assessment of hyporheic flow, temperature and fish distribution in Columbia River Tributaries	Confederated Tribes of the Umatilla Indian Reservation	Mainstem/Systemwide	Systemwide	\$226,306	\$195,372	\$178,888	Fundable (Qualified)	183
200725300	Monitoring of Adult Abundance and Spatial Distribution for Snake River Spring/Summer Chinook Salmon ESU Populations	Nez Perce Tribe / Idaho Department of Fish and Game	Mainstem/Systemwide	Systemwide	\$505,083	\$458,274	\$365,394	Fundable (Qualified)	92
200725400	StreamNet Support and Services for Conservation and Recovery Data Needs	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$155,818	\$163,609	\$171,789	Response requested	207
200725500	Protect & Restore Middle Lochsa	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$224,487	\$224,487	\$224,486	Response requested	541
200725600	Physical and Biological Testing of a Flow Velocity Enhancement System	Natural Solutions	Mainstem/Systemwide	Systemwide	\$251,546	\$330,691	\$0	Fundable	122
200725700	Protect & Restore Imnaha Subbasin	Nez Perce Tribe	Blue Mountain	Imnaha	\$1,143,967	\$1,162,474	\$1,195,208	Response requested	495
200725800	Development of reliable ESU-specific estimates of escapement, harvest, and straying for adult anadromous salmonids	University of Idaho	Mainstem/Systemwide	Systemwide	\$938,732	\$958,585	\$979,035	Response requested	93

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	migrating through the Federal Columbia River Power System								
200725900	Wilson Creek Relocation and Rehabilitation	Central Washington University	Columbia Plateau	Yakima	\$2,725,000	\$0	\$0	Not fundable	453
200726000	Acquisition of a Conservation Easement over 1084 acres of Upland Prairie and Oak Habitat, Willamette Subbasin	Nature Conservancy	Lower Columbia	Willamette	\$4,969,000	\$10,000	\$0	Fundable	287
200726100	Habitat effectiveness survey of existing, historical, and potential beaver habitat in the Upper Columbia Basin, Methow Subbasin	Pacific Biodiversity Institute	Columbia Cascade	Methow	\$79,240	\$0	\$0	Response requested	590
200726200	Enhanced Landscape Classification to Improve Assessment of Conservation Restoration and Mitigation Projects	Pacific Northwest National Laboratory	Mainstem/ Systemwide	Systemwide	\$295,911	\$306,851	\$291,753	Response requested	185
200726400	UPA Project - Programmatic Habitat Complexity Projects in the Methow River Subbasin	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$492,500	\$620,500	\$882,000	Fundable (Qualified)	604
200726500	Complete and Coordinate a Subbasin Plan for the Bitterroot Watershed	Montana Water Trust	Mountain Columbia	Bitterroot	\$50,000	\$50,000	\$50,000	Not fundable	682
200726700	Probabilistic Monitoring of the Status and Trends of Habitat, Water Quality, and Fish Presence in the Washington Portion of the Columbia River Basin	Interagency Committee (IAC)	Mainstem/ Systemwide	Systemwide	\$835,391	\$1,076,591	\$1,076,591	Not fundable	189
200726800	Idaho Watershed Habitat Restoration Project via Custer Soil and Water Conservation District	Custer County Soil & Water Conservation District (SWCD)	Mountain Snake	Salmon	\$600,000	\$600,000	\$600,000	Response requested	568
200726900	Clearwater Coho Restoration Project	Nez Perce Tribe	Mountain Snake	Clearwater	\$93,277	\$247,210	\$255,057	Fundable in part	502
200727000	Lake Rufus Woods Subbasin Area Stock Assessment, Habitat	Colville Confederated Tribes	Intermountain	Columbia Upper	\$749,982	\$642,890	\$637,533	Not fundable	645

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	Assessment and Fisheries Evaluation Program								
200727100	Willamette Basin Capitalized Wildlife Land Acquisitions	The Confederated Tribes of Grand Ronde	Lower Columbia	Willamette	\$2,572,046	\$2,638,077	\$2,698,060	Not fundable	288
200727200	Conservation and Recovery of Endangered Species Act Listed Floodplain Fishes in the Willamette Basin, with Emphasis on Oregon Chub	US Fish & Wildlife Service (USFWS)	Lower Columbia	Willamette	\$294,109	\$143,629	\$143,629	Fundable (Qualified)	302
200727300	Evaluate the effects of hyporheic exchange on egg pocket water temperature in Snake River fall Chinook salmon spawning areas	Pacific Northwest National Laboratory	Blue Mountain	Snake Hells Canyon	\$163,547	\$210,086	\$193,557	Fundable (Qualified)	84
200727400	Expand Current Juvenile Salmonid Monitoring in the Lower Columbia Province	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$260,655	\$156,602	\$162,463	Not fundable	267
200727500	Impact of American shad in the Columbia River	Columbia River Research Laboratory	Mainstem/ Systemwide	Systemwide	\$278,736	\$360,313	\$365,160	Fundable	157
200727600	Idaho Department of Fish and Game Rearing Expansion for Snake River Sockeye Salmon	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$5,252,090	\$1,261,278	\$270,823	Not fundable	552
200727700	Hamilton Creek Stabilization and Habitat Rehabilitation	Skamania County	Lower Columbia	Columbia Lower	\$969,270	\$107,925	\$29,350	Not fundable	270
200727900	Assess Stream Habitat for Salmonid Recovery in the Lower Clearwater Subbasin	Nez Perce Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$122,525	\$98,317	\$101,253	Response requested	521
200728000	Columbia River Basin Journal	Intermountain Communications	Mainstem/ Systemwide	Systemwide	\$105,000	\$100,000	\$100,000	Fundable (Qualified)	213
200728100	Washington Salmonid Abundance and Productivity Monitoring Framework	Washington Department of Fish and Wildlife (WDFW)	Mainstem/ Systemwide	Systemwide	\$512,000	\$334,000	\$364,000	Not fundable	95
200728200	Okanagan River Restoration Initiative: Phases IV & V	Okanagan Nation Alliance	Columbia Cascade	Okanogan	\$1,083,262	\$1,066,234	\$93,184	Fundable	609
200728300	UPA Wenatchee Subbasin Access Proposal	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$1,875,348	\$1,875,348	\$0	Not fundable	621
200728500	Subyearling chinook salmon use of the Lower	City of Portland	Lower Columbia	Willamette	\$422,560	\$418,032	\$428,082	Fundable (Qualified)	289

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	Willamette River								
200728600	Deschutes Cooperative Stream Flow Restoration	Deschutes Soil and Water Conservation District	Columbia Plateau	Deschutes	\$150,000	\$150,000	\$150,000	Not fundable	360
200728700	Delivering Reliable Fish Passage Information for Hydrosystem Management	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$537,283	\$497,028	\$507,119	Response requested	197
200728800	Touchet Eastside and Westside Irrigation District Piping	Walla Walla County Soil & Water Conservation District (SWCD)	Columbia Plateau	Walla Walla	\$16,852	\$492,830	\$490,318	Response requested	419
200729100	Developing and Assessing Freshwater Mussel Distribution, Abundance and Life History Survey Methods in the Columbia Basin in Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Okanogan	\$55,330	\$0	\$0	Not fundable	148
200729200	Effectiveness monitoring of in-stream habitat restoration in the Lower Entiat Basin at microhabitat and reach scales	US Forest Service (USFS) - Pacific Northwest Research Station	Columbia Cascade	Entiat	\$63,973	\$61,558	\$0	Fundable (Qualified)	583
200729300	Umatilla River Basin Stream Temperature Monitoring	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$23,267	\$25,805	\$26,404	Fundable (Qualified)	409
200729400	Control of BKD by Inactivation of the Renibacterium salmoninarum Sortase Enzyme as an Alternative to Antibiotics	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$223,694	\$238,875	\$251,359	Fundable	57
200729500	Crow Creek BPA Powerline Channel Restoration Project	US Forest Service: Lolo National Forest	Mountain Columbia	Clark Fork	\$50,000	\$0	\$0	Response requested	686
200729600	IDL Clearwater Area Fish Passage	Idaho Department of Lands	Mountain Snake	Clearwater	\$63,500	\$138,100	\$0	Response requested	545
200729700	Effect of Elevated Water Temperature and Gas Supersaturation on Bull Trout Reproduction and Growth	Abernathy Fish Tech. Center	Mainstem/Systemwide	Systemwide	\$138,396	\$157,998	\$158,158	Not fundable	163
200729900	Investigation of the Relative Reproductive Success of	Oregon Department of Fish & Wildlife	Columbia Plateau	Deschutes	\$466,730	\$409,178	\$395,072	Fundable (Qualified)	71

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	Stray Hatchery and Wild Steelhead and the Influence of Hatchery Strays on Natural Productivity in the Deschutes River Subbasin	(ODFW)							
200730000	Fish Passage Technical Services Project	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$1,555,069	\$1,602,717	\$1,651,390	Response requested	199
200731100	Acquire Land to Protect Critical Habitat in the Upper Lochsa	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$10,020,800	\$10,400	\$0	Response requested	543
200731200	Albeni Falls Dam Operational Loss Assessment of Riparian Ecological Function in the Pend Oreille River Ecosystem	Kalispel Tribe	Intermountain	Pend Oreille	\$364,021	\$403,888	\$344,920	Fundable	650
200731300	Expanded Acquisition and Display of Fish (Initially Anadromous Salmonids) Harvest Data in the StreamNet Database	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$148,844	\$156,287	\$164,201	Not fundable	207
200731400	Regional Consolidation of Habitat Restoration Project Information From Multiple Funding Sources with Dissemination Through the StreamNet Website	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$238,514	\$250,440	\$262,964	Not fundable	208
200731500	Camas Slough/Lower Washougal River Realignment	Lower Columbia Fish Enhancement Group	Lower Columbia	Washougal	\$160,000	\$0	\$0	Not fundable	281
200731600	McKenzie Canyon Irrigation Project	Deschutes River Conservancy	Columbia Plateau	Deschutes	\$2,460,000	\$2,460,000	\$30,000	Fundable	361
200731800	Entiat River - UPA - Knapp-Wham Hanan Detwiler Irrigation System Consolidation Project	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$364,077	\$9,313	\$0	Fundable (Qualified)	588
200731900	WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Kalama River	Lower Columbia Fish Enhancement Group	Lower Columbia	Kalama	\$165,000	\$20,000	\$0	Not fundable	273

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
200732000	Inventory and Assess Fish Passage and Screening Needs in the Willow Creek Watershed	Morrow County Soil & Water Conservation District (SWCD)	Columbia Plateau	Umatilla	\$28,854	\$28,307	\$34,430	Fundable (Qualified)	408
200732100	Data Management for System Operations	Columbia Basin Fish & Wildlife Authority (CBFWA)	Mainstem/ Systemwide	Systemwide	\$1,531,414	\$1,531,414	\$1,531,414	Response requested	201
200732200	Ecosystem Economics Model for Willamette Basin Restoration and Conservation	David Evans and Associates, Inc.	Lower Columbia	Willamette	\$425,919	\$143,650	\$0	Not fundable	290
200732300	Investigate genetic parentage analysis techniques to estimate spawner abundance in ESA-listed steelhead populations	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$406,964	\$422,191	\$438,030	Not fundable	75
200732500	UPA Wenatchee Subbasin Complexity Proposal	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$3,125,180	\$3,125,180	\$0	Fundable in part	622
200732600	Monitoring of juvenile and adult salmonid survival through the Federal Columbia River Power System	Washington Department of Fish and Wildlife (WDFW)	Mainstem/ Systemwide	Systemwide	\$1,622,780	\$1,679,576	\$1,738,338	Response requested	203
200732700	Compilation of Location-Specific Hatchery Release Data in Consistent Format Across Agencies by StreamNet	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$192,720	\$202,356	\$212,474	Response requested	209
200733000	Gardena Farms Irrigation District Irrigation Efficiency and Instream Flow Project	Gardena Farms Irrigation District	Columbia Plateau	Walla Walla	\$362,084	\$362,083	\$362,333	Response requested	421
200733200	Mitigation of marine-derived nutrient loss in the Boise-Payette-Weiser subbasin	Idaho Department of Fish & Game	Middle Snake	Payette	\$351,037	\$360,084	\$367,509	Response requested	675
200733300	Timing and survival of PIT tagged juvenile fall Chinook from the Hanford Reach	Columbia River Inter-Tribal Fish Commission (CRITFC)	Columbia Plateau	Columbia Lower Middle	\$151,659	\$148,120	\$151,214	Fundable (Qualified)	85
200733500	Migration and homing ecology of supplemented	Northwest Fisheries Science Center	Columbia Plateau	Yakima	\$395,168	\$420,483	\$426,565	Fundable (Qualified)	62

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	and wild spring Chinook salmon								
200733600	Effects of short-term flow fluctuations on salmon migration	Oak Ridge National Laboratory	Mainstem/ Systemwide	Systemwide	\$129,646	\$164,968	\$188,194	Fundable	123
200733700	Oregon Plan Monitoring of Steelhead Status, Trend, and Habitat in the Grande Ronde River Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$372,361	\$388,549	\$405,339	Fundable (Qualified)	481
200734000	Multidisciplinary collaborative approach to aquatic habitat monitoring & evaluation in the Walla Walla Subbasin	Walla Walla Basin Watershed Council	Columbia Plateau	Walla Walla	\$275,000	\$284,800	\$297,200	Response requested	424
200734200	IDL Maggie Cr. Area Fish Passage Proposal	Idaho Department of Lands	Mountain Snake	Clearwater	\$210,000	\$220,000	\$200,000	Response requested	546
200734300	Expand Current Juvenile Salmonid Monitoring in the Columbia Estuary Province	Washington Department of Fish and Wildlife (WDFW)	Columbia Estuary	Elochoman	\$292,300	\$156,604	\$162,463	Not fundable	253
200734400	Lower Columbia River Wild Coho DNA Stock Identification Proposal	Fish Friendly Inc.	Lower Columbia	None Selected	\$111,625	\$105,625	\$182,182	Not fundable	276
200734500	Grande Ronde Coho Restoration	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$154,375	\$413,123	\$263,239	Fundable in part	480
200734600	Crims Island Habitat Restoration	US Geological Survey (USGS) - Cook	Columbia Estuary	Columbia Estuary	\$209,080	\$209,080	\$209,080	Fundable (Qualified)	251
200734700	IDL Ponderosa Area Fish Passage	Idaho Department of Lands	Mountain Snake	Clearwater	\$101,400	\$14,000	\$0	Not fundable	522
200734900	Monitoring resident salmonid populations and the aquatic food web in the upper Icicle Creek sbubasin of the Wenatchee River basin	Washington Trout	Columbia Cascade	Wenatchee	\$213,404	\$203,444	\$203,444	Response requested	625
200735200	Feasibility Study and Implementation of a System-wide Conservation Enforcement Web-Based Data Center	Steven Vigg & Company	Mainstem/ Systemwide	Systemwide	\$163,090	\$102,290	\$92,489	Fundable (Qualified)	111
200735300	Quantitative and effective analysis of Columbia River Chinook salmon	Columbia River Inter-Tribal Fish Commission	Mainstem/ Systemwide	Systemwide	\$155,531	\$145,380	\$145,380	Response requested	85

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	(Oncorhynchus tshawytscha) and steelhead (O. mykiss) population viability	(CRITFC)							
200735500	Determining the Accuracy of Adult Coho Salmon Population Estimates from a Random, Spatially Balanced design using Area-Under-the-Curve	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$100,192	\$83,798	\$87,990	Fundable	89
200735800	Estimating the detection efficiency of snorkeling for detecting anadromous salmonid parr	US Forest Service (USFS) - Rocky Mt Research Station	Mainstem/ Systemwide	Systemwide	\$342,912	\$294,702	\$309,731	Fundable	194
200735900	Application and enhancement of monitoring protocols for assessing productivity and watershed condition in headwater subcatchments of the John Day subbasin	PNW Research Station -- Wenatchee	Columbia Plateau	John Day	\$292,030	\$272,938	\$282,900	Fundable	363
200736000	Columbia River/Cowlitz River Eulachon Research and Monitoring Plan (ERMP)	Steward and Associates	Columbia Estuary	Columbia Estuary	\$438,881	\$410,542	\$410,542	Fundable (Qualified)	147
200736100	IDL St. Joe Area Fish Passage	Idaho Department of Lands	Mountain Snake	Clearwater	\$63,120	\$0	\$0	Response requested	546
200736200	Assessing Fish Passage Through the Icicle Creek Boulder Field Above Leavenworth National Fish Hatchery	Washington Trout	Columbia Cascade	Wenatchee	\$26,068	\$17,378	\$0	Fundable (Qualified)	628
200736300	IDL Pend Oreille Area Fish Passage	Idaho Department of Lands	Intermountain	Pend Oreille	\$75,000	\$90,000	\$0	Response requested	658
200736400	Determining the effects of load following on reservoir hydraulics and migration behavior of juvenile salmonids	Columbia River Research Laboratory	Mainstem/ Systemwide	Systemwide	\$711,105	\$760,883	\$814,145	Fundable	126
200736500	Canyon Creek Culvert Replacements	Malheur National Forest	Columbia Plateau	John Day	\$294,320	\$36,225	\$20,680	Response requested	381
200736700	Klickitat and Rock Creek	Klickitat County	Columbia	Klickitat	\$345,300	\$2,107,900	\$2,356,800	Not fundable	337

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	Subbasin Habitat Improvement Program		Gorge						
200736800	Adult Coho Salmon Monitoring Proposal for the Lower Columbia Province	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$487,444	\$456,502	\$479,337	Response requested	269
200736900	Protect & Restore North Fork Clearwater Subbasin	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Clearwater	\$645,157	\$645,657	\$645,157	Response requested	525
200737000	Methods of Applying Salmon Timing Mechanisms to Wild and Hatchery Fish Management	The B. Taylor Group LLC	Columbia Gorge	Columbia Gorge	\$110,000	\$110,000	\$0	Not fundable	58
200737100	Documentation of food-web linkages in the mainstem Columbia River towards understanding the role of invasive species and establishing a baseline trophic state	Columbia River Research Laboratory	Columbia Gorge	Columbia Gorge	\$209,774	\$232,226	\$105,146	Response requested	152
200737200	Lake Roosevelt White Sturgeon Conservation Hatchery Project	Spokane Tribe	Intermountain	Columbia Upper	\$0	\$250,000	\$250,000	Not fundable	644
200737300	IDL Priest Lake Fish Passage	Idaho Department of Lands	Intermountain	Pend Oreille	\$55,100	\$53,320	\$0	Response requested	659
200737400	Investigating Juvenile Salmonid Mortality Associated with Lock Flushing	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	128
200737500	Does the Decline of Idaho Sockeye Salmon Correlate with a Mountain Beetle Infestation?	bluefish.org	Upper Snake	Snake Headwaters	\$10,000	\$0	\$0	Not fundable	677
200737700	Cooler Temperatures for Federally Controlled Reservoirs	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	129
200737800	Investigating Reservoir Sediment Concerns of a Restored Free-Flowing Lower Snake River	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	130
200737900	Surveying Jobs that Depend on the Existence of Lower	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	130

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	Snake River Reservoirs								
200738000	Keeping Irrigators Whole in the Event of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	131
200738100	Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program	Lower Columbia Fish Enhancement Group	Columbia Estuary	Columbia Estuary	\$150,000	\$150,000	\$150,000	Not fundable	242
200738300	Keeping Commodity Shippers Whole in the Event of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	132
200738400	Reducing the Cost of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	133
200738500	Investigating Flood Control Benefits and Flooding Risks of Federally Controlled Lower Snake Dams	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	134
200738600	Estimating Bonneville Power Administration Revenue Effects in the Event of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	134
200738800	Fish Passage Data System (Key Functions Previously Performed by the Fish Passage Center)	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$890,189	\$925,797	\$962,828	Fundable	205

Proposals, recommendations and comments

Mainstem and Systemwide

Artificial Production Related Proposals for Salmonids

199305600 - Research to advance hatchery reform, including captive broodstocks

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,474,045 FY08: \$1,512,513 FY09: \$1,567,424

Short description: This project will provide guidance on management of Columbia River Basin hatcheries, including captive broodstocks. Research will focus on developing methods to improve broodstock management and fish quality and reduce negative ecological interactions.

Recommendation: Fundable (Qualified)

Although the various components of this complex project will all provide valuable results, the ISRP wishes to express its concerns. A strategy of increasing the costs over time to support research to learn about hatchery reform may result only in incrementally small changes in the nature of the hatchery product. "Hatchery reform" is an endpoint that still may fall short of producing hatchery-origin fish whose integration with wild populations would not cause significant fitness decreases.

Technical and scientific background: This is a huge project, which makes its review cumbersome and difficult. It takes some review effort just to determine how all of the components fit together and are coordinated, especially how all of them fit in with various monitoring and evaluation (M&E) efforts to assess success. The multiple components fit into these five objectives:

1. Maintain adaptive life history strategies in hatchery Chinook salmon;
2. Improve olfactory imprinting and reduce straying in hatchery salmon;
3. Use environmental factors to match wild phenotypes in Chinook and sockeye reared in hatchery supplementation programs;
4. Improve Fish Health and Quality by Prevention and Treatment of Bacterial Kidney Disease; and
5. Identify genetic and environmental factors influencing male precocity and fitness in hatchery Chinook salmon.

The technical and scientific background used to set up the objectives and the entire proposal are very extensive.

Rationale and significance to subbasin plans and regional programs: This multi-faceted project has clear significance to hatchery reform, which is critical to continued use of this technology as

a management tool. The rationale and significance are laid out well - by objective - and explain how each relates to the 2004 APRE, the 2000 Fish and Wildlife Program, the 2004 BiOp, and the 2006 Council's Draft Research Plan.

Relationships to other projects: The linkages to other projects are evident in the proposal.

Project history: The past accomplishments are well summarized and demonstrate how the project has evolved over time.

Objectives: The biological objectives are extensive, but largely task oriented. An overarching biological objective is needed.

Tasks (work elements) and methods: The methods are detailed and useful, although we question the value of the experiments on determining the consequences of inbreeding. While quantifying the consequences of inbreeding would be beneficial, it is well recognized that inbreeding is to be avoided. The provided methods are extraordinarily detailed and complete, almost more than a reviewer can deal with.

Monitoring and evaluation: This project is more experimental in nature than on-the-ground. So, data analysis and interpretation are more appropriate terms here. As such, that activity is documented well.

Facilities, equipment, and personnel: The facilities, equipment and personnel are excellent in all regards.

Information transfer: This is outlined adequately; project proponents have published in the peer reviewed literature and presented at regional and national conferences.

Benefits to focal and non-focal species: The results of the proposed research would likely decrease the negative impact of artificial production programs on natural populations. This project should do little harm to non-focal species, and some findings may translate to other species.

199606700 - Manchester Spring Chinook Captive Broodstock Project

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$795,407 FY08: \$636,326 FY09: \$572,694

Short description: Smolt to adult seawater rearing of spring and summer chinook salmon broodstocks from Idaho's Salmon River and Oregon's Grande Ronde River sub-basins. Provides adult fish for spawning or direct release in recovery programs for ESA-listed stocks.

Recommendation: Fundable (Qualified)

The ISRP recommends "Fundable (Qualified)" with the qualification being that this project needs to be funded only if the Grande Ronde and Salmon River Chinook captive propagation proposals are funded.

The technical and scientific background summarizes the problem facing managers trying to prevent extirpation of depleted animal populations, including Pacific salmon. The ISRP takes exception, however, to the first sentence of paragraph two on page 3: "Captive propagation of animals to maximize their survival and reproductive potential has won acceptance in endangered species restoration (Gipps)." In fact there is not a single species the ISRP is aware of that has been brought into captivity because the remaining numbers were so low that extinction was imminent, that has been returned to a self-sustaining status in the wild. Captive propagation remains a highly controversial avenue to pursue and should be regarded as experimental and untested.

Project personnel prepared a generally thorough description of the project's history, providing very succinct and useful summary of the number of smolts from each population that were transferred to Manchester, the ages at which they matured, and the percent survival. It would be good to break this table down by sex as well. Questions remain, however, regarding the continuing need for and desirability of the project. Data presented to justify the project concern the number of fish produced in the program. The real assessment of the project is the character of the contribution to the viability of these stocks. The summary shows success in raising and spawning the affected fish, but there does not seem to be any information available to document the project's impact on the viability of these fish populations.

The objectives were specific work elements. The ISRP believes it appropriate that this project have objectives similar to the 1998010006/1998010001 and 199700100 the Oregon and Idaho project for which they are rearing fish: prevent extirpation of listed ESU or independent populations of Chinook salmon, and contribute to the restoration of self-sustaining natural populations. The benefits are difficult to assess because the goal is to maintain or enhance the viability of the impacted stocks. The fish propagation goals are defined and measurable.

Some benefit may accrue in the short-term for a threatened stock, but the techniques used here are inconsistent with recovery of threatened species in the long-term.

The captive rearing at Manchester is unlikely to have major impacts on non-focal species, particularly since the effluent from the culture system is treated with ozone before discharge to Puget Sound. The most likely sources of impacts would be disease, possibly eutrophication of receiving waters, and interaction with escaped fish. These should be taken care of by the shore-based tank system.

199703800 - Listed Stock Chinook Salmon Gamete Preservation

Sponsor: Nez Perce Tribe

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$339,525 FY08: \$354,522 FY09: \$362,233

Short description: Preserve genetic diversity of endemic Snake River basin Chinook Salmon and steelhead using cryogenic technology.

Recommendation: Fundable (Qualified)

Previous comments from the Provincial/Systemwide Review still apply. To repeat, "It is time for a thoughtful analysis of what the Fish and Wildlife Program wants to accomplish in gene conservation, whether or not cryopreservation continues to be a useful tool, and whether an ever-increasing commitment to this program is consistent with that goal." The project applies to a number of subbasins and to ESA planning in the Columbia River Basin, and should benefit focal species. The program could turn out to be critically important if ecosystem dysfunction issues can be addressed and "old" genes are wanted to expand the diversity in the extant population.

The proposal was clearly written and provided a strong technical and scientific background. There was evidence of excellent collaboration between the project and agencies, tribes, and universities. The project history is well described. Proponents and cooperators publish in the peer-reviewed literature and report at regional and national conferences.

The narrow, task-oriented objective that was provided should have been superseded by an overarching objective dealing with preserving genetic diversity in ESA-listed fishes. Reviewers would have appreciated more evidence that project personnel are able to keep up with all emerging technologies. Another important issue, not apparently addressed in the proposal, is when is active collection of sperm completed, and thus when is it appropriate for the proposal to shift into a lower budget maintenance mode. Also, if future monitoring indicates a significant reduction in sperm viability then there would be a need to rotate or update earlier collections. This should be addressed at some point in time.

200711700 - Comprehensive Assessment of Coho Salmon Restoration Efforts in the Mid-Columbia and Mid-Snake River Basins

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$59,421 FY08: \$65,898 FY09: \$71,683

Short description: Coordinate exchange of data among managers tribal programs to reintroduce extirpated coho salmon, and comprehensive assessment of methodologies and results to address uncertainties relative to the feasibility of reintroduction/restoration.

Recommendation: Response requested

The ISRP recognizes there could be benefits from coordination among the basin's coho reintroduction projects, and welcomes such coordination. The proposal as outlined, however, does not include adequate breadth of outside review. It is too limited to self-review within the four existing projects. It needs participation by outside experts in various disciplines with experience in reintroduction of fishes, especially anadromous salmonids. A response is requested that demonstrates that biological expertise is included from other agencies and organizations both inside and outside the region so that the issues are characterized in a broader context, and relevant ecological and management issues are considered. An objective analysis of the benefits and challenges of reintroduction/ restoration, aided by the experience of others, should improve the proposed assessment.

198909600 - Genetic Monitoring of Snake River Chinook Salmon and Steelhead

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$513,210 FY08: \$527,980 FY09: \$543,280

Short description: Direct and indirect estimates of reproductive success. Estimate selection gradients in hatchery and wild. Monitor changes in hatchery, natural (supplemented), and wild (un-supplemented) populations. Evaluate effectiveness of hatchery supplementation.

Recommendation: Fundable

Although the proposal is fundable, the ISRP emphasizes that the results need to be used in regional analytical forums; e.g., NOAA's Technical Recovery Teams (TRTs). The proposal could be improved by showing how the data from this project have guided adaptive management of recovery and implementation strategies.

Technical and scientific background: There is good explanation of the need to use this data to assess the natural spawning by hatchery salmon and steelhead in the Grande Ronde and Imnaha subbasins. Testable hypotheses are included. It is less clear how more genetic data can serve to guide TRTs and others in the broader survey of populations.

Rationale and significance to subbasin plans and regional programs: Five uncertainties from the Fish and Wildlife Program are identified in the narrative as being addressed by this proposal. The uncertainty over relative fitness of hatchery fish spawning in the wild (point 1) is well presented

by the proposal. The remainder of the uncertainties are either questionably justified (point 2), partially covered (3 and 5), or not clear (4). The project could be strengthened by integration between this project and the monitoring and evaluation it supports for other agencies and tribes and by clarifying these applications of the data.

Project history: The history of the project is well described, and the milestones properly identified. The sponsors have a good track record of publications in the peer reviewed scientific literature. Less compelling is the evidence that the information being developed is making its way to guiding management decisions.

Objectives: It is not clear from the bulleted list below biological objective 1 (Describe demographic, evolutionary, and population genetic relationships) what demographic relationships mean or how they will be assessed. Evolutionary and population genetic relationships are clear, however.

Information transfer: The sponsors publish peer-reviewed work on salmon genes and lead development of standardized protocols for cross validating genetic data. There is little evidence however, that management decisions have been guided by the work to date. For example, has the captive broodstock work in the Grande Ronde been thought about differently, or the use of captive broodstock justified or reinforced as a result of the data collected by this project? The sponsors themselves note that more effort has been requested by cooperators to assist with information transfer. Data from this project have been used extensively by the Interior Columbia Technical Recovery Teams (TRT) to develop the independent populations and ESU boundaries for the Snake system. The ISAB was critical of the depth to which that data was analyzed in the TRT work. The sponsors only cite Myers (1998) and Busby (1996) as status reviews that used data from the project. Those references are now outdated, and new status reviews have been performed. It would be useful for the sponsors to identify how the recent NOAA hatchery review and status review update used data from this project.

200203000 - Develop Progeny Marker for Salmonids to Evaluate Supplementation

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$304,726 FY08: \$319,563 FY09: \$335,711

Short description: The project sponsors propose to assess the relative reproductive success of Umatilla summer steelhead using a pedigree analysis and a laboratory-tested strontium progeny marker injection.

Recommendation: Fundable

This is an innovative project with potential applicability and benefit to other projects and situations requiring estimation of reproductive success. Assessment of relative reproductive success and supplementation is a key issue in fish culture in the basin. Objectives are clear and tied in with a real world problem. Methods appear sound. The project is a few years old and has progressed from small scale lab testing to verify the utility and transmission of the elemental tag to a proposed field test. This phase of the project is the logical next step.

200203100 - Growth modulation in salmon supplementation

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$355,378 FY08: \$373,601 FY09: \$392,693

Short description: This project assesses and develops methods to control high rates of early male maturation in salmon supplementation programs. Reductions in early male maturation will increase smolt to adult survival and reduce negative genetic and ecological impacts.

Recommendation: Fundable (Qualified)

This is an excellent proposal, but this project may be nearing the point of toning down the actual collection of more research data and instead developing recommendations for protocol development and implementation of existing findings. Along these lines, the work element to look at rearing practices should be emphasized.

The results of this study have broad applicability.

Technical and scientific background: The technical and scientific background for this proposal is outstanding. It gives the reader an excellent basis to understand the rest of the proposal -- not only what is proposed, but why as well.

Rationale and significance to subbasin plans and regional programs: This proposal is clearly associated with reforms to artificial production in the basin, as evidenced by this quote: "Now, the focus is on reducing or eliminating deleterious effects of hatcheries on naturally rearing fish and redesigning and adjusting hatchery programs to rear fish that are qualitatively and qualitatively similar to wild fish, not to simply rear more fish in hatcheries."

Relationships to other projects: The proposal provides excellent detail in regards to specific projects, particularly to hatchery-rearing practices throughout the basin.

Project history: The proposal includes an excellent summary of the project history over the past five years, including listing important findings with excellent and informative figures. This is an interesting project at both the academic and practical levels.

Objectives: Although the specific objectives are well defined by tasks, an overarching objective of improving our understanding of the influences of artificial culture on the life history trajectories of salmon would be appropriate.

Tasks (work elements) and methods: Methods are extremely well explained, including nice conceptual diagrams.

Monitoring and evaluation: Evaluation has been provided in the past, and will likely continue in the future, to provide important insights into altering artificial production to make it compatible with populations of natural salmon.

Facilities, equipment, and personnel: Facilities have already been shown to be more than adequate.

Information transfer: Publication record is excellent, that is likely best outlet, although direct input into other programs would be good.

Benefits to focal and non-focal species: The project should provide benefits to both natural and hatchery populations of the focal species. There should be no adverse effect beyond interactions during data collections.

200729400 - Control of BKD by Inactivation of the Renibacterium salmoninarum Sortase Enzyme as an Alternative to Antibiotics

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$223,694 FY08: \$238,875 FY09: \$251,359

Short description: This proposal describes research to determine if the sortase gene product of Renibacterium salmoninarum can be a target for therapeutic drugs against Bacterial Kidney Disease of salmon.

Recommendation: Fundable

This is an excellent proposal, with excellent technical and scientific background. Potential benefits to fish are clear. In reality, many hatchery operations (and the populations they impact) could be affected positively. Project proponents have a good track record of peer reviewed publications and participation in fisheries meetings. Results of the work could have significant and lasting benefits to the artificial production programs, including reducing the impact and risks of these programs to natural fish populations.

200306000 - Evaluating relative reproductive success of wild and hatchery origin Snake River fall Chinook spawners upstream of Lower Granite Dam

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$0 FY08: \$0 FY09: \$0

Short description: The project sponsors will continue and complete the project. The project sponsors use a genetic analysis of wild and hatchery-origin Snake River fall Chinook to estimate relative reproductive success. These data will assist assessment of hatchery Chinook effects on productivity and recovery.

Recommendation: Fundable (Qualified)

This is a good project that should be funded to completion through FY 2007, as apparently proposed. (The budget portion of the form is incomplete. If this is incorrect, the sponsors need to respond.)

Technical and scientific background: The first two sentences after the Abstract show the importance of this project to the region: "The contribution of hatchery-origin fish to natural production and population growth over time is the major issue our project is focused on. This issue is important for determining the role hatchery-produced fish can play in recovery of declining populations, and for managing hatchery production activities to minimize risks to wild populations." There is no clear mention, however, that one objective is to help refine the estimation of productivity for natural populations when the hatchery fraction is known, but their reproductive contribution is unknown.

Project history: There are abundant, and well described, results for a project that started in 2003. This project is making reasonable progress. At this time, the analysis of data collected is insufficient to determine whether the relative reproductive performances of fall Chinook can be estimated from the data.

Tasks (work elements) and methods: Work elements are sound and will answer the question of whether this approach can be used to estimate the hatchery contribution to natural Snake River fall Chinook production.

Information transfer: The principal investigators have published the findings of their work in peer-reviewed journals, made presentations at regional and national meetings, and briefed managers to inform decision making.

Benefits to focal species: Regardless of whether the reproductive contribution of hatchery Snake River fall Chinook is accurately estimated, a significant uncertainty will have been addressed, which will benefit the focal species.

200737000 - Methods of Applying Salmon Timing Mechanisms to Wild and Hatchery Fish Management

Sponsor: The B. Taylor Group LLC

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$110,000 FY08: \$110,000 FY09: \$0

Short description: The migrations, feeding, spawning and other events of salmon are entrained to quantifiable and predictable natural light and dark cycles. This study will demonstrate how this phenomenon can be applied towards the more efficient management of stocks.

Recommendation: Not fundable

The proponents have some interesting ideas, but the technical background was poorly explained. A brief summary of the existence of a book on salmon rhythms and the presentation of related hypotheses within the region was presented. The concept of using light as a cue for a variety of practical applications in the salmon-hydrosystem is tempting, but based on the information in the proposal not enough evidence is presented to justify investment in the development of the models. Therefore, the ISRP believes the proposal is not fundable at this time.

200711000 - Differences in Functional Genes Between Hatchery and Wild Chinook Salmon

Sponsor: University of Idaho - Aquaculture Research Institute

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$472,018 FY08: \$611,167 FY09: \$506,241

Short description: This project will examine functional genetic differences between hatchery and wild Chinook salmon with the goal of identifying and reducing negative hatchery effects through modified hatchery practices.

Recommendation: Response requested

Although the technique proposed for use in this proposal is potentially a very valuable tool, the ISRP does not recommend funding the proposal as worded. The ISRP believes that the utility of the technique as it stands now is more uncertain than portrayed, and the proposal needs to provide further explanation. The proposal should acknowledge that baseline data are needed to determine how the results of the micro array assays should be interpreted. For example, it should be acknowledged that an individual fish raised in different environments would give different assay results -- but how different, and how would the authors interpret those different array assays?

The technical aspects of gene chip arrays and the molecular methods are well developed. We question the actual experimental design in some cases, however, as being sound enough to test what is being proposed. For example, it is assumed that a result showing that gene expression differences have become similar (as measured by quantification of expression at a molecular level) means that "for the purposes of evolutionary fitness, the hatchery environment can then serve as a surrogate to the natural environment for rearing salmon and steelhead." We don't believe that such a level of cause/effect has ever been shown. It is still a long way from similarity in micro array results to fitness equality. The underlying approach of this proposal may be inadequate and should be further justified in a response.

The ISRP also feels that there is a need to identify how application to management will occur or at least to demonstrate how communication with the relevant management agencies would occur.

Technical and scientific background: There is quite a bit of technical background given on the potential of this new technique, but we are not convinced that the authors are fairly stating what it will or will not be able to answer. There is substantial muddling of the concerns regarding the inherent genetic differences between stocked and wild spawned fish (including issues associated with inbreeding and out breeding depression) with those of how rearing a fish in a hatchery environment can change its phenotypic expression of genes, resulting in an organism that looks, behaves, performs differently than if it were raised in the wild. A clear explanation of how this technique can or cannot address those two quite different questions is needed. It is not evident from the authors' explanation that this difference is clearly appreciated and understood.

Rationale and significance to subbasin plans and regional programs: In concept, the problem addressed (hatchery vs. wild differences) is an important issue. The relationship of the proposal

to subbasin plans and regional programs is explained only superficially. In addition, as is pervasive throughout this proposal, there is substantial overstatement of the potential impacts of the results. As an example, "The proposed project offers to add a new dimension to our understanding of factors that affect differences in hatchery and wild fish by determining the functional role of differentially expressed genes." The ISRP is not convinced that it will be all that easy or clear - much less accomplishable within this timeframe.

Relationships to other projects: Although the proposal states, "The proposed project will provide information to support most artificial propagation programs in the Columbia River Basin," few details are given and no other projects are identified on the cover proposal or narrative.

Objectives: Objectives are concise and have nice sets of alternative hypotheses, but eventual applicability to management is unclear.

Tasks (work elements) and methods: Innovative approaches to assessing the functional differences between hatchery and wild fish are proposed, which may at some time serve to assess reforms in hatchery rearing protocols. It is just not clear, however, that without substantial basic research on what the assays are telling us, that the technique will be able to answer those questions.

Monitoring and evaluation: This is a proposal to develop assessment technology. If it works it could make a significant contribution to deciding whether hatchery practices can be modified sufficiently to make hatchery production compatible with the need to protect natural populations. It is not clear, however, how the results will be interpreted nor how they will be used to change management strategies.

Facilities, equipment, and personnel: This laboratory seems to be an excellent venue for such studies, but until we see a response that uses better evolutionary bases for the experimental design, together with a more realistic set of expectations of the technique, we question the level of understanding by the personnel.

Information transfer: The sponsors have a track record of publishing the findings of their work in the peer-reviewed literature and producing annual reports, and presenting at regional and national conferences.

Benefits to focal and non-focal species: A successful project could affect the focal species positively. However, if the (simplistic?) approach of assuming that array assay similarity translates into fitness/genetic equivalence is transferred to field applications prematurely, there could be risk for harm to the focal species. Until an adequate response is provided, we remain concerned over this possibility. We are not certain there is much of an effect on non-focal species, unless a misinterpretation of results allows rampant stocking.

200722700 - Rapid DNA Profiling of Hatchery and Wild Salmon Stocks with Single Nucleotide Polymorphism (SNP) Profiling

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$213,250 FY08: \$232,194 FY09: \$66,755

Short description: The objective of this proposal is to provide genetic profiling by single nucleotide polymorphism (SNP) analysis to the genetic issues that underlie Chinook salmon protection and enhancement with the Columbia basin.

Recommendation: Not fundable

There may be benefits from adding SNPs to the suite of gene markers to evaluate salmon. However, this proposal does not provide compelling evidence that more research effort is needed, and that this is the best lab and set of personnel to perform the task. The technical and scientific background section provides only a historical review of the various molecular/biochemical techniques as they have evolved. There is very little introduction to salmon conservation issues and how this proposal would participate in the larger salmon restoration program.

Specific subbasin and regional plans and programs that would use, or have called for this data are not identified. A weakness in this proposal is that although the genetics work may be of value somewhere down the road, the proposal is not well linked to other ongoing agency/co-manager activities in the basin. Specifically, the other projects developing and using genetic markers are not identified, and it is not apparent that other projects need this one to develop SNP markers for them. As a result, the application of this work is not clear.

The objectives as stated are more a simple list of tasks, not a set of strategic objectives. Although some details on the methodology are given (which are standard protocols), not enough experimental design details are given to evaluate this proposal adequately. How monitoring and evaluation will occur is very sketchy and must be interpreted between the lines.

Facilities seem adequate, but experience of the personnel seems quite limited. For example, there is no track record to evaluate the sponsor's performance in information dissemination.

200733500 - Migration and homing ecology of supplemented and wild spring Chinook salmon

Sponsor: Northwest Fisheries Science Center

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$395,168 FY08: \$420,483 FY09: \$426,565

Short description: Determine the spatial and temporal patterns of homing and spawning by wild and hatchery-reared salmon released from supplementation facilities and examine the physiological changes in the olfactory system during imprinting.

Recommendation: Fundable (Qualified)

This proposal is very good, and potentially the research has broad application, which should be stressed in the proposal. To be maximally relevant, the proposal should describe more explicitly how the results will inform management across the basin as to what changes are needed in this area.

Technical and scientific background: The backgrounds, both technical and scientific were set up very well. It was easy to see where this proposal was going.

Rationale and significance to subbasin plans and regional programs: The project is significant to the Yakima subbasin, the Columbia River Basin as a whole, and to measures implemented under the Endangered Species Act (ESA). There was excellent tie-in to the Subbasin Plans and Regional Programs, including the Columbia River Basin as a whole.

Relationships to other projects: This is a new project that is adequately related to existing projects in the Yakima subbasin and Columbia River Basin. The relationship to the National Marine Fisheries Service hatchery reform proposal is less clear. Some of the principal investigators serve on both projects. Clarification of any duplication is warranted.

Project history: Background work to ensure that the methods are warranted has been completed and was reported.

Objectives, methods, and monitoring and evaluation: Objectives are clearly stated. Methods are detailed and complete, as well as being easy to understand. The sponsors have evidently undertaken considerable preparation (seed-money start-up funds) for this proposed study, so that they seem to have a clear idea of the outcomes and the required monitoring and evaluation.

Facilities and equipment: These are well delineated by objective and are more than adequate. Personnel appear to be excellent.

Information transfer: Plans for direct application of results to on-the-ground management plans is not entirely clear, but the past record of publication is very good.

Benefits to focal and non-focal species: Getting an improved understanding of whether volitional release of smolts and acclimation site rearing of late-term smolts improves the use of hatcheries

to meet the basin goals for hatchery reform will benefit the focal species. In addition, eliminating human-induced straying for hatchery releases will have great, positive effects on salmon populations. No explicit consideration of effects on non-focal species is given, but little impact is expected beyond the effects of the production releases of hatchery fish. These will occur independently of whether the proposal is executed.

200716000 - Evaluation of spawning success in Pacific salmon using electromyogram telemetry

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$199,983 FY08: \$205,896 FY09: \$212,652

Short description: The project sponsors propose to implant sockeye salmon with electromyogram transmitters to determine when and how frequently they spawn, and to investigate differences in spawning among groups of fish exposed to different rearing conditions.

Recommendation: Not fundable

This proposal offers an innovative technological approach to studying salmon reproduction. The technique may provide some excellent data on the bioenergetics of the spawning act, and the proponents have expertise in the area electromyogram telemetry. However, the ISRP had difficulties envisioning how the data would be beneficial to fish and wildlife and how the project ties in with subbasin design and objectives. The literature review for the proposal was not thorough and did not include the many examples of the effects of hatchery culture on the timing of the spawning. Given the rarity of these fish, the ISRP also had some concerns that the transmitters might have effects on the health and well being of the sockeye. Finally, the ISRP has recommended "not fundable" for the set of ongoing Redfish Lake sockeye captive rearing projects because of the lack of success of this method for conserving the population.

200001700 - Recondition Wild Steelhead Kelt

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$945,906 FY08: \$953,835 FY09: \$985,931

Short description: This is an evaluation of kelt steelhead reconditioning and the feasibility of reestablishing this life history strategy that has been suppressed by the hydrosystem. The program utilizes wild fish that would otherwise become mortalities.

Recommendation: Response requested

The project has documented success at capturing and reconditioning kelts in previous years; however, it is still in a phase of experimental data collection. The objective is to determine whether the entire process of reconditioning kelts leads to increases in production through genetic contribution of reconditioned kelts back into the parent population. It is important that the project continue to finish the "experiment" as it is described following along the lines of Table 5, which disturbingly, show absolutely no genetic contribution from the reconditioned

kelts. This work needs to be replicated several times, perhaps in several locations, in order to get reliable estimates of reconditioned kelt contributions to natural spawning populations.

The budget on the related kelt project (200306200) looks like it might be moving into implementation phase, which is inappropriate at this time, particularly given the results to date of this project. It is important that this work (the testing and experimental phase of project 200001700) be brought to a conclusion, evaluated, and a regional decision made about how and whether to move further into kelt reconditioning. It may be appropriate to fund (200306200) as a companion study to this project in order to more quickly obtain the data and insights necessary to evaluate whether kelt reconditioning can be used to augment population rebuilding objectives. If this is done, however, that project (200306200) would have to be redesigned to be coordinated and complementary with this study.

The problem of a decline (no before/after data provided, but assumed) in the frequency of repeat spawning of wild summer run steelhead relates to passage downstream through hydro facilities, which are largely constructed for smaller juvenile salmonids (smolts). The proposal does not adequately explain what is meant by kelt reconditioning in its early sections; kelts are recaptured, fed in a hatchery, then released after ~ 1 yr to spawn again in the wild? This is explained in project history, however.

It is noted that the role of kelts and their contribution to productivity has not received adequate attention, but is recognized as a priority (BiOp, numerous subbasin plans). Objectives and methods are outlined in reasonable detail for this continued study that has documented past success and adapted its program where required (e.g., release experiments).

A response is requested regarding several points. Who is addressing the kelt passage issues? What justification is there for implementation? How will projects 200001700 and 200306200 be coordinated?

200305000 - Evaluation Of Reproduction Of Steelhead

Sponsor: University of Washington

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$320,447 FY08: \$259,894 FY09: \$259,978

Short description: Evaluate the individual reproductive success of naturally spawning hatchery steelhead relative to that of native wild steelhead using genetic tools and methods.

Recommendation: Fundable

In many ways, this is a model project and proposal that tackles critical uncertainties with a clear design, modest budget, and a stellar publication record. The technical section of the proposal provides an excellent review of the issue of hatchery-wild fish interaction that summarizes the available and relevant literature and presents the project in context to issues of concern within the Columbia and elsewhere. Previous and positive past ISRP comments apply.

Results from the project are applicable systemwide, thus the work is recommended as fundable, highest priority. A benefit includes the fact that the project is well underway and already has two to three generations of pedigree and fitness data available for analysis. The region should take advantage of this opportunity. It will provide data much sooner than other proposals that are in planning stages.

A thorough summary of the history of this project, including bumps along the way, was provided. Monitoring efforts have improved continually and further evaluation has occurred. This is a rare opportunity to evaluate hatchery spawning effects on a wild steelhead population, and of particular significance to Washington steelhead culture and segregation projects. Continued work is justified, and most work to date is published, in press, or shall be submitted to peer-reviewed reports.

This proposal offers opportunities to monitor essentially all the genetic issues raised in regard to hatcheries. This project is out-of-basin but addresses the specific objectives on relative fitness of wild and hatchery steelhead, thus is highly relevant to the Columbia River Basin with notable strengths and applicability. Objectives are to evaluate relative reproductive success, and the proponent's publication record indicates that the information will be useful to subbasin plans with similar supplementation experiments or interests.

The proposal also describes how sponsors have reached out to other supplementation researchers to foster an ongoing dialogue. We support this and encourage its continuation. The project was compared to others in the basin (e.g., Hood, Abernathy) and outside the basin (Minter, Hamma Hamma; no mention of Keogh), and an integration of studies has begun (the proponent should provide a report of the workshops).

Project documentation would benefit by a letter from WDFW Forks Creek facility documenting their continued support of and participation in this project. No doubt they do.

200305400 - Reproduction Of Steelhead In Hood River

Sponsor: Oregon State University

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$339,575 FY08: \$353,157 FY09: \$371,558

Short description: The project sponsors will continue estimating the fitness of fish from traditional and from supplementation hatcheries (relative to the fitness of natural-origin fish) when breeding in the wild. New data to include F2 offspring and 2nd supplementation stock.

Recommendation: Response requested

There is a well-defined issue on the use of hatchery fish to supplement wild steelhead production. This excellent proposal explains the background and published literature from this site. This work really points to the dangers of domestic or out-of-system brood sources, residualism in steelhead, and also provides evidence for the much-improved practice of wild native broodstock (when available) for at least the first generation of returns. There remain

concerns about the effective population size of hatchery brood relative to wild, particularly when wild are at low density, and ecological impacts, as well as effects after several generations.

There are two different issues: first, reproductive success of hatchery fish on the spawning grounds (ESA-lambda), and second, the fitness implications as a result of hatchery rearing. The separation of tasks is not clear within the proposal, and should be. This is not a study of fitness effects of hatchery fish (similar to Minter Creek). These are populations that have had long-term hatchery and wild interactions. Advocates and detractors of supplementation have used the results of preliminary work in potentially over-reaching situations. A clear result is required, and should appear in the peer-reviewed literature. This work is to finish the data collection through the F2 generation. Those results need to be reviewed (ISRP, literature) prior to consideration of funding for analysis at the F3 level.

Even though there may be large numbers of hatchery returns, the effective size of the family is only as big as that collected for brood (or less, if some families did not survive). The issue requires further study, i.e., the effective family size and how that can be altered by fish culture, and its impact on the wild population over the long term. Beere and Heggenes (2006) calmed some concerns over the short term, based on results using wild brood at Kitimat when wild numbers were high, but noted caution was required over the longer term and when wild abundance declines to low levels (a potential genetic bottleneck).

On the Hood, where acclimation sites abound (smolts released throughout the watershed), residualism (precocious parr or resident trout from fish that fail to migrate) is a serious issue, for both the river ecology (predators and competitors) and genetic impact. Although most residual parr die after displacing or out-competing smaller wild parr and consuming wild fry, some mature and spawn with wild fish. Spawning (residual) parr also likely confounded the Hood River analysis - both the wild and the hatchery brood and return samples were derived from a population containing residualized hatchery steelhead.

Some evidence of collaboration with similar projects (e.g., Forks Creek, Mintow, Grande Ronde) would be a benefit, but at this level of the investigation and academic qualifications, it can be assumed. Published results should be provided (soon). Nevertheless, sponsors need to tie this work into other work in the basin. What is the connection between this work and that of other agencies (ODFW and NOAA) on supplementation?

A few questions remain:

- Blouin's work and Kostow's papers seem to present different interpretations of the relative success of hatchery fish. This needs to be addressed.
- Power analysis of genetic work? How many loci and alleles are needed?
- Planning for post-Powerdale? How will the work continue or be affected by the removal of the dam, where the key data on adult returns is collected?

200306200 - Evaluate the Relative Reproductive Success of Reconditioned Kelt Steelhead

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$612,083 FY08: \$645,912 FY09: \$672,115

Short description: Our proposed study will directly measure the reproductive success of natural-origin, hatchery-origin, and reconditioned kelt steelhead in natural streams. This will yield quantitative data replicated geographically and temporally.

Recommendation: Response requested

A response is need before the ISRP can make its final recommendation, but this proposal appears like it might be fundable as a companion project to 200001700. These two projects need coordination.

Project 200001700 has documented success at capturing and reconditioning kelts in previous years; however, it is still in an experimental data collection phase with a long-term objective of determining whether the entire process of reconditioning kelts leads to increases in production through genetic contribution of reconditioned kelts back into the parent population. It is important that that project continue to finish the "experiment" as it is described in their proposal following along the lines of Table 5, which disturbingly, show absolutely no genetic contribution from the reconditioned kelts. The experimental work needs to be replicated several times, perhaps in several locations, in order to get reliable estimates of reconditioned kelt contributions to natural spawning populations.

The budget on this kelt project (200306200) looks like it might be moving into implementation phase, which is inappropriate at this time, particularly given the results to date of the other project. It is important that the experimental work (the testing and experimental phase of project 200001700) be brought to a conclusion, evaluated, and a regional decision made about how and whether to move further into kelt reconditioning. It may be appropriate to fund 200306200 as a companion study in order to more quickly obtain the data and insights necessary to evaluate whether kelt reconditioning can be used to augment population rebuilding objectives; however, if this is done, this project (200306200) would have to be redesigned to be coordinated and complementary.

The two CRITFC proposals need to be justified together, which should be the thrust of the response. Table 5 sums it up -- not a single progeny was successfully related to the kelts. This appears like the effort is not going to go anywhere. Kelts may not be amenable to holding in a hatchery and then being released for spawning. How do you know if the progeny are from a pre-kelt or post-kelt reproductive event?

200717700 - Protect wild steelhead populations by minimizing the behavioral differences between hatchery and wild populations

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$285,438 FY08: \$309,678 FY09: \$318,997

Short description: A research program to determine the behavioral differences in wild and integrated hatchery steelhead populations, identify mechanisms that cause differences between populations, determine their consequences, and inform science-based hatchery reforms.

Recommendation: Response requested

This project is a fundamental research project aimed at gaining broader understanding of behavioral differences between wild steelhead and supplementation steelhead. Previous work has shown such differences between wild and domesticated steelhead, but this is aimed specifically at supplementation. There is good scientific justification for the work, with recent references, but the problem of behavioral differences between wild and hatchery steelhead was not fully captured. Stress response, feeding, and aggression differences are of interest, but of greater interest is the culmination of behavioral differences into overall differences in reproductive success and impact of hatchery fish on wild fish. The second component of this proposal captures this, somewhat, on the issue of residualism. There are other differences that might be explored as part of this work, including differences in run-timing (hatchery maturation schedules may be accelerated), spawning (time and location, interaction with wild, role of morphology), and further work on residualism (predation, competition, spawning, survival). This research project is potentially fundable as it addresses a key uncertainty (equivalency of wild v. supplementation steelhead). The approach is relatively solid, albeit exploratory and a first step. There are some improvements possible in design (or at least in presentation) to address a couple issues regarding statistical power and logical next steps (response requested).

The title is somewhat misleading; this work itself will, in fact, not minimize behavioral difference, but rather will investigate a limited number of these differences. Moreover, important differences that occur in the wild are not as well covered. Observations planned are mainly in the hatchery, and may not reflect the differences that occur in the wild. A more thorough literature review and expansion of the proposal (including graduate work) may capture a broader spectrum of the differences that remain within "integrated" populations.

The proposal is not specifically tied to any single subbasin plan. The sponsors might conduct a rapid screen of such plans for specific priorities and present these as a rationale to strengthen the proposal. Regardless, it is tied to the Council's 2005 research plan. An important element is the addressing of groups of interlinked behaviors that might emerge from the transitional hatchery experience (1 generation) associated or expected with supplementation. This study begins to address key assumptions of supplementation: i.e., behaviors among wild v. supplementation are effectively similar and that any differences will have little consequence (fitness, viability, etc.) to the recipient population.

This project may provide some basic data as to whether supplementation steelhead have similar or comparable behavioral responses to stresses associated with the hatchery environment as wild steelhead. Similarly, some basic data will be provided to assess similarity in fitness and viability.

The timelines are appropriate for such exploratory experimentation and are tied to the Fish and Wildlife Program through the 2005 research plan.

Objectives are concisely stated as experimental hypotheses with appropriate methods described. While the work is largely based in the hatchery environment, some attempt to make field observation and expand experimental channel studies would strengthen the value of the work. More specifically, from this work we will learn about hatchery stresses. If correctly understood from the motivations of the study, however, we need to learn about how the supplementation steelhead endure the stresses of the wild environment. That said, this is probably a tractable and manageable first step (but, the sponsors might wish to contemplate the logical and much needed next step). Thus, the handling event is "stressor" to which the first variable will test, is this the typical stress event in the hatchery environment (as opposed to feeding aggression, heron predation, human presence, etc.). Little background is provided regarding the adequacy and appropriateness of the opaque container method.

The sponsors would also improve the proposal by including a basic "power" analysis that addresses sample sizes needed and a discussion of what the experimental unit actually is (individual fish or the cohort). This latter consideration is critical for statistical power and how generalizable the results will be.

Lastly, the sponsors indicate that genetic analyses for pedigrees will be conducted. Will this be part of the sponsored project? It is not clear why, by whom, and how it really ties in with the hypotheses to be tested.

200705100 - Assessment of Interactions between Hatchery and Wild Summer Steelhead in the John Day River Subbasin

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$265,615 FY08: \$219,285 FY09: \$223,802

Short description: The goal of this project is to collect data that will address the question of whether interactions between hatchery stray summer-steelhead have the potential to impact recovery of the wild population in the John Day River subbasin.

Recommendation: Response requested

This is a potentially high priority project that should receive priority funding, as the importance of the John Day wild steelhead population cannot be overstated. The sponsors make a very strong case for the need for this research and the likely impact that hatchery strays are currently having on the John Day steelhead. This needs to be investigated and documented in order to determine appropriate management plans.

The problem of out-of-basin strays is well recognized within the John Day subbasin so the proposal addresses priorities in the subbasin, province, basin, and in NOAA recovery actions. It is not clear, however, that more data is even needed to identify that there is a problem. From the numbers and proportions of hatchery strays it is clear there is a huge problem. The sponsors should suggest a solution, identify that more data is needed to decide among the options, and provide convincing evidence that the radio tagging will provide the information.

The data they presented from 2004 concluded that there was an escapement of 3,726 wild and 2284 hatchery summer steelhead to the John Day. With this substantial number, sponsors need to discuss the options for determining where these fish migrate to and if they spawn. This seems to be the essential question, along with where they came from. If there is sufficient CWTs on all the hatchery steelhead stocks, sponsors could just sample a bunch of them at different locations in the river, remove the CWTs, and determine which hatchery they came from. Whether the most efficient strategy to determine if they migrate upstream to spawning locations is just to seine and PIT tag or floy tag a significant number in the lower river and then search the spawning grounds, versus radio tagging only a modest number and then wiring the river and using mobile tracking, should be the obligation and responsibility of the sponsor.

Clearly, assessing the relationship between hatchery and wild fish is clearly an important topic; the proposal does not adequately make the case that radio telemetry of 50 fish per year is the best way to go about it. The sample size is simply too small. Radio telemetry is more appropriate for studies involving general fish movements, migration timing, responses of movements of individual fish in relation to flows or other cues, habitat selection of adult fish, etc. Even if some hatchery fish are keeping company with some wild fish at some times and locations, which is always likely, the results will not easily translate into conclusions regarding hatchery/wild interactions beyond what is already known. Telemetry as a technology is ill-adapted to this sort of assessment.

Technical and scientific background: The first half of the proposal was thorough and convincing; however, the last half (methods, objectives, monitoring and evaluation) was inappropriately brief. Elements appear to be appropriate and on the right track; however, more detail is required to determine that is so.

The goal of this project is to collect data that will address the question of whether interactions between hatchery stray summer-steelhead have the potential to impact recovery of the wild population of summer steelhead in the John Day River subbasin. Recent projects to monitor the status and trends in steelhead redd abundance have discovered a greater presence of hatchery stray steelhead using the subbasin than previously thought. The John Day River subbasin is currently managed for wild steelhead and a better understanding of stray hatchery steelhead escapement, distribution, spawning success, hatchery of origin, and interaction with the wild stock is essential to recovery of the wild summer-run steelhead population.

The John Day River subbasin is the second longest free-flowing river in the continental United States with a drainage area of 8000 mi² and is home to the largest intact wild populations of spring Chinook salmon and summer-run steelhead trout in the Columbia River Basin. Steelhead are widely distributed throughout the subbasin and impacts from interbreeding with hatchery strays may be isolated to specific areas or widely distributed. Understanding how supplementation efforts throughout the Columbia River Basin relate to, and may impact the recovery of wild populations is an integral part of the management of the fishery within the Columbia River Basin.

In sum, this issue of hatchery-wild interaction is relevant and important in basin. The objectives are clearly stated, but the method proposed are not likely to clearly answer the questions posed. Specifically, radio telemetry may not be the best way to address the issue of hatchery/wild interactions, and the chances of getting a clearly interpretable result seem slight.

200729900 - Investigation of the Relative Reproductive Success of Stray Hatchery and Wild Steelhead and the Influence of Hatchery Strays on Natural Productivity in the Deschutes River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$466,730 FY08: \$409,178 FY09: \$395,072

Short description: The project sponsors propose to determine the number of stray hatchery steelhead entering Bakeoven and Buck Hollow creeks, degree of introgression between hatchery and natural fish, relative reproductive success, and the influence of hatchery fish on natural productivity.

Recommendation: Fundable (Qualified)

This project is a basic monitoring project intended to investigate the extent and consequences of steelhead straying into the Deschutes subbasin. Out of subbasin straying of steelhead is a growing issue with the increase in hatchery production throughout the basin. The technical background is extensive. The table with values of strays into the Deschutes is convincing that there is need to explore the impact to wild fish (2X wild in some years and locations). Also, the proposal presents a solid of the potential issues, including likelihood of introgression with wild fish where hatchery fish have purposely been excluded from release.

The proposed work, including the expected work in the out-years, addresses a fundamental uncertainty regarding the extent and effects of out-of-subbasin strays on wild steelhead populations. The project has four objectives that relate specifically to high priority issues identified in the Deschutes Subbasin Plan for steelhead.

The work should be applicable to other situations and other species as well. The project is specifically related to other projects (especially M&E projects) and will share resources to accomplish tasks. While the project will focus on a single treatment and a single control stream

within the subbasin, results should have at least a modicum of "range finding" value to other situations in the larger basin.

We reviewed a number of proposals aimed at undertaking parentage analysis. The description of the work is relatively thin and implies there is a standard set of protocols and experimental design for such work (which ISRP does not judge to be the case). This fact points to a general basinwide need to begin coordinating such work among groups, with other parentage studies, and with steelhead microsatellite work group for standard sampling and lab protocols.

The sponsors could enhance the robustness of the sampling if multiple treatment and control reaches were included (recognizing this would incur larger costs and effort). Sponsors should at least address this issue as a limitation in its broader applicability.

The ISRP's fundable recommendation is qualified because the proposal would be improved if the following items were clarified (the ISRP is not asking to review a response):
How feasible/possible is it to "remove all hatchery fish from Bakeoven Creek"? Juveniles (parr?) are to be examined to assess reproductive success. Might not smolt recruits be a more robust response variable? Are there prior experiences or attempts that can guide the efficacy of the approach?

How feasible are the proposed field sampling protocols? How do we know that the adult and smolt traps are going to work at the desired efficiencies in BakeOven Creek, for example. Are there prior experiences or attempts that can guide the efficacy of the approach?

How feasible are the adult steelhead traps? Are there prior experiences or attempts that can guide the efficacy of the approach?

There is some vagueness in analytical approach in Objective 3. For example, "...will apply appropriate parametric and non-parametric statistical tests," might be strengthened to include the basic approach (e.g., compare means, variance, covariance, etc. – although not necessarily the "specific" test).

Population Structure, Diversity, and Life History Studies for Salmonids

200717500 - DNA typing to identify native inland *Oncorhynchus mykiss*

Sponsor: Washington State University

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$80,445 FY08: \$124,266 FY09: \$129,235

Short description: New DNA-Based Tests, which distinguish the Inland and Coastal forms of Rainbow Trout will be developed. These tests should be widely useful for genetic characterization of Columbia Basin Populations.

Recommendation: Fundable

This project proposes to develop suites of molecular genetic markers for discriminating between coastal rainbow trout and inland rainbow trout. The problem of identification and historical mixing and introgression among these *O. mykiss* forms is identified and pervasive. Current methods based on allozyme polymorphism are inadequate for a number of reasons and beg for more modern approaches (to such age-old questions).

The project is fundable as it will develop usable tools for conservation and restoration of native rainbow trout populations. The methods are largely demonstrated as tractable by sponsors, and the applicability throughout the basin is high. The ISRP recommends coordination of this work with studies proposed by IDFG (200721800) to avoid duplication and to enhance overall power of results.

Several of the subbasin plans identify the mixing (and potential interbreeding) of these forms to be a current or historical issue needing methods to assess its extent and effects. While, the project will not specifically address any single problem or situation in a subbasin plan, it will provide the means to address these in the future. Ultimately, the project has direct relationship to numerous other genetics-based M&E or research projects.

The project has two primary objectives regarding the development of usable and appropriate molecular genetic markers for identifying the level and extent of hybridization between introduced and native rainbow trout in the interior Columbia basin: 1) SNPs that are equivalent to presently available allozyme markers (LDH-B and SOD); and, 2) a suite of new AFLP marker variants associated with the inland and coastal forms. The objectives are part of several subbasin plans.

The methods of developing the markers are adequately described and generally appropriate. The proposal will be stronger with the confirmation that populations selected are in fact monophyletic in terms of whether they are coastal or inland (as well as their allozyme genotype).

The sponsors should indicate also that number of SNPs or AFLPs that will be targeted for development. Published information indicates that even with fixed differences among groups, at least 8 to 10 loci (or more) characters are needed to discriminate among various hybrid,

backcross, and parental lineages in an admixture within a 95% confidence. For characters that are not fixed for alternative alleles or forms (such as with the allozymes) and even greater number is needed. Therefore, figuring the target of SNPs and AFLPs is important from a discriminatory power perspective. As a last minor improvement, the sponsors need to more clearly describe populations to be sampled, and sampling techniques.

200721800 - Development of single nucleotide polymorphism (SNPs) genetic markers diagnostic between coastal rainbow trout and interior redband trout

Sponsor: Idaho Department of Fish & Game

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$60,689 FY08: \$25,392 FY09: \$0

Short description: This project will attempt to identify unique nuclear DNA markers to allow differentiation of interior redband trout and coastal rainbow trout, allowing biologists to assess intraspecific hybridization and introgression.

Recommendation: Fundable

This project proposes to develop suites of molecular genetic markers (SNPs) for discriminating between coastal rainbow trout and inland rainbow trout. The problem of identification and historical mixing and introgression among these *O. mykiss* forms is identified and pervasive. The project will permit identification of population's monophyletic (unmixed) ancestry as well as those with polyphyletic (introgressed) ancestry due to recent human activities. The conservation and restoration value of such tools is high. The sponsors provided an excellent scientific background, with references, for this research project concerning a controversial and important issue. The sponsors should consult with sponsors of project 200717500 (DNA typing to identify native inland *Oncorhynchus mykiss*) and with the UC-Davis molecular ecology laboratory (B. May) to minimize redundancy or repetition of marker development. Ultimately this project is fundable as it will develop usable tools for conservation and restoration of native rainbow trout populations. The methods are largely demonstrated as tractable by sponsors and the applicability throughout the basin is high although it specifically identifies needs within the Kootenai subbasin, the application is expected to be transferable to other situations.

A strong argument is made for relevance of this work on hybridization of native and non-native trout and its relation to subbasin and basin plans.

Several of the subbasin plans identify the mixing (and potential interbreeding) of these forms to be a current or historical issue needing methods to assess its extent and effects. While, the project will not specifically address any single problem or situation in a subbasin plan, it has potential to provide the means to address these in the future. Ultimately, the project has direct relationship to numerous other genetics-based M&E or research projects.

The project has a primary objective regarding the development of usable and appropriate molecular genetic markers for identifying the level and extent of hybridization between introduced and native rainbow trout in the interior Columbia Basin. The methods of developing the markers are adequately described and generally appropriate. The proposal will be stronger

with the confirmation that populations selected are in fact monophyletic in terms of whether they are coastal or inland.

The sponsors should identify also the number of SNPs that will be targeted for development. Published information indicates that even with fixed differences among groups, at least 8 to 10 loci (or more) characters are needed to discriminate among various hybrid, backcross, and parental lineages in an admixture with 95% confidence. For characters that are not fixed for alternative alleles or forms (such as with the allozymes) an even greater number is needed. Therefore, defining the target of SNPs is important from a discriminatory power perspective. As a last improvement, the sponsors need to more clearly describe populations to be sampled, and sampling techniques.

200732300 - Investigate genetic parentage analysis techniques to estimate spawner abundance in ESA-listed steelhead populations

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$406,964 FY08: \$422,191 FY09: \$438,030

Short description: Investigate the feasibility of sampling juvenile steelhead and using parentage analysis techniques to estimate the number of steelhead spawners in rivers.

Recommendation: Not fundable

The proposal and project are premature and undeveloped.

The technical and scientific background on this exploratory research proposal is weak. Much of the first two objectives should be done as part of the project conceptualization and development process. While the technical background on the molecular methods is explained, there is a fair bit of listing computational techniques without much muscle to backup that this approach will provide answers. It is not clear what is actually being proposed other than research for an appropriate technique for estimation of spawner abundance based on genetic sampling of progeny. It is likely that a mathematical derivation is possible, but none is presented, or at least not understandably. The proposal is therefore premature and needs considerable development before reconsideration.

The proposed method, once researched and developed, is placed in the context of the Clearwater and Salmon subbasin plans and steelhead monitoring. The rationale lacks a compelling case for its need. The Idaho Steelhead Monitoring and Evaluation Studies are noted as related to this work, but in fact there are many more studies that could be related, across the basin. Collaboration with other geneticists and studies in the basin overall would benefit the developmental work.

The first two objectives are to explore the literature and talk with experts. These should have been undertaken as part of the conceptualization process. The third and fourth objectives have a little more meat but lack clarity as to what will be produced except lots of genotypes. No real hypotheses are articulated. Laboratory genetic methods are sound, but lack direction.

This is a research project that can potentially lead to M&E tools; however it needs much greater detail and development than is described in the present proposal. The proponents expect benefits for Snake River steelhead, but the outcome is uncertain and therefore benefit horizon is also uncertain. The project should not affect non-focal species. The characteristics of the information to be delivered are unclear.

199902000 - Analyze Chinook Salmon Spatial and Temporal Dynamics and Persistence

Sponsor: US Forest Service (USFS) - Rocky Mt Research Station

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$88,154 FY08: \$92,485 FY09: \$97,035

Short description: The project sponsors propose continuation of research applying a continuous, spatially explicit, and temporally extensive redd database to advance understanding of the spatial and temporal dynamics and factors influencing persistence of wild Chinook salmon populations.

Recommendation: Fundable (Qualified)

The sponsors propose to continue aerial surveys of the Middle Fork Salmon River to fully census spring and summer Chinook salmon redds, collect tissue from spawning Chinook in remote areas to add to tissue collections used to produce genotypic data, and perform correlative and cross-wavelet analysis of the relationship between the location of Chinook salmon redds and landscape features. The quality of the work and publication trail is excellent.

The data on the spatial and temporal variation in Chinook salmon redds is used in recovery planning by State, Federal, and Tribal agencies. The analysis of the relationship between environmental factors and spatial and temporal variation in redd (Chinook) abundance will add to the basic understanding of the persistence of Chinook salmon metapopulations. On this basis the ISRP believes this effort is justified.

At this time, the ISRP also qualifies the support for this activity. Specifically, there is a merging of research (the analysis of relationships between habitat conditions and redd abundance, and comparisons of index versus full census of redd counts) and annual trend monitoring of adult Chinook abundance via redd counts. These two functions of this proposal need to be clearly identified, and the research component needs to be justified in the future based on its broader application to the Snake and/or Salmon River systems. The project's publication record is excellent, but there is a lack of evidence that what is being learned is being translated into either modified sampling schemes, innovative analyses of persistence by TRTs, or modified land use management in other watersheds. There is a point of diminishing returns in any research effort. The level of effort for the trend monitoring and for the research components in the future needs to reflect data needs and the incorporation of the research products into management actions.

There are still vast amounts of spatial information collected on Chinook redds (in relation to habitat factors) to analyze and publish, so it is difficult to justify collecting even more. Managers might be consulted to determine the aspects of the data they are particularly interested in.

Finally, the next generation of space imagery may provide sufficient resolution to count redds, and this might be useful as a tool in sampling and monitoring salmon populations. This technology would greatly improve the efficiency and effectiveness of sampling and monitoring salmon populations.

200716800 - Using otolith microstructure and microchemistry to delineate growth patterns and spatial structure of Snake River Fall Chinook salmon

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$459,527 FY08: \$447,564 FY09: \$460,992

Short description: The project sponsors will conduct microstructural and microchemical analyses of otoliths from Snake River Fall Chinook salmon to examine how growth patterns vary with juvenile migration timing and residence times in different habitats along their migration routes.

Recommendation: Fundable

The authors propose to use otolith microstructure and microchemistry to study growth patterns and spatial structure of Snake River fall Chinook salmon with a specific objective of gaining understanding of the reservoir-type migrants. They hope to learn when and where these migrants spend their time during downstream migration. The proposal identifies the importance of the recently detected "reservoir" life history type of Snake River fall Chinook and provides a logical reasoning to refining when and where these fish reside and migrate within the Columbia River hydrosystem.

An enormous commitment has been made to understanding how flow, spill, temperature, sediment, load following, and transport affect the viability of the fall Chinook ESU, which has precarious status. This project will provide additional insight into the adaptation of fall Chinook to the modified Columbia River ecosystem.

The proposal suggests using recent advances in microchemistry along with standard microscopy to evaluate where in the hydrosystem fall Chinook were residing and growing prior to ocean entry, and then estimate food consumption rates. The methods are innovative (but used elsewhere with notable success) and have a potential to provide insights into the life cycle of fall Chinook unavailable traditionally.

199102900 - Research, monitoring, and evaluation of emerging issues and measures to recover the Snake River fall Chinook salmon ESU

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$499,731 FY08: \$499,731 FY09: \$499,731

Short description: Our study seeks to identify the factors that contribute to changes in life history timing, growth, and survival of fall Chinook salmon juveniles so that decisions on hydrosystem operation and supplementation can be made informatively.

Recommendation: Fundable

This is a well-prepared proposal to continue a project that has been exceptionally productive and well organized. In many respects it is a model proposal. The project is devoted to Snake River fall Chinook and has a proven track record of providing important information necessary to this species' recovery and deserves to be continued.

The technical and scientific background is very well written with a clear explanation of the project's history and a persuasive rationale for the work. A point the sponsors may wish to consider is that the use of F1 and F2 generations for supplementation seem ambiguous, and probably inappropriately used here. Is the F1 generation those individuals that are of hatchery-origin, and the F2 those individual born in the wild from the F1 (hatchery-origin) parents? In at least some circles, the hatchery-origin adults spawning in the wild would be the P1 generation; the progeny of these hatchery fish spawning naturally the F1 generation, and their progeny the F2 generation.

The proposal does a very good job of relating the work to the FCRPS BiOps, the Council's Fish and Wildlife Program, and the various COE programs. Subbasin plans aren't mentioned although Snake River fall Chinook do enter the lower reaches of several subbasins. There is a good description of the relationship of this project to other work.

The proposal sets a standard for a concise year-by-year summary of the project's history, along with the reports and peer-reviewed publications. The proposal sets an example for others by identifying the adaptive management implications of their investigations.

Objectives, hypotheses, and methods are clearly described, along with the timelines for completion. The proposal was very explicit, right down to the sample size and statistical tests in many instances. The methods have a proven track record. One statement that may be in error is that "growth of parr and smolts will be directly proportional to temperature." Actually, this statement will only be true over the cooler range and if food availability increases in direct proportion to temperature and provides enough to compensate for the increased basal metabolic requirements of the fish that accompany higher temperatures. At higher temperatures, generally above about 18°C for Chinook salmon, growth rate normally declines because of over-riding metabolic demands. In other words, there may be some scenarios in which growth of parr and smolts is inversely proportional to temperature if temperatures are high and food resources are inadequate. An accurate estimation of food availability is needed, especially when making

inferences about the potential for reduced growth of wild fish in the face of large numbers of supplemented fish (these comments apply to Objective 2).

The project will be thoroughly monitored and evaluated. The statistical analyses have been peer-reviewed (in prior publications) and are suitable. The proposal gives a good description of how the results can feed back into hydrosystem operations decisions, e.g., summer spill.

An excellent feature of the proposal is clear identification of how they are going to use their primary data to test prevailing assumptions about the state of nature, and then the implications of the inference for the next steps in developing management options. Most proposals fail to make a clear connection between the studies they are proposing and deciding among (or designing new) management schemes.

The results will be made available in reports, peer-reviewed publications, internet postings, and presentations. Plans for long-term storage of data and meta-data are not completely described, but they are assumed to be adequate. The project staff are some of the best publishers among all BPA projects.

In summary, this is a fine example of an effective proposal.

200203200 - Snake River fall Chinook salmon life history investigations

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$4,416,192 FY08: \$3,991,426 FY09: \$4,094,349

Short description: This project investigates the consequences of ocean- and reservoir-type life histories on passage timing, travel rate, survival, and SAR calculations for Snake River fall chinook salmon. Mechanisms and prevalence of these life histories are explored.

Recommendation: Fundable

This is a good proposal from a team with an established track record of success. The level of funding may be contingent on support from the US Army Corps of Engineers (USACE).

The project proposes to obtain primary data that will be essential to refining estimates of smolt-to-adult return rates (SARs), transport, etc for Snake River fall Chinook, particularly the newly recognized reservoir life history, under variable hydrosystem operations. These data and analyses are important to understanding the life history of this Evolutionary Significant Unit (ESU) and to evaluating whether hydrosystem operations can be manipulated to the benefit of the ESU.

The technical background is well developed and the research questions are clearly identified. A couple of the acronyms (e.g., TBR) were not identified and may not be familiar to everyone. The reservoir life history in Snake River fall Chinook is an important new development and deserves study. The complications the reservoir life history causes for the estimation of SARs and for evaluating transportation and in-river survival are clearly explained. The project is

clearly related to Updated Proposed Actions in the 2004 BiOp, and to the Council's Research Plan. It does not mention any subbasin plans.

There is text that establishes the relationship between this project and several others addressing Snake River fall Chinook status and hydrosystem operations. Given that the principal investigators are sometimes the same on these different projects, along with the huge budget increase, it would be helpful if there was a table that clearly identified all the data that was being collected by which project for what hypothesis testing. Trying to keep all of this straight is not easy, and therefore it is difficult to identify unnecessary redundancy in these proposals. They all tend to take credit for contributing the data necessary for our current understanding of Snake River fall Chinook.

The history was adequately explained, but without much detail for a project that is requesting so much money (~\$4 million per year, much more than in previous years). This was one of the projects that led to a much better understanding of the reservoir life history type, winter behavior and passage through the dams, and various methods of identifying the reservoir-type through scale analysis and genetic markers. Neither the history nor the relationships section differentiates well enough between its work and that of 199102900 (Connor's US Fish and Wildlife Service project). The history section might have gone into more detail about how the results have been used to date in the hydrosystem operations.

Clearly defined, measurable objectives are presented with adequately explained hypotheses and timelines. Excellent fish tracking methods are planned -- acoustic, radio, PIT, all related to hydraulics. The explanation of the experimental design, primary data collections and field methods, and analysis are clear. Because the project involves extensive fish marking it is important to include power analyses in determining appropriate sample sizes, and the proposal does a good job of showing how this was done. Procedures for monitoring and evaluation are thoroughly explained. This work will be applicable to studies of the behavior of other species in other regions of the Columbia River Basin.

The group has excellent facilities, equipment, and personnel. Much equipment is from Corps projects and will be used simultaneously with their work (cost-saving should be explored to reduce the cost to this project). The proposal describes the different ways information will be disseminated. They also include plans for long-term data and meta-data storage at the Pacific Northwest National Laboratory. This group has a fine record of publication.

200303800 - Evaluate Restoration Potential of Snake River Fall Chinook Salmon Spawning Habitat

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$289,960 FY08: \$378,972 FY09: \$311,739

Short description: The research to be conducted under this proposal will evaluate the restoration potential of mainstem habitats for the Snake River Chinook salmon fall-run ESU.

Recommendation: Fundable

This is a generally well-prepared proposal for an ongoing project that has produced useful results. The additional work coupled with the hydrodynamic modeling should be very helpful to hydrosystem operators.

The proposal clearly explains the technical background of the project and identifies a need for the research. It mentions that the highest potential spawning areas for fall Chinook in the mainstem Columbia and Snake Rivers have been reduced to 6% of historical areas, but it was not clear whether this figure included the preferred spawning areas in the lower reaches of major tributaries. The proposal does a good job of identifying the potential to adjust operations of the lower Snake River dams in order to improve tailrace spawning potential. The background also identifies that microhabitat analysis has provided limited insight into predicting what characteristics salmon require when they decide where to spawn. The weakness of the background is that it does not provide compelling evidence that they have overcome this limitation, and that they are, in fact, capable of making measurements on habitat, modeling flow, and then determining what the quantity and quality of the habitat might be. The predictions need to be tested empirically, if possible.

The proposal places the research in the context of the 2000 BiOp, and relates the study to knowledge gaps identified in Independent Scientific Group and ISRP reports. While it does link the study to the Council's Fish and Wildlife Program, it does not specifically mention subbasin plans. The proposal describes the partnership with the USACE and the history of hydrodynamic modeling, and it mentions some of the other Snake River Chinook projects. However, it does not mention the ongoing life history projects or discuss how hydrosystem operations to improve spawning habitat could affect other segments of the life cycle (e.g., outmigration timing). The project history is informative about what the project did, but not what they have found so far. More details on results would have been helpful.

There is a very clear set of objectives, hypotheses, and timelines. The introductory material provides a good overview of the study, although there are few explicit references to how the study addresses planning objectives (other than the overall objective of increasing natural fall Chinook spawning). As the work progresses, numerical objectives may be needed to justify the costs to the hydrosystem of operational changes.

The methods build on the results of previous research in this project. For the most part, they use the latest technology and address the various controlling factors on substrate morphology. The

hydrodynamic modeling work could be very helpful in guiding hydrosystem operations. There is some weakness among the goals, the data they are going to collect, and the inferences they hope to make, which provoke a sense of caution. The assertion that the product of the proposal provides a means for linking effects of physical habitat variables to measurable biotic parameters and ecosystem processes is limited to a post-hoc description of what they observed, not a prediction of what would happen at other sites. The determination of quantity and quality of habitat suffers from lack of precise definition of each and how they are measured in the field and analyzed. It seems likely that these measures will not provide self-evident conclusions. Rather they will be inferences open to debate about their veracity, with a need to be established by empirical testing.

The monitoring and evaluation methods are clearly identified. To some extent, the investigators are at the mercy of the weather and Snake River discharge, but they should have at least some real-world conditions with which to compare model outputs. It wasn't clear how the fluctuating flows under load following would be factored into their model.

The personnel are highly qualified for this project. Similar work is being done in tailwaters elsewhere. The proposal mentions peer-reviewed publications and progress reports, but does not specify if or how data and meta-data will be archived and made available to the public. However, the Pacific Northwest National Laboratory has a good track record in this regard.

This project will clearly benefit naturally spawning fall Chinook salmon and could be very helpful if the US Army Corps of Engineers is willing to modify dam operations to create and maintain longitudinal bars in the tailraces that the salmon seem to prefer for spawning.

199900301 - Evaluate Spawning of Fall Chinook and Chum Salmon Just Below the Four Lowermost Mainstem Dams

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,183,925 FY08: \$1,216,893 FY09: \$1,263,378

Short description: Monitor, protect, and enhance the spawning populations of fall chinook and chum below Bonneville Dam. Search for evidence of fall chinook spawning below The Dalles, John Day, and McNary dams.

Recommendation: Fundable

This is an extremely well-prepared and well-documented proposal. The background on technical and scientific issues is thoroughly presented. The project history appears complete and identifies that management calls upon the project for information to support hydrosystem operations, and that system operation modifications are under consideration because of the products of the project. There is a clear statement of objectives with a well-established need. The rationale and significance are clearly identified. Information on chum and fall chinook spawning and adaptation to the hydrosystem is crucial to system modifications to accommodate fish. The data will undoubtedly lead to management that will provide persisting benefits.

The project is directed by experienced personnel who have an appropriate mix of expertise. The methods employed are sound, usual practices in fisheries investigations with the exception of the DIDSON sonar, which is rather new. The correct population parameters are being measured. The proposed activities are well integrated with past work and other agency projects.

200701400 - Stock specific run timing and upstream migration mortality of adult Chinook and sockeye salmon and steelhead through PIT tagging and genetic analyses at Bonneville Dam

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$318,986 FY08: \$314,300 FY09: \$334,609

Short description: Sockeye and chinook salmon and steelhead sampled at the Bonneville Dam Adult Fish Facility will be classified using genetics and PIT tagged to assess upstream timing and survival.

Recommendation: Fundable (Qualified)

The authors propose to PIT tag upstream migrating chinook, steelhead, and sockeye as well as taking samples from these fish for GSI analysis. From this they expect to gain information on stock-specific upstream migration timing, estimate stock-specific mortality (and approximate location), estimate straying rates, and get a measure of fallback. The proposal makes a good case for the importance of this work, the results of which will certainly be useful in modeling fish movement up through the hydrosystem.

This project has the potential to yield valuable information, but the ISRP concludes that clarification is needed that PIT tagging sample sizes (number of PIT-tagged and tissue sampled fish) are adequate to produce enough recoveries to make the results statistically valid. A better justification for the sockeye salmon genetic stock identification element would be helpful. The explanation of the sample sizes and sampling scheme is not sufficient to judge whether the data will have sufficient precision.

The ISRP qualifies this fundable recommendation because this proposal, if funded, should consider thoroughly the sample sizes for PIT tagging, the scope of the genetic investigation, and the basis for using genetic methods to identify stocks of sockeye salmon since there are only two stocks in the basin. This information is needed so the project can show that the number of fish proposed for tagging is adequate to yield sufficient recoveries as adults migrate through the mid- and upper rivers. Additionally, the proposal does not describe how adjustments to the number of PIT-tagged fish will be accomplished if tag recoveries are not living up to expectations.

The proposal briefly states that other projects monitoring PIT-tagged fish will find the adults PIT-tagged in this study useful, but it does not provide details. Two PIT tag detectors are going to be purchased, and one will possibly be used at Wells and Tumwater Dams. In general the discussion of the locations needed for PIT tag detections to estimate the various metrics is not presented. The adequacy of the current arrays is needed.

It also does not mention the potential relationship of the genetic stock identification portion of this project to other genetics studies in the Columbia River Basin. The proposal mentions that a genetic baseline of Chinook populations has been created but does not give it. It would have been helpful to see what has been done to date.

If only two significant stocks of sockeye are present in the basin, and they can be partitioned by migration over Rock Island only versus Rock Island and Tumwater, what is gained by the genetic analysis? Could some of the effort to genotype the sockeye be directed elsewhere? How was it determined that using Chinook salmon microsatellite loci would be adequate to assign sockeye salmon to these two stocks?

200727300 - Evaluate the effects of hyporheic exchange on egg pocket water temperature in Snake River fall Chinook salmon spawning areas

Sponsor: Pacific Northwest National Laboratory

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$163,547 FY08: \$210,086 FY09: \$193,557

Short description: The research to be conducted under this proposal will evaluate relationships among river discharge, hyporheic zone characteristics, egg pocket water temperature, and emergence timing of Snake River fall chinook salmon.

Recommendation: Fundable (Qualified)

The proposal lays out a case for developing a better understanding of the effects of surface-hyporheic water exchange on the developmental rate and survival of fall Chinook eggs and alevins below the Hells Canyon dam complex, and whether operation of the dams can generate flow conditions that improve survival and accelerate embryonic development. The working hypothesis is that water releases from upstream storage reservoirs and the timing of spill can be adjusted to increase egg survival and cause fry to emerge earlier.

In general, the objectives are clearly stated and specific timelines are given. Our main concern had to do with sample size. Fourteen sites, 25% of the total number of "most used" spawning areas, have been selected (a map would have been helpful). While this seems like a plausible number of sites for a general survey of Chinook reproductive success, the proposal did not really address the question of how many sites would be needed to achieve the overall objective of developing a better understanding between egg survival, hyporheic flow dynamics, and modified reservoir operations. At \$10-15K per sample site per year, it is important to sample enough sites to answer the central questions, but at some point adding sites may not yield much additional information. Nevertheless, as long as sample size is reasonably justified, this should be a worthwhile effort.

200733300 - Timing and survival of PIT tagged juvenile fall Chinook from the Hanford Reach

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Columbia Plateau **Subbasin:** Columbia Lower Middle

Budgets: FY07: \$151,659 FY08: \$148,120 FY09: \$151,214

Short description: (n/a)

Recommendation: Fundable (Qualified)

The authors propose PIT-tagging 20,000 Hanford Reach fall Chinook aimed at improving survival and informing management. Given the large investment in PIT-tagging throughout the basin and the infrastructure to monitor PIT-tagged fish, this project seems well justified.

The proposal summarizes PIT tagging of Hanford Reach fall Chinook salmon over the past decade or so, indicates that tagging is not currently scheduled, and uses this as a rationale to justify PIT-tagging 20,000 juvenile salmon. The complexity of evaluating management options for improving survival of fall Chinook salmon is briefly mentioned. The PIT-tags cannot only be used to track dam-to-dam movement and survival, but they can be picked up as returning adults ascend the river. The infrastructure is largely in place to do this, and the proposal aims to take advantage of the PIT-tag sensing equipment located at key locations where Hanford fall Chinook are likely to show up.

The ISRP's qualifications include: PIT-tagging only the larger fish might yield different results from the smaller component which is 80 - 90% of the population. Larger fish are known to survive at higher proportions. Some consideration should be given to incorporating these known differences into the interpretation of the results of the investigation, before it begins. Perhaps some work has already been done on size-related movement and mortality. There was also no mention of whether there will be any attempt to determine PIT-tagging mortality rates.

200735300 - Quantitative and effective analysis of Columbia River Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*O. mykiss*) population viability

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$155,531 FY08: \$145,380 FY09: \$145,380

Short description: The project sponsors propose to do a quantitative and effective analysis of Columbia River Chinook salmon and steelhead population viability, which is a required task for conservation management of listed populations under the U.S. Endangered Species Act (ESA).

Recommendation: Response requested

The authors propose to perform a quantitative viability analysis of Columbia River Chinook salmon. The technical background section implies in several places that the viability analyses of NOAA Fisheries were based on unrealistic assumptions (e.g., independent populations), thus not accounting for straying, interbreeding, etc. It is certainly the case that the metapopulation

structure can play a critical role in the viability of a species and that spatial structure plays a dominant role in the dynamics of Chinook salmon. Therefore, it must be included in any serious viability analysis. On this basis, perhaps more complete analyses are justified.

The ISRP has reservations about the proposed analysis and consequently give it a "response requested" rating. Our impressions for consideration by the sponsors follow:

The stated objective is to perform an analysis. The objective should be to explore (or determine) the effects of stock diversity on the long-term persistence and cumulative abundance across stocks within strata and ESUs. The analysis is the task to reach the objective.

The proposal makes the interesting comment that life history types within regions are more similar than life history types among regions. How this statement accommodates the development of the "reservoir" life history type in fall Chinook, which contains elements of both stream and ocean life history strategies, is not explained. How will life history variation within regions be factored into viability analyses?

The proposal sponsors make two observations about the current status of population viability assessments for Columbia River Basin Chinook salmon and steelhead. The first is that the methods used by Holmes and McClure can be improved upon by performing a hierarchical analysis of contiguous populations which recognizes a dependence (in the analysis) on migration and interbreeding among spatially discrete populations. Although not entirely clear, presumably at least one portion of the hierarchy would be the populations presented on a line in Table 1. For example Catherine Creek, Wallowa/Lostine R., Minam River would be contiguous populations of spring Chinook in the Grande Ronde subbasin. The second is that quantitative methods of incorporating spatial structure and diversity (which along with abundance and productivity are the four VSP parameters proposed by McElhany et al. 2000) are not yet treated quantitatively in extinction analysis, and they should be.

The proposal needs to provide a more compelling case that they can rectify the limitations of the anticipated TRT, and Holmes and McClure analyses, and that this updated analysis can meaningfully alter the interpretation of management options. Somewhat of a case is made for improving the Holmes and McClure analysis, but the argument is not clear in terms familiar to mathematicians. The case is not made for diversity. It is not clear that the data needed to perform this analysis are available.

Granted, the Bayesian approach that is proposed here is tricky to explain, but Figures 1 and 2 did not help very much. Aside from the computational issues, there were questions of how data would be obtained, how missing data would be treated, and other practical issues that the proposal did not address.

The Bayesian approach may be the best available approach for this viability analysis and that the inclusion of spatial considerations and straying is absolutely necessary to make the results

significant. However, the authors do not provide convincing evidence that the data are available to pull this off or if it is available that they know where to find it.

The first element is to estimate effective population size, or if the data is not available to assess that, probabilistic frequency of catastrophic decline. Sponsors state that it is challenging to measure an abundance threshold of a population below which the population goes extinct. The problem is not just measuring it. The problem is deciding what it should be based on our understanding of the demography of the species. It is not clear how an estimate of N_e will be made, the number of units for which this can be estimated, what data is required to estimate the catastrophic decline, how many populations can be evaluated for this parameter - or what this will be used for.

The structure of the hierarchical analysis needs to be clarified. Is there to be two hierarchies - populations and ESUs? In any case, how is the ESU hierarchy to be interpreted? That is the challenge facing the TRTs (and the tribes, states, and nation for that matter). For example, is it acceptable if an analysis of an entire ESU concludes it is viable for a 1000 years, because some individuals remain in one subbasin (spring Chinook for example the Tucannon) but the ESU is extirpated in all others (Grande Ronde, Salmon, Imnaha)? It is not clear that this improvement in analysis necessarily solves the essential policy and management dilemma.

The sponsors seem to consider only gene diversity measured by allozymes, microsatellites, etc. in their assessment of diversity; whereas McElhany considers population variability in habitat and life history attributes that may not be reflected in genes that we can measure at this time. The methods to describe genetic diversity were essentially lacking, other than a few sentences and some references. Statements such as "Genetic diversity, population structure, effective population size, and gene flow among populations will be analyzed" (page 10) need to be followed with at least some details. There is an expanding universe of analytical approaches to determining population parameters (like migration rates) from genetic data. Sponsors need to provide convincing details of their intentions to be able to conclude they are on the right track.

There is no explanation of how much more genetic analysis will need to be performed. The budget for genetic and demographic analyses is the same...to the penny.

200716900 - Total Dissolved Gas Effects on Incubating Chum Salmon Below Bonneville Dam

Sponsor: Pacific Northwest National Laboratory

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$451,147 FY08: \$235,341 FY09: \$164,912

Short description: The project sponsors propose to evaluate the potential for toxic exposure of incubating chum salmon to elevated total dissolved gas (TDG) below Bonneville Dam by 1) monitoring TDG below Bonneville Dam and 2) conducting laboratory toxicity tests on chum salmon alevins.

Recommendation: Fundable (Qualified)

The proposal is well written and meets the criteria set for ISRP review, so no response is requested. However, an issue is raised relative to the status of this proposal with the Corps of Engineers to avoid redundancy in funding by BPA. If the Corps funds the project then presumably the Fish and Wildlife Program would not be involved although cost-sharing with BPA is mentioned. Long-term storage of data should be discussed.

Technical and scientific background: The proponents provide a thorough review of the scientific literature and clearly define the problem.

Rationale and significance to subbasin plans and regional programs: The proposed project is associated with the lower Columbia River subbasin plan and the 2004 BiOp and Action Agency Response.

Relationships to other project: The proposed project is linked to a similar project funded by the Corps of Engineers in FY 2006, but FY 2007 plans are not clear. However, no proposal number is given, and little description is given of the project cited, so it is difficult to evaluate the relationship (page 6). The relationship between this proposal and the one submitted to the Corps needs explanation. The status of Corps funding in FY 2007, and proposed cost sharing between the BPA and the Corps should be clarified prior to approval for funding. In addition, the proposal states that it is directly related to BPA Project 199900301.

Objectives: The two objectives are clearly explained. This section would have been improved if study objectives had been matched to subbasin objectives.

Tasks (work elements) and methods: Methods on investigating TDG and its impact on chum embryos and fry are sound. This section would have been improved by a map showing the study area and proposed locations of installations of piezometers.

The proposal expresses some interest in measuring the habitat of newly hatched fry. These fish are capable of burrowing to some depth in certain substrates. Thus measurements of dissolved gas at the level of the redd, may not apply to some of them.

Monitoring and evaluation: Monitoring is adequate for the experimental studies proposed. Long term M&E is a possibility for spill events using methods developed in the project, assuming there is an interested agency to do the work.

Facilities, equipment, and personnel: Facilities are adequate. The chief Principal Investigator is a recent graduate with a developing publication record but other team members are very experienced and productive researchers in the field of total dissolved gas studies.

Information transfer: The proponents plan to publish results in a peer review journal. Work products are specified as reports for each of the Work Elements. However, we see no mention of disposition of the data obtained. Will it be made available on a long-term, readily available database?

Benefit to focal and non-focal species: Results of the project are expected to have broad application to chum ecology and for spill-related questions in the Columbia River Basin. Increased knowledge of the hyporheic habitat are expected to benefit some non-focal organisms (e.g., invertebrates) in the Columbia River Basin. The proposal would be improved by a discussion of possible effects of the research on other non-focal species.

200735500 - Determining the Accuracy of Adult Coho Salmon Population Estimates from a Random, Spatially Balanced design using Area-Under-the-Curve

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$100,192 FY08: \$83,798 FY09: \$87,990

Short description: Compare accuracy of AUC and mark/recapture population estimates for coho salmon.

Recommendation: Fundable

This project is fundable or partially fundable after integration with coho spawning habitat assessments or an explanation of why the study does not need to be integrated (e.g., no evidence that habitat is limiting). There is a strong need to fill information gaps on the abundance of adult coho salmon. The proponents did not mention habitat and any issues surrounding the habitat. Further thought should be given to the choice of sample locations for the Area Under Curve (AUC) method. Ideally, some probabilistic sampling plan would serve best - if it is practical. There is a programmatic issue larger than this specific proposal in that many of the juvenile and adult stock assessment projects proposed by WDFW should have been combined and packaged together. There is a lack of integration, many different methodologies are being used, and standardized methods or statistical review are not apparent. Additional comments and question by the reviewers are listed below.

Technical and scientific background: There is clearly an identified need to improve coho escapement in the Columbia River Basin. The proposal explains the needs but it would be helpful to give reviewers a sense of the number of spawners they are dealing with and the length of the streams they are trying to enumerate. The literature review is somewhat scanty and would

be improved by a description of coho spawning habitat to give the reader a sense of what they are up against in enumerating this species, e.g., spawning under stumps, flooding washing away redds, etc. Only a few references in the peer-reviewed literature are given on spawner enumeration methods and most seem to be classical and older. Map(s) of the Abernathy Creek study area and other locations described in this section would have been useful.

Rationale and significance to subbasin plans and regional programs: Spawner enumeration is clearly required to enumerate adult returns, a key goal for harvest managers and this aspect is adequately demonstrated. However links to habitat restoration and ecosystem management in tributaries, also a key aspect of subbasin planning, are not highlighted. In fact there is little mention of spawning habitat at all. The tie in with juvenile assessment (to assess productivity) is only briefly mentioned on page 4, and an expansion of that linkage would give the reader a better sense of the total coho program in the subbasins.

Relationships to other projects: Proponents will collaborate with other groups doing spawner enumeration but do not mention any linkage to 200736800, which is a proposal for adult salmon coho monitoring by the same proponents in some of the same watersheds. The proposal would be improved if the work were integrated with habitat assessment studies which are a key aspect of the subbasin/province plans. Perhaps there is no concern about habitat limitations and productivity, but as the proposal reads now reviewers get no sense of that aspect.

Objectives: Objectives are adequately described but tie in with subbasin plans not well described, the reviewer should not have to refer to the subbasin plans to see where the work fits in. A more meaningful and measurable objective might have been: "to improve enumeration in x streams or on y stocks." No specific timelines are provided with respect to the primary objective.

Tasks (work elements) and methods: The methods seem to be straightforward but adding some details would have improved the proposal, e.g.:

- Map(s) showing the study area, locations of fish traps, and sections that will be surveyed (timeline), as well as a description of how appropriate (representative) the site is for addressing the objective;
- What methods are being used to hold the fish while they are being tagged?
- What techniques will be used for marking and tagging fish, and will handling effects be evaluated?
- How will the AUC enumerators count/detect fish spawning under stumps, log jams etc?
- Why is the diversity issue mentioned in methods as it is not listed as an objective?
- The issue of resighting uses a reference to steelhead as justification. However steelhead spawning habitat is very different than that of coho.
- Consideration of variation/confidence for estimates between reaches in Abernathy Creek would have improved the proposal.
- Inclusion of a statistical power analysis if 2005 data had been available at the time that this proposal was submitted.

-A greater emphasis (explanation) on cost-effectiveness of implementation and monitoring scheme.

A sentence at the bottom of page 7 and top of page 8 reads, "Variance of the AUC estimates will be reduced by walking all sections believed to have suitable habitat for coho salmon spawning." Is there a potential problem here in that those areas that are identified might be in areas where the timing of spawning might differ from parts not sampled, as for example if the "suitable habitats" identified are those easily accessed by observers in the lower reaches of the stream. If something like that occurs, the AUC could underestimate the population by as much as the 27% observed. Of course, a regression equation might be developed to relate the Petersen estimates to the AUCs, but the goodness of the fit would be affected by year-to-year differences in temperature or other factors affecting choice of spawning grounds by coho.

Monitoring and evaluation: Provisions for monitoring and evaluation are better than adequate. The proposal provides for assessing and comparing results of the AUC and mark recapture methods and if they do not work out, moving on to other approaches.

The proponents plan to use adult age structure as a diversity metric; however, most adult coho would likely have the same age (age 1.1, or 1 winter in freshwater and 1 winter in the ocean). DNA analysis (of scales collected during this project) is also mentioned as a future diversity metric, although the proponent does not describe techniques for collecting and archiving scale samples to be used for DNA analysis. Detailed methods for the use of percentage of surveys with spawners as a spatial metric were not provided.

Facilities, equipment, and personnel: Personnel are experienced in the fieldwork and inclusion of a statistician improves the credibility of the statistical methods. However it is not exactly clear what Dr. Cheng's job is in the project. All facilities and equipment are provided at no cost by WDFW (Region 5, Vancouver, WA), except for a computer.

Information transfer: Plans for including data in Streamnet and other specific databases are included. Apparently inclusion in a regional database is dependent on a BPA program. The proponents should press those concerned to implement this regional database, and this could have been part of the present proposal. A plan for publishing the results of the AUC-mark-recapture method in a peer-reviewed journal should be included as the present proposal appears to generate only grey literature.

Benefits to focal and non-focal species: Coho are listed and are an indicator species of subbasin and Province conditions. Knowledge of results of the comparison between AUC and mark-recapture will benefit other focal species if they are peer reviewed and published.

The results of the statistical analysis are likely to benefit a set of linked projects that use similar survey methods for estimating the abundance of the Lower Columbia River coho salmon ESU, as well as other species (Chinook and chum salmon, and steelhead). However, there was no description of techniques to be used for marking and tagging adult coho salmon at the traps, or

evaluation of potential harmful effects (direct mortality or delayed stress) on spawning adults or their progeny.

The proposal should include consideration of how or if the traps will impact other fish species in the streams (salmonids and non-salmonids) as well as other aquatic biota if present, e.g., mammals.

200725300 - Monitoring of Adult Abundance and Spatial Distribution for Snake River Spring/Summer Chinook Salmon ESU Populations

Sponsor: Nez Perce Tribe / Idaho Department of Fish and Game

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$505,083 FY08: \$458,274 FY09: \$365,394

Short description: This project will coordinate ongoing monitoring activities and implement new monitoring where needed to provide data for spring/summer Chinook salmon Snake River ESU populations for ESA delisting decision analysis and effectiveness monitoring.

Recommendation: Fundable (Qualified)

This is a well-written proposal that clearly identifies the challenges to obtaining precise estimates of adult abundance of adult spring/summer Chinook counts in the Salmon River system and why they are needed to decide among management options. The approach to resolving the problem is scientifically justified. The proponents provide a good literature review of the accuracy and precision of various adult-monitoring methods. This proposal has two main objectives: (1) improve the consistency and accuracy of adult Chinook enumeration in the Snake River basin and provide statistically robust estimates of population structure and abundance, and (2) further evaluate the use of dual frequency identification sonar (DIDSON) technology. Both objectives are worthwhile. The methods employ the latest scientific techniques such as DIDSON-based counts with underwater video verification, and an EMAP-like probabilistic selection of redd count areas within major population groups. The project managers have placed a number of checkpoints within the study for feedback on quality control. The ISRP likes the examination of DIDSON technology, since this may hold promise for adult counts where there are no dams or weirs where passing adults can be accurately counted. The costs are high but the technology is very promising.

Qualifications to consider:

The proposal did not elaborate on how they could take into account fall backs.

The relationships to other projects are not clear. Will the other projects have to be funded for this proposal to be successful? It went beyond the scope of the proposal and was very costly. There may be a cost sharing possibility for the equipment purchase.

Since suitable structures housing DIDSON technology will be installed in Big Creek, would it also be possible to equip the DIDSON site with PIT-tag detectors in the event that some of the returning adults carry PIT-tags?

The cover page states that the data will be made available in the form of reports to interested parties, and data will be maintained in a centralized database, but oddly there is no mention of publication in a peer-reviewed journal. The DIDSON evaluation would make an excellent paper, for example.

200725800 - Development of reliable ESU-specific estimates of escapement, harvest, and straying for adult anadromous salmonids migrating through the Federal Columbia River Power System

Sponsor: University of Idaho

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$938,732 FY08: \$958,585 FY09: \$979,035

Short description: The project sponsors will use telemetry monitoring of wild returning adult salmon and steelhead of known (PIT tagged as juveniles) and unknown origins to obtain timely stock and tributary specific escapement, harvest and loss estimates and other analyses as desired.

Recommendation: Response requested

There are several items identified below that the project sponsors need to respond to for the ISRP to complete an evaluation.

In addition to responding to ISRP questions, the ISRP recommends that sponsors clearly articulate and prioritize the objectives and try to narrow down the objectives to 2 or 3 that may be manageable.

As a first comment, however, this proposal reads as though the past projects that had been radio tagging adult salmon at Bonneville and monitoring their upstream migration to various points in the hydrosystem were winding down, and the sponsors of those past projects were searching for a use of the antenna array. It would be unfortunate if the array fell into disrepair and would be unavailable in the future. In the end, a decision to maintain the array when there is not an immediate use for a management purposes is an administrative decision. In the proposal it is not clear who is going to use the data or who is calling for the data. Past projects (or agencies) that have used data on radio-tagged salmon are identified, but not by project. Only one project 200714400 is clearly identified as needing radio telemetry monitoring of salmon, at this time. The proposal does not do a good job of justifying the need to gather the radio telemetry observations. The uses of past data are not well covered.

A response should indicate who wants the data and how it is going to be used in management.

A response should also explain the statistical basis for the design for testing escapements into different subbasins. The design for testing escapements and straying into various tributaries and reservoirs is descriptive. A discussion on a design for testing differences (e, g., ANOVA or an alternative) is needed.

There are multiple options for collecting data to estimate the various parameters that the sponsors indicate need to be determined - abundance, harvest rate, straying, fallback. The sponsors propose using the existing telemetry array and radio tagging fish to accomplish the task. There is inadequate justification of the benefits and costs of various options to collect the data - PIT tags versus radio tags, etc.

The budget includes the cost of 1,300 radio transmitters but no additional antennas, so the comment in the proposal (page 8) that "fixed aerial antennas will be installed in all major Columbia River tributaries..." was confusing.

Regarding tagging and sampling effort, the numbers to be tagged and the choice of fish were vague. For example, "known-source" fish with PIT tags (but unmarked so presumably natural) are preferred, but some hatchery-origin fish may be tagged. "Exact numbers of tagged fish for these studies will be determined by research needs and resources available." It seems like the purpose for radio tagging these fish is not yet established. The critical research questions (needs above) are not decided, so the numbers of fish to be tagged is not yet determined. This does not convince a reviewer of the essential need to use the array and radio tagging to obtain data on fish abundance and estimate vital fish population statistics from it.

The methods for biotelemetry work seem appropriate and established. The proposal would benefit from a back up plan if low escapements result in fewer fish to work with. How would smaller number affect variances?

Studies proposed under Objectives 4 (spill effects) and 5 (removable spillway weir, marine mammals) require specific experimental designs. These are complex topics and the present proposal gives only simplistic designs to study them. Methods for objective 4, regarding spill effects are not explained. More details on the design of experiments are needed as well as more information on the "innovative modeling" (proportional hazards regression). Were the results of the past research on this topic subjected to peer review?

Assignment of fish stock to "unknown-source" radio-tagged fish - Lundrigan et al. 2004 - was not in the citations. NOAA Fisheries is identified in the proposal as a contract provider to genotype fish and perform assignment of individuals. There is no evidence that NOAA knows it is a contract service provider for this proposal.

Regarding calculation of vital rates, the biggest question is the magnitude of the unknown losses and whether those overwhelm the precision of the estimates of real interest. There is little supporting documentation from the earlier investigations to put confidence limits on the estimates. Data from earlier work could be used to provide an idea about the sample sizes required and the quality of the data.

200728100 - Washington Salmonid Abundance and Productivity Monitoring Framework

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$512,000 FY08: \$334,000 FY09: \$364,000

Short description: Develops a statewide framework for monitoring the VSP parameters of juvenile and adult abundance and productivity for ESA listed salmonids. Implements monitoring at sites specified in the framework and enables prioritization of monitoring efforts.

Recommendation: Not fundable

The proposal requires considerably more detail and a better accounting of existing monitoring programs; i.e., what have we learned from monitoring other upper basin stocks that can be applied to this area? The proposal should be more than another plan to do planning. The proposal also seeks funding to develop a plan to monitor yet unnamed primary populations in the Mid or Upper Columbia regions (smolt monitoring for two populations and adult monitoring for one population). The scientific merits of the monitoring project are difficult to evaluate without knowing what the final plan will be. Proposed construction of rotary screw traps is premature. Project personnel costs are high relative to the proposed objective.

The technical background provides a discussion of salmonid population monitoring and discusses NOAA Fisheries' viability attributes, but it does not describe the status and trends of mid- and upper Columbia salmon and steelhead populations based on the results of the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Monitoring and Evaluation Partnership (CSMEP) efforts. Overall, the proposal omits many plans and programs to which this project could contribute in a meaningful way. Thus it does not really define the problem that is being addressed.

This project is related to six other WDFW proposals for monitoring abundance and productivity, as well as six ongoing projects; however, details of the relationships are not provided. According to proponents, the proposed project will provide an "overarching context for a coordinated approach to salmon recovery monitoring of abundance and productivity in Washington State" for this work. A better approach might have been to submit this overarching proposal along with the six other WDFW projects as a complete package in one proposal. Many of the monitoring design and process questions should be worked out before submitting a proposal. There is a wealth of information to draw on, and it appeared that this proposal would attempt to duplicate work that has already been done in monitoring design, especially if smolt production is the focus of the fieldwork.

It was not clear how the fieldwork would be verified for accuracy. For example, the proposal describes an EMAP-like design for spawner surveys, but only 40 sites will be selected (how was this sample size determined?) and there are no procedures described in the proposal to verify precision, accuracy, or give confidence intervals.

Coded-Wire Tag and Harvest

198201301 - Coded-Wire Tag Recovery

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,783,640 FY08: \$2,894,985 FY09: \$3,010,785

Short description: Recovery of CWTs from salmonids sampled in the commercial/sport fisheries (Columbia River and Oregon ocean), spawning grounds and hatcheries. Provides critical stock identification information required to evaluate the status of Columbia Basin stocks.

Recommendation: Fundable

Overall, this is a complete and clearly written proposal for a very large program that represents the coordinating mechanism for the three coded-wire tag (CWT) projects. It is the data collection and management program for the entire CWT effort. Tags recovered from ocean and river fisheries by Oregon and Washington are decoded and data provided to the PSMFC, which manages the data program. An extensive and detailed background section describes the components of the complex CWT sampling program: Columbia River commercial and recreational fisheries, Columbia River hatcheries and spawning ground surveys, selective fisheries, Oregon ocean fisheries (commercial and recreational). Helpful figures are provided to identify locations. The process of data extraction, management and analysis is also described in detail. A number of technical issues raised in past ISRP reviews are addressed in an excellent evaluative discussion. There must be many publications that have been produced based on the program, but the proponents have only listed a few, possibly because of space limitations.

The proposal emphasizes the CWT as a stock identification tool that enables many uses of the resulting data. It describes the broad range of uses of the CWT data by a range of agencies and management entities and links these uses with different sections of the Fish and Wildlife Program. However, the proposal mentions that habitat projects and planners also benefit from the program, and it would be useful to have the significance of CWT data to habitats explained more thoroughly.

The CWT recovery program is a strong collaborative effort with numerous projects using CWT data. More than 20 agencies provide cost-share for the CWT, ample evidence that the program is well integrated with other agencies. An excellent and well-documented history describes accomplishments of each of the subcontracting projects. It provides a particularly good discussion of the budget, giving reasons for each subcontract's components and budget line amounts. It describes the history of BPA funding in the context of the full regional finding. The proposal would have been improved by a more thorough evaluation of the effectiveness of this large-scale program given the increase in the use of mass marking and the downsizing of many fisheries.

The proposal has two main objectives: 1) sample catch and escapement for CWTs, and 2) summarize and analyze CWT and catch/sample data. The objectives are clearly laid out, with

explanatory descriptions, specific timelines, and definite and measurable benefits. The proposal calls for expansion of work into sampling PIT tags in the fishery and elsewhere. Wanding for PIT tags is a new objective and the proposal would be improved by more justification for this expansion and evidence of collaboration with agencies applying them, as well as by further discussion of ways in which CWT and PIT tags are complementary. However, this expansion of project scope is likely to provide useful information. There is also radio and hydroacoustic tagging; do the various tagging groups coordinate with each other?

The proposal identifies lingering and unsolved statistical and ecological problems related to methodology which may affect the accuracy and precision of data as applied to critical fish and wildlife problems such as conservation of ESUs, for example, the 20% sampling rate and the application of hatchery fish results to wild stocks.

Monitoring of results is the primary task of the CWT program and a network of sampling is set up to determine spatial and temporal trends. Another network of investigators does the statistical analysis. The proposal explains this multi-agency work very well. In terms of program effectiveness monitoring, the program performs a lot of quality checking of the data, but it is unknown the extent to which it evaluates how well it meets its objective

The proposal has a good plan for information transfer. Detailed descriptions of data dissemination, analyses conducted for various end users, and information are provided.

The ISRP is not requesting a response, but the proposal would be improved if the sponsors provided further information on:

- the problem arising from the lack of statistical support (mentioned in previous years);
- the ongoing issue concerning the 20% sampling rate;
- the problem of hatchery fish representing wild fish;
- the linkage between this program and the PIT program and whether there can be some collaboration at the tagging stage rather than the tag detection/sampling stage;
- the issue of data security.

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given recent reductions of some of the salmon fisheries sampled by this program.

198201302 - Annual Stock Assessment - Coded Wire Tag Program (ODFW)

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$245,680 FY08: \$250,593 FY09: \$255,604

Short description: Apply coded-wire tags to production releases of coho and Chinook salmon at ODFW Columbia Basin hatcheries for stock assessment of hatchery and wild salmon populations. Evaluate survival, contribution and stray rates of hatchery reared salmon.

Recommendation: Fundable (Qualified)

This well-written proposal is one of three projects (ODFW, WDFW, USFWS) that coordinates and funds tagging at ten Oregon hatcheries as part of the regional coded wire tagging (CWT) program. An excellent background section, the same as presented in the WDFW proposal, explains the need and utility of the coded-wire tagging program and how it addresses the issues of basin wide stock assessments and the monitoring and evaluation of hatchery production. It contains a very good description of the different fish marking methods. It clearly explains the basic assumptions of CWT marking and directly addresses several questions about CWT raised by the ISRP in its 2000 review. The sponsors provide a useful review of technical and scientific information on the coded-wire tagging program.

The 18-year history of the project is well described. A good narrative history of the project describes how project results have been used to modify and improve hatchery operations. It also describes the utility of understanding factors influencing variability in survival. Tables summarize the numbers of fish tagged over the life of the project, results of quality-control checks on tagging, and funding history. The narrative also discusses some of the challenges that have been addressed along the way. Disposition of the data on tagging is described. Overall, the proposal presents a good interpretive explanation of the program and its evolution over time that supplements information provided in the "answering ISRP questions" section.

The proposal contains a clear description of the significance of CWT to the region through its contribution to more accurate, complete and accessible data. It describes the wide range of uses for the data produced by the CWT recovery program. It relates the program to the Fish and Wildlife Program and to the BiOp-required Hatchery and Genetic Management Plans.

The proposal identifies the other CWT projects to which it is directly related, giving a clear description of how these projects interrelate to form a comprehensive monitoring program. The goal of the CWT Program is to ensure comprehensive monitoring and evaluation of all Columbia Basin Hatchery salmon production. The proposal also describes other agencies that use the data and the management forums that depend on the data for run-size forecasting and harvest allocation. It describes some of the multiple subbasin projects that use the CWT data. The CWT program is a strong collaborative effort.

Each coded-wire tag group represents a portion of the total hatchery production for the species. Multiple tag groups at each hatchery represent different production scenarios, such as one portion of the production released at a different time or size than another portion. This specific

objective, and the means to achieve it and other marking objectives, may be affected by a new basinwide-marking plan currently under development by the co-managers in the Columbia Basin. Although this plan is currently under development, additional marking and sampling likely will be required. Much of that expanded work will require the use of the CWT coupled with electronic tag detection sampling programs.

The proposal makes the point that the ability to meet the project's overall objective may be affected by changes in the basin-wide marking plan currently being developed by co-managers. In the introduction to the objectives section the proposal makes the point that this is an M&E project whose purpose is to provide information necessary to monitor, evaluate and manage salmon harvest and hatchery programs. By itself, it does not have a biological objective. The section describes how this project contributes to achieving the objectives of the Fish and Wildlife Program and BiOp through many related projects. Still, even though the description is clear, objectives for accomplishing the work this project does in the course of providing this information could have been specified. Later in the "work elements" section four appropriate "overall objectives" are specified. Methods are well described in detail. Error checking is a routine part of the tag application and data collection process.

The project is a long-term monitoring and evaluation project focused on providing information for the M&E of a range of other projects and programs. The information will be used to monitor and evaluate progress toward regional biological objectives, and provide the information necessary for adaptive management of salmonid populations and their habitats. The project contains elements of project effectiveness monitoring throughout in tag checking, data error checking, annual evaluations of tagging and recovery, annual evaluation of hatchery practices that lead to recommendations to change. The history and "answers to questions" sections provide additional examples of how this has occurred. There does not seem to be specific evaluation of the CWT marking process itself although otolith checks were used in a past effort.

The proponents state "there has been considerable statistical research that now provides guidelines on tagging levels and models for evaluating variability...(several papers cited)...but also say much more statistical work, however, remains to be done." It would be useful to have needed work identified. It would also be useful to know whether there has been any progress in solving the problem of underestimating tag loss (because this is assessed only in the first five days post tagging).

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given the recent reductions in salmon fisheries where CWT hatchery fish might be recovered. What will be the impact of the 2006 South of Falcon fishery reductions on the integrity of the data? What are the sampling implications of the fishery reductions?

198201303 - Coded Wire Tag - USFWS

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$115,538 FY08: \$121,315 FY09: \$127,987

Short description: The Coded-Wire Tag (CWT) Recovery Project is an on-going data collection and data management program by ODFW, WDFW, and PSMFC that contributes to the annual assessment of hatchery and wild salmon populations throughout the Columbia Basin.

Recommendation: Fundable (Qualified)

This is a companion project to the ODFW and WDFW projects. It coordinates and funds tagging at three national hatcheries as part of the regional coded-wire tagging (CWT) program. A brief but adequate background section describes the CWT and the uses of the CWT data, noting that the data are used to address many of the critical uncertainties associated with release of hatchery-reared fish. It also notes that prior to this regional program, groups of CWT fish were releases unsystematically in a way that prevented any statistical robustness in analysis of the data. The proposal does not discuss issues of bias and undersampling.

The proposal describes the applicability of the CWT program to a number of regional programs, most notably to various objectives of the Fish and Wildlife Program and to the Snake River Recovery Plan. The sponsors state that “the data generated from the long-term coded-wire tag program will be useful, if not essential, in meeting many of the goals and objectives and strategies of the 2000 Fish and Wildlife Program.”

A large number of projects are dependent on data produced by this project: the SAFE project, Yakima River Coho Restoration Project, Umatilla and Walla Walla Rivers Restoration Projects, Wenatchee and Methow Rivers Coho Restoration, etc. The proposal lists a number of agency sponsors and supporters and makes the point that the CWT is the tool of choice for assessing fish response to environmental variables over broad geographic areas. This project is part of the overall long-term CWT program, which is a strong collaborative effort.

A brief project history focuses on the funding history and number of fish tagged since the project began in 1989. In recent years, the number of fish tagged and released using BPA funding has decreased because other funding sources were found and because production releases were terminated. In 2005, about 200,000 fish were tagged; this is about 20% of the numbers tagged in the 1993-95 period because other funding sources were found and some production releases were terminated. No species breakdown or number of tags recovered is provided.

Three briefly stated project objectives relate to tagging coho and Chinook, sampling returned fish and capturing release and recovery data. Methods are described in summary form and are too briefly explained with too much jargon to evaluate the soundness of techniques.

The project is focused on providing information for the M&E of a range of other projects and programs. It contains elements of project effectiveness monitoring throughout in tag checking,

data error checking. This is a monitoring and evaluation program, but more detail is needed to determine if this program is meeting its objectives.

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given the recent reductions of salmon fisheries where CWT hatchery fish might be recovered. The proposal seems to indicate that this particular part of the coded-wire tagging program is in the process of being phased out or funded by other entities.

198201304 - Coded Wire Tag - WDFW

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$386,607 FY08: \$389,092 FY09: \$412,992

Short description: Apply coded-wire tags to production of coho and Chinook salmon at WDFW Columbia Basin hatcheries for stock assessment of hatchery and wild populations. Evaluate survival, contribution and stray rates of hatchery reared fish and compare to wild fish.

Recommendation: Fundable (Qualified)

This well-written proposal is for one of three projects (WDFW, ODFW, USFWS) that coordinates and funds tagging at Washington state hatcheries as part of the regional coded wire tagging (CWT) program. An excellent background section, the same as presented in the ODFW proposal, explains the need and utility of the coded wire tagging program. It describes how the CWT program addresses the issues of basin wide stock assessments and the need to monitor and evaluate hatchery production. The proposal contains a very good description of the different fish marking methods, clearly explains the basic assumptions of CWT marking and directly addresses several questions about CWT raised by the ISRP in its 2000 review.

The proposal clearly describes the significance of CWT to the region through its contribution to more accurate, complete and accessible data. It describes the wide range of uses for the data produced by the CWT recovery program. It relates the program to the Fish and Wildlife Program and to the BiOp-required Hatchery and Genetic Management Plans. The proposal identifies the other CWT projects to which it is directly related, giving a clear description of how these projects interrelate to form a comprehensive monitoring program. The goal of the CWT Program is to ensure comprehensive monitoring and evaluation of all Columbia Basin Hatchery salmon production. It also describes other agencies that use the data and the management forums that depend on the data for run size forecasting and harvest allocation.

The 15-year history of the project is summarized as the numbers and type of fish tagged in each year. The number of tagged fish released by this program has declined from 2,080,000 Chinook and coho in 2000 to a present goal of 1,360,800 Chinook and coho. It is not clear why the 2003-04 tagging levels are stated as a goal. The history of the number of tagged fish recovered from these releases and the annual costs of this program are not provided. Other sections of the proposal contain excellent interpretive explanation of the program and its evolution over time, particularly the "answering ISRP questions" section.

The proposal has three objectives: tag and release smolts from six hatcheries, recover and decode tags, evaluate results and develop preliminary catch distribution data. The proposal makes the point elsewhere that the ability of the project to meet the overall objective may be affected by changes in the basinwide marking plan currently being developed by co-managers. Methods are well described in detail. Error checking is a routine part of the data collection process. The project is a long-term monitoring and evaluation effort that contains elements of internal monitoring throughout in error checking, annual evaluations of tagging and recovery, and annual evaluation of hatchery practices that lead to recommendations to change.

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given the recent reductions in salmon fisheries where CWT hatchery fish might be recovered.

200710700 - What was old is new again: evaluate the pound net and beach seine as innovative live capture selective harvest gears

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$365,514 FY08: \$405,459 FY09: \$406,792

Short description: The project sponsors will evaluate the pound net and beach seine as live capture, selective harvest gears. These gears are expected to increase bycatch survival while providing innovative methods for harvestable hatchery fish.

Recommendation: Response requested

This project is fundable in part; however, the ISRP requests a response to address several questions and concerns. The ISRP's primary concern is that the feasibility of new selective-harvest fisheries with pound nets or beach seines should include a number of other factors, e.g., economics and property rights, which are not considered in this proposal. In the response, the proponent should address these other factors, as well as issues of habitat damage resulting from concentration of gear on shore. In addition, it is not clear from the proposal that it would produce the needed information or that it does not duplicate ongoing research on these gears. The proposal has a large budget that is poorly explained (e.g., \$136,000-\$150,000 annual personnel costs with no explanation as to the number of people, time, etc.; \$55,000 for annual costs of supplies with no explanation; etc.) More details are needed on fishing gear mesh size, potential bycatch of non-target species, proposed stress indices, etc. (see comments listed below). The ISRP does not recommend funding stress and reproduction research at this time, i.e., for this first round of feasibility assessment. The proponents should provide some information on the impact of the fishing gear on non-focal species as well as other focal species such as white sturgeon and cutthroat trout. Over and above these concerns the project is fundable, although the pound net component does seem further along in planning relative to the beach seine component. Proposed cost sharing with Washington Sea Grant needs further evaluation.

Technical and scientific background: Overall, the technical feasibility issues are addressed adequately to provide a background to the issue. However, the question of feasibility has many

more dimensions than technical efficiency, and it would have been useful to have a deeper discussion of these here. For example, economic, political and property rights issues (who owns the gear and the space? How is access allocated? etc.) are not addressed except for a passing reference to economic benefits from harvest. In the response, the proponents should demonstrate that they understand that technical feasibility is only a part of the answer, and that they have a plan for addressing the other components of feasibility.

The proponents make the statement: "Ideally a selective fishery would result in a 10% or less mortality to all released salmonids in a fishery where mass marking of hatchery fish occurs at a high rate," and then go on to discuss alternate mortality rates. Probably the acceptable mortality rate is in fact based on socio-economic as well as technical factors. In the response, the proponents should provide a rounded discussion of these factors. The proponents should also state what species of pinnipeds they are concerned about. The section "relevant work to date" with names of the proponents in parentheses would have been improved by the inclusion of citations to processed reports or publications with this information.

Relationships to other projects: This section discusses potential cost-sharing opportunities with other funding sources. Since these are as yet unrealized, they are not reflected in budget reductions for this proposal. It mentions a proposed reef net study. The project relates to another proposed selective gear study and to an ongoing selective gear study conducted by WDFW and the Colville Tribes. This study analyzes two of the same gears in this proposed study. This is an important omission. However linkages with harvest management projects are not explicitly mentioned but presumably are in place. In the response, the proponents should explain why, given this ongoing work on the same gears, this study is needed.

Objectives: Regarding the ISRP's earlier point about the many components of feasibility, just assessing technical feasibility alone will not in itself address objective 1 (improve harvest). In the response, the proponents should also consider economic, political, access, and regulatory objectives.

Tasks (work elements) and methods: The work elements are very poorly presented and are not specifically related to individual objectives. They look like an unedited series of ideas for the proposal. Details on methods are presented generally, and are to be worked out later. They appear to be listed by PISCES work elements numbers. The tasks related to pinnipeds are not related to any particular objective, and are poorly described. Overall this section does not project a confident plan for this research. The response should include a revision to the methods section of the proposal, including but not limited to answers to the following questions:

- How will the pound net be deployed, e.g., will it be intertidal? Where are the proposed fishing locations?
- How will marked fish be recovered on the spawning grounds given the difficulties in finding carcasses (especially coho)?
- What statistical analyses and estimates of variance will be used for data analyses?
- What specific stress indices would be used in the study?

-What are the mesh sizes of two nets?

Monitoring and evaluation: Element 156 -- The proponents request funding to establish fishing locations and times for use of pound net and beach seine gears and to design a study to evaluate reproductive success. The ISRP does not consider the proposed work element to develop a plan for a reproductive success study at the Alsea Research Hatchery using coastal fall Chinook in place of Columbia River fall chinook to be fundable. In the future, this could be submitted as a "stand-alone" proposal in the event that the proposed direct study on Columbia River fish is not possible. The proposed design to "mimic" stress using Alsea River coastal fall chinook does not account for other cumulative stresses, e.g., migration over dams, through reservoirs, elevated water temperatures, low flows, low oxygen, etc., that might be experienced by salmon captured and released in the Columbia River (but not in the Alsea River).

Element 157: The proposal would be improved by further explanation of how injuries by fishing gear would be assessed in Year 1 (if injuries not visible to the human eye occur). The visible index to evaluate condition would be improved by recording data on visible injuries from other sources (in addition to marine mammals) including diseases and parasites at the time of capture and release, e.g., lamprey scars, sea lice, fungus, scale loss, net marks, hook scars. For example, fish with existing injuries might experience more stress at time of capture than healthy fish.

Element 158: How will "control" fish in the mark/tag study be identified? Insufficient information is provided on the reflex response tests developed by Davis (2005).

Element 160: More details are needed on methods to be used to estimate survival.

Facilities, equipment, and personnel: In the response, the proponents should provide more details on the activities of Drs. Skalski and Schreck. Resumes are not provided for Carl Schreck and Blair Peterson.

Information transfer: In the response, the proponents should provide plans for release and long-term storage of data and metadata.

Non-focal species: The proposed work would be improved if there was concurrent evaluation of non-salmonid bycatch of fish, birds, and marine mammals. In the response, the proposal should be augmented with information about possible bycatch of non-salmonids and non-focal species. A number of species could suffer mortalities, depending on mesh size, water temperature, etc. Also is there a concern that repeated beach seining (assisted by winches) will damage estuarine habitat. This would depend on dimensions and weights of the gear (which are not provided).

200723000 - Selective Gear Demonstration Project: Reef Net Fishing Gear for Lower Columbia River Commercial Salmon Fishery

Sponsor: Washington Sea Grant Program

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$50,697 FY08: \$53,716 FY09: \$35,028

Short description: This project will demonstrate whether reefnet fishing gear, currently in use in Puget Sound, would be more selective of protected salmon species and prove practical and economical as commercial gear than currently used gillnet and tangle net gear.

Recommendation: Not fundable

This proposal is not fundable in its present form. A strong aspect of the project design is that it involves the fishing industry; however, the scientific and the technical background information are not sufficient. The ISRP's primary concern is that Puget Sound and the Lower Columbia River (LCR) are not comparable in terms of physical properties and resulting fish behavior with respect to reef nets (e.g., the technique requires clear water, fish migrating in one direction through a narrow passage, etc.). The potential for adverse effects of the gear on non-focal species and habitats in the LCR was not adequately addressed. The movement of the gear from Puget Sound to the LCR could result in movement of invasive species. No quantitative data analysis methods are provided for research, monitoring, and evaluation. Successful completion of the proposed work depends on active participation and cooperation of fishermen, agency personnel, and others who would not receive direct funding from this project. Detailed comments by are provided below.

Technical and scientific background: The problem is clearly defined. It addresses the need to find selective harvest methods that better protect ESA-listed wild fish in the Columbia River. This proposal would test the performance of reef nets, a fishing gear used only in Puget Sound, in the lower Columbia River. More background information on reef net fishing methods, the number of fish caught in reef nets when deployed in Puget Sound, species composition, and other details to show how the reef nets would reduce the by catch problem in the LCR is necessary.

Relationships to other projects: The project is related to two other by-catch reduction proposals. Possible collaboration is mentioned and the proponents anticipate that they "would utilize (WDFW) staff for data collection and analysis and permit requirements." It is not clear what this means.

Objectives: The objectives, which are really tasks, are clearly defined with specific timelines. The best aspect of this proposal, as compared to other proposals to test selective gear, is that it includes objectives to evaluate economic feasibility and acceptability by the fleets.

Tasks (work elements) and methods: This is considered to be a pilot project; however, descriptions of methods are very brief and incomplete. The proposal would have benefited from some preliminary evaluation and description of potential fishing sites, database formats, data analysis techniques, etc. The work elements listed as "objectives" are reasonable tasks to test the

gear. They are not described in detail. However, despite including testing economic and political feasibility under "goals," none of the tasks listed describe the collection of economic data. "Economic analysis at the end of the test period" is listed without description of data collection. The "Plan and timeline" section does describe the methods in more detail by performance period and does describe a reasonable approach. Again, though, methods on how this will be done are sparse. The proposal would be improved by more details on the net and where it is deployed (dimensions, water depth deployed, mesh size, etc.). It is difficult to evaluate if the gear can be used in the LCR without this information. The picture/sketch included in the proposal is not sufficient.

Experienced and objective fishers from the LCR should be consulted for their views on whether this gear will work or not in their area. It would be important to canvass them before deciding to move the gear down the LCR.

Monitoring and evaluation (M&E): M&E (evaluation of the performance of the reef net gear) is built into the steps of feasibility testing. But methods of M&E are not explained.

Facilities, equipment, and personnel: The equipment is adequate as far as can be determined. Only one of the team members has an experience in the LCR, and he fished in the river quite a few years ago. The proposal would be more convincing if Columbia River people (including tribal fishers) were engaged.

Information transfer is adequately described as providing information through coordination with managers and industry groups, in addition to routine reporting.

Benefits to focal and non-focal species: The proponents should have included a detailed plan to evaluate bycatch/interaction with all species of marine mammals, birds, and fish, as well as habitat effects related to deployment of reef net fishing gear. A number of species could suffer mortalities, depending on mesh size, water temperature, etc. The movement of the gear from Puget Sound to LCRE could result in movement of invasive species if the nets and boats were not sufficiently cleaned before they were moved. Interactions with pinnipeds would be evaluated, although detailed methods are not provided.

200724900 - Evaluation of Live Capture, Selective Fishing Gear

Sponsor: Colville Confederated Tribes

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$394,600 FY08: \$254,800 FY09: \$264,000

Short description: The project will evaluate promising live-capture, selective fishing gears to increase harvest of target species while conserving weak stocks. Results will be applicable to other tributary and mainstem locations.

Recommendation: Fundable (Qualified)

Overall, this is a well-written proposal, and the problem addressed is an important one. The proposal might require minor clarifications and adjustments to methods and objectives in the

final selection process. The final sample design is dependent on the results of ongoing work by WDFW in 2006, a review by ISRP, and hiring of key personnel. A major strength of this proposal is that the proponents looked at a range of issues related to feasibility: safety, cost, etc. The proposal would be even stronger if issues of economics, property rights, and bycatch mortality had been addressed. The fish wheels are likely to be the most successful of the proposed gear types. This could be confirmed by direct (on the ground) consultations with people who have used this gear elsewhere. The fish wheel in western Washington (low cost) should be purchased if in situ testing is recommended. It might be possible to test the wheel in the first year of the project and if it is successful perhaps the net traps might not be needed. The ISRP does not recommend funding the fish stress evaluation study. At a minimum, the proponents should provide more explanation as to why physiological studies are necessary at this initial stage of feasibility evaluation. The proponents should be more specific about how hatchery fish will be identified. Are all hatchery fish marked? The budget is high, and more explanation should be provided for the "personnel" category (why 2.5 FTE? Who? What will they do?). The boat purchase also needs explanation. Why is purchase necessary? Are charter options available? Additional comments and questions by reviewers are listed below:

Technical and scientific background: The background provides a thorough description. The point is made that one problem with gillnets and tangle nets is that high water temperatures make catch and release infeasible. It would be helpful to have a little more explanation of this problem as well as how water temperature issues play out differently with the different gears. For example, what is the nature of the problem and why isn't it also a problem with pound nets, net traps, or fish wheels? The ecological and genetic (supplementation and hatchery) aspects of the bycatch problem are explained well. Many references are made to a non-peer reviewed report by Beamesderfer et al. (2005) wherein a model is used to forecast benefit of selective fishing. It would have been useful to have this apparently key document linked to the proposal.

Tasks (work elements) and methods: Many of the tasks involve coordination, permitting, and development of a research plan, data collection, and analysis. The tasks are reasonable for this approach. They include documentation of operational characteristics, safety and costs, which indicates recognition that feasibility is more than a question of technical possibility. The mesh sizes of the proposed bycatch reduction devices (floating trap nets and fish wheel) are not given. These data are important for an assessment of the non-target species that the gear would catch. The proposal does not specify how hatchery fish are distinguished from wild fish, presumably the former are adipose clipped, but what is the current mark rate? Or is that part of the design (which is not finalized)? Methods for evaluating fish injury and stress are to be similar to those in the WDFW proposal (200710700). This degree of coordination is laudable; however, the ISRP does not recommend funding the stress evaluation at this initial stage of evaluation. A research design is not yet finalized, and so some aspects of this proposal are plans to develop a plan. The final design for the proposed study is dependent on ongoing 2006 projects by WDFW and ISRP review.

Monitoring and evaluation (M&E): The proposal contains several elements of monitoring and evaluation of gear performance. Another project's M&E program (200302200) will apparently

be used to determine the effects of the selective harvest program on escapement of target and non-target species. A description of this M&E program would be helpful in this proposal. The final design of the study is needed before ISRP can assess the adequacy of the proposed M&E.

Facilities, equipment, and personnel: Equipment is adequately explained, except for the boat purchase. The proponents indicate that they will seek used boat, but have budgeted for new one. The ISRP recommends options for purchasing fishing gear and other equipment at a low cost. A discussion of range of options for obtaining boat services would be helpful. More explanation of the "personnel" budget line is needed. Key staff have yet to be hired and named.

Information transfer: Results are to be published in unspecified outlet. The proponents will make demonstrations of gear available to others. What are the proponent's plans for release and long-term storage of data and meta-data?

Non-focal species: The proposal should be augmented with a discussion of by catch of non-salmonids and non-focal species. A number of species could suffer mortalities, depending on mesh size, water temperature, etc. What is the fish community in the reaches of the Columbia River where the deployments are planned? The project may affect Bull Trout and other non-focal species. The proposal would be improved by a plan to monitor and evaluate bycatch of non-focal species.

200723800 - Providing Services to Assist Record Keeping of Over the Bank Sales in Zone 6 Tribal Fisheries

Sponsor: Steven Vigg & Company

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$74,027 FY08: \$74,027 FY09: \$74,026

Short description: This project would provide for coordination of monitoring and record keeping services for "over-the-bank" retail sales of salmonids in Zone 6 Tribal fisheries – in conjunction with CRITFC harvest management, enforcement, and marketing.

Recommendation: Response requested

This proposal would address an important issue by improving information on how many salmon are caught and sold by tribal fisheries in Zone 6. Improvements in harvest accounting would likely be quite beneficial for both biological monitoring and economic development, leading to better fisheries management and enforcement. However, the proposal should contain more detail on the fishery, current records, methods and a plan for effectiveness monitoring.

The proposal makes a good case for the benefits of improved record keeping for direct-sales of Zone 6 catch. The rationale is that better record keeping in the Zone 6 fisheries will contribute to scientific harvest management through an increased ability to do real-time tracking of harvest. The question left unanswered is whether better records will contribute to more timely data management and reporting than currently exists. Data are presented to show the decline in Zone 6 fisheries and the subsequent need for monitoring both types of catch and total amount of catch. Some of the data series end at 1995; the most recent is 2001, which is listed as preliminary data.

Three objectives relate to increasing accountability of sales, assisting fishers with record keeping, and hiring an enforcement officer to implement improved accountability actions. The proposal would be improved by discussing how improvements in harvest management – the ultimate goal of better record keeping – could be measured and monitored. The proposal presents little detail about methods to accomplish the objectives. Several questions are raised by how tasks are presented: why are all the "as needed" phrases included? This project is based on the need to improve record keeping. What criteria will be used for improvements in record keeping? How will fisher education be done? Will fisher training include basic statistics for biological and business monitoring? Will it include methods of improving sales value through fish handling procedures? How will the enforcement officer work with fishers to improve accountability? These details should be provided.

Project effectiveness monitoring would be particularly relevant for this proposal which involves new efforts to introduce practices that do not currently exist. Assessment of the outcomes of this project would also be useful to a wider audience across the Basin.

The proposal would be improved by including more thorough explanations of:

- *Quality and timeliness of existing catch data;
- *The nature of the bookkeeping problem;
- *Criteria for improved record keeping;
- *Relation of Zone 6 catch data (format; data collection protocols, etc.) to data collected by other agencies;
- *Potential for record keeping improvements to address data timeliness;
- *Means by which improved catch data will assist managers;
- *Methods of fisher outreach and education;
- *Content of fisher training program (e.g. basic statistics for biological and business monitoring? Methods of improving sales value through fish handling procedures?); *Means by which the enforcement officer will improve accountability;
- *Measurement of improved harvest management;
- *Means by which project effectiveness will be monitored.

200206000 - Nez Perce Harvest Monitoring

Sponsor: Nez Perce Tribe

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$336,447 FY08: \$346,538 FY09: \$356,934

Short description: Collects, analyses, and reports catch data pursuant to pre-planned statistical sampling designs to assure conduct of biologically sound harvest strategies for Nez Perce treaty fisheries that may affect ESA listed species.

Recommendation: Response requested

This project has merit and should yield long-term conservation benefits, but more detail should be provided on statistical sampling, analytical methods, as well as on the subcontract work to develop assessments and management plans.

The need for harvest monitoring of Nez Perce fisheries is well supported in this proposal. Tribal responsibilities for managing their fisheries are clearly described. Harvest monitoring activities are enormous in geographic scope, encompassing the mainstem Columbia River (Zone 6) up to the headwaters of the Clearwater River on the Montana/Idaho border. The question of appropriate fishery management is placed in the context of two recent ISAB reports and to other monitoring projects.

The project is well associated with the goals of the Fish and Wildlife Program. More specifically, an excellent description is provided of the relationship of this project to the Clearwater, Salmon, Imnaha and Grande Ronde Subbasin Plans by listing objectives from each plan and stating the proposed project's relationship to these objectives under each. The proponents have good connections with most key fishery entities in the Columbia River Basin, including the Pacific Salmon Commission. It is related to a number of supplementation evaluation and population assessment projects through the provision of harvest data. The project receives funding from the Lower Snake River Compensation Program to monitor harvest activities in the tributaries and to provide this information to the USFWS.

The project has the potential to yield very important data. It has been underway for one year and seems to have made reasonable progress. The project history describes the geographic area of concern and the locations of harvest monitoring in 2005. It also describes the sampling plans management plans, and biological assessment completed to prepare for this monitoring. Training for sampling is still underway and results of full implementation are apparently not complete. A table showing numbers of fish in the tributary is the result of spring Chinook monitoring; it is not clear what these numbers demonstrate. The proposal states that these fisheries were successfully monitored to support harvest goals, objectives, and strategies, but does not say how.

The primary objective of the project is to develop and implement a biologically sound harvest monitoring program for the Nez Perce Tribe through the collection of credible and accurate catch data. Two operational objectives are to plan anadromous harvest strategies and harvest monitoring, and to implement the harvest monitoring plan. Work elements describe the function of biological assessments and tribal management plans (which will be done by subcontract) to allow harvest while maintaining ESA protections. The proposal provides little detail as to how assessments and management plans for the different geographic areas will be done except through subcontracts or consultations. For example, sampling plans are developed with the help of the CRITFC biometrician. A table describes elements of the sampling approach but does not describe the sampling plan.

It is difficult to comment on the rigor of the sampling program without further details on size of the areas covered, total run size etc. More information should be provided on:

- Review comments by the CRITFC biometrician and NOAA Fisheries (if applicable) on the 2005 review of sampling results.
- The statistical basis for the number of samplers for various fishing areas (Table p. 13)

- Content and process of the training program for samplers;
- Method of discriminating wild fish from hatchery fish if not all hatchery fish are adipose clipped;
- Method of determining exploitation rates - this goal is mentioned in the abstract of the narrative but nowhere else;
- The mean around which the CI of 2005 hatchery fish harvest is calculated (Table p. 9 gives CI for hatchery fish but not natural or jacks);
- Elements of the biological assessments and components of the NOAA Fisheries review;
- Ocean effects on SARs.

Monitoring is at the core of this project and the proponents are making a good effort towards evaluation of results by review processes.

200735200 - Feasibility Study and Implementation of a System-wide Conservation Enforcement Web-Based Data Center

Sponsor: Steven Vigg & Company

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$163,090 FY08: \$102,290 FY09: \$92,489

Short description: Evaluate alternatives, plan the design, and implement a web-based conservation enforcement information center – that would maximize the accountability, effectiveness, and public awareness of fish, wildlife & habitat law enforcement in the Columbia Basin.

Recommendation: Fundable (Qualified)

This project would address a need that has been recognized in the Basin for some time, and would re-initiate coordination efforts that existed in the 1990s. Cost-effective enforcement is the foundation on which fish and wildlife recovery will succeed, and fish and wildlife would certainly benefit from system-wide coordination of conservation enforcement data. However, the proposal would be improved by more explicit descriptions of the relationship between the data center and improvements in fish and wildlife survival.

The proposal provides an extensive discussion of the history (since 1978) of efforts on regional enforcement coordination. A good interpretive discussion describes the role of BPA funding in conservation enforcement, the need for enforcement in tribal areas, and the need for an enforcement database. Past work evaluating coordinated enforcement is described. It would be helpful to also have better perspective on the magnitude and characteristics of the enforcement problem; e.g. number of violations, geographic and seasonal patterns, and type of violations.

The proposal discusses the role of enforcement as the basis for accountability of fish and wildlife restoration and management. It discusses the increasing level of expectations in the Columbia Basin to demonstrate effectiveness and cost-effectiveness and the importance of accounting for illegal take rather than having it embedded in "other sources" of mortality. The web-based conservation enforcement system is proposed as a way to provide regional sharing of enforcement information on a real time basis to benefit both enforcement actions and public

education. The link to biological outcomes is made through having a geo-references enforcement database to better enforce biological actions. Overall, the proposal makes a good case for the importance of enforcement as the basis for conservation, and for the integrated enforcement information as a way to make enforcement more effective.

The proposal's four objectives are to coordinate with fish and wildlife entities, compile and analyze existing information, design the web-based system, develop an implementation plan, and implement the system. Tasks are listed under each objective, with methods for data protocols provided in greater detail in the introduction. Specific data and locations are identified. The number of different databases and separate data housing locations make a good case for the need for an integrated and coordinated approach. The effort involved to coordinate such a large amount of data is substantial, and may be underestimated. Effective results will depend on the goodwill of several agencies to contribute the data. An assessment of coordination will be made by metrics such as the number of agencies contributing data and web usage statistics, but to evaluate ultimate effectiveness of the project, some link to improved fish and wildlife survival will need to be made.

The ISRP is not requesting a response, but the proposal would be improved by providing more specific information on the following:

1. The magnitude and nature of enforcement problems;
2. How spatially-based information sharing would address enforcement problems;
3. How the website would monitor effectiveness of enforcement;
4. How better enforcement would increase fish and wildlife survival;
5. How the project will elicit cooperation between enforcement entities and the data center.

Mainstem Passage and Monitoring

198331900 - New Marking & Monitoring Tech

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$768,685 FY08: \$1,357,243 FY09: \$1,596,791

Short description: The goal of this project is to develop and evaluate fish-tracking technologies needed to assess the effectiveness of management actions and strategies for recovery of ESA-listed fish populations.

Recommendation: Fundable

This is a strong proposal with high priority application of the technology in the basin, good personnel, and an excellent track record. The project sponsors have been responsive to past ISRP reviews.

The proponents plan to explore the application of PIT tag technologies to surface bypass systems (RSWs, Bonneville corner collector, even spillways and turbines). The evaluation of the G2 transceiver for instream interrogations will require development of new antenna arrays and even

new tags (A-PIT). These efforts are tied in generally to the BiOps, UPA, and systemwide passage program summary, although particular elements are not listed. Effective PIT tag systems underlie much of the salmon recovery efforts in the Columbia River Basin, and the extensive history presented in this proposal leaves no doubt of the importance of the work to answering questions about the survival of anadromous salmonids in the Columbia River Basin.

The proposal does a good job relating the technologies developed in the past to ongoing and future projects. Less information is provided about the need for the advanced technologies they propose to develop, and specifically which projects might employ these developments. That is, they are necessarily a bit ahead of many of the projects that will use new PIT tags and transceivers. The investigators should be aware of work being done by the mid-Columbia Public Utility Districts (PUDs).

The value of this long-term effort is well established. Continued improvement in tags and antennas is expected to further improve the knowledge of salmonids in the basin and the ability to carry out adaptive management. Some of this work is necessary because increased downstream passage through surface bypasses, RSWs, and spill has reduced the numbers of fish that are detected through the conventional PIT-tag interrogation systems. So development of detectors for these alternative routes is needed in order to collect the juvenile fish passage data for management actions.

The proposal provides a well-detailed listing of work elements, with a systematic, step-by-step approach that allows for periodic feedback from outside experts and changes in direction as necessitated by the results from each step.

Past work has produced a handful of publications, some of them describing older, outmoded technologies. Equipment development and testing is the primary focus of this proposal (with the product being efficient tags and antennas). However, it would be good to see more of this information get out into the primary fisheries (and electronic) literature in order to inform scientists and engineers outside of the basin about the possibilities.

199008000 - Columbia Basin Pit-Tag Information System

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,531,577 FY08: \$2,692,839 FY09: \$2,800,553

Short description: Provides basic infrastructure for all PIT tag related projects in Columbia River Basin. Operates and maintains long-term data repository for PIT tag information. Operates and maintains permanent PIT tag interrogation sites. Supports other PIT research.

Recommendation: Fundable (Qualified)

This is a high priority project that deserves continued funding. However, this “fundable” recommendation is qualified because the project is lacking a detailed description of the comprehensive data model and a more specific description of metadata development to date. Funding of this project should be conditioned on the project sponsor addressing this issue. This

problem has been pointed out in previous ISRP and ISAB reviews, and progress has not been reported. Specifically, in the 2003 Mainstem/Systemwide Review, the ISRP found that a weakness in the data retrieval system of PITAGIS was the ability to determine how PIT tagged fish were handled or their rearing history prior to release. The ISRP recommendation to develop descriptive metadata for the entire history of each tagged fish has not been addressed, and the proposal only states that they are working on a comprehensive data model to allow better tracking of projects and organizations over time, and it should be ready to implement by the fall of 2006.

Other comments:

The sponsors of this continuing project would benefit from feedback on the quality of the PIT tag information and accessibility -- user satisfaction. A user satisfaction survey should be initiated.

The project sponsors should coordinate with NOAA Fisheries, the sponsors of proposal #200700900 - A Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids (*Oncorhynchus* species) in the Columbia River Basin. The main problem identified in the NOAA Fisheries proposal seems to be a data access issue. Most of the data to be loaded into the proposed database are already in the existing system (PTAGIS) (PSMFC, 2003). It is not clear what the problem with accessing data in PTAGIS might be. However, taking it as given that there is a problem, adequate communication between sponsors may alleviate this problem and avoid future unnecessary duplication.

The project history section is the strongest section of the proposal including a good overview of the project history, effectiveness, growth, and addition of available interrogation sites.

200100300 - Adult Pit Detector Installation

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$245,491 FY08: \$184,235 FY09: \$134,742

Short description: This project installs and evaluates extended-range interrogation systems for adult and juvenile salmonids. It also assesses the potential impact of adopting alternative technologies such as a new tag model before the technology is adopted or installed.

Recommendation: Response requested

This is a high priority project and should be funded, but the proposal lacks sufficient detail. A response is requested to provide a better accounting of past results and accomplishments of the project. The project history is only briefly summarized by year, with short bullets listing the most significant events and accomplishments. The results are not described in biologically measurable terms, and the proposal just presents a list of tasks performed plus a couple of reports. The response should also provide more detailed information on their improved detection efficiencies and include available efficiency test results.

Other comments:

The problem in getting adequate adult salmonid passage data is fairly well defined, and the need for installing state-of-the-art, extended-range interrogation systems capable of detecting migrating adult salmonids to aid in restoration strategies is justified. However, the proposal only briefly mentions the need to restore ESA-listed stocks and provides almost no details about how this project will specifically aid in this effort.

Extended-range interrogation systems for adult salmonids are still needed for John Day and The Dalles Dams because there are fish losses in these reaches that cannot be accounted for. The current schedule calls for systems to be installed at John Day Dam in FY08 and at The Dalles Dam in FY09. What is the rationale for this schedule? Could better information and biological benefits be obtained by a different order of installation?

The Fish and Wildlife Program and the BiOp are only generally referred to, and the proposal needs to describe how it addresses priority issues in these plans.

199602000 - Pit Tagging Spring/Summer Chin

Sponsor: Columbia River Fisheries Program Office

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,757,000 FY08: \$1,788,425 FY09: \$1,831,615

Short description: Adult and juvenile PIT tag recovery data are analyzed to compare survival estimates for transported fish of known origin, downriver stocks, wild and hatchery transported fish and fish handled and not handled at dams.

Recommendation: Response requested

In general, this is a supportable proposal but a response is needed to address issues raised in the ISAB's recent report: Review of the 2005 Comparative Survival Studies' (CSS) Annual Report and Applicability of Comparative Survival Studies' Analysis Results. See www.nwcouncil.org/library/isab/isab2006-3.htm.

Specifically, the proponents should respond to the following selected recommendations from the ISAB report (which was issued after this proposal was submitted):

1) It has been ten years since the CSS was initiated. The report that the ISAB reviewed was the latest in a series of annual progress reports, and thus lacking a holistic perspective. The ISAB recommends that the CSS produce a ten-year summary report providing an in-depth description of methods and detailed analyses and interpretation of the data in a retrospective style.

2) The CSS needs to more effectively present the methodologies used in their analyses (in this proposal as well as their annual report), so the criticism of complicated and convoluted formulas can be avoided. The scattered explanations in several annual progress reports could be consolidated in the ten-year summary recommended above.

- 3) The ISAB agrees with critics who express concern that two downriver sites (Carson Hatchery and John Day River) are probably insufficient to give accurate upriver-downriver comparisons of SARs. This concern is bolstered by the variability among upriver hatcheries shown by the CSS data. For this upriver-downriver comparison to be generally accepted, it seems prudent to add more downriver sites in the future.
- 4) Data on size of all PIT-tagged fish from hatcheries and other release sites should be included in the report in much greater detail. Size at release may be a significant factor in differential SARs. The ISAB recommends including a specific section in the report focusing on the potential effects of size at release on survival of all PIT-tagged fish.
- 5) Assumptions inherent in the analyses should be specifically tested, with continued vigilance toward avoiding bias.
- 6) Pre-assigning the intended routes of passage at the time of release into in-river and transport groups would greatly simplify calculation of SARs and eliminate much criticism of current methods that are unnecessarily complex. This modification to the study design is scheduled for implementation in 2007 (according to the 2005 Annual Report but this change in protocol should be indicated in the proposal).
- 7) Analyses could emphasize more diverse metrics of differential survival, thus avoiding the criticism that the project staff focuses mainly on contentious issues such as the relative survival of transported and in-river migrants (T/C ratios) and differential delayed mortality between transported and in-river migrants (D). Passage routes, numbers of dams bypassed, distance from ocean, different hatchery practices, and other features have been explored beyond the issue of transportation.

Other comments:

A timeline with years (1996 - current) should be included within the background section to improve the proposal. Details in this section are sparse and references are lacking. The proponents either assume that the reviewers know all the background and justification for this project or decided not to go through the work needed to provide the details.

The project history section consists of only a few sentences and is lacking sufficient detail to provide project accomplishments and give adequate justification for continued support. For such a long-running project there have been a number of important accomplishments and completed documents that need to be listed in this section.

Please refer to proposal #s 199102900, 199302900, and 198605000 for examples of proposals for long-running projects that have clearly laid out study designs and protocols, project histories with adequate detail, and strong justification for continued support.

198712700 - Smolt Monitoring By Non-Federal

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,345,710 FY08: \$2,436,778 FY09: \$2,550,951

Short description: Daily passage data through the mainstem, Snake, Columbia and mid-Columbia Rivers to facilitate fish passage management decisions, including Biological Opinion implementation, is collected daily. Sampling and marking occur at 8 sites of the larger region.

Recommendation: Fundable (Qualified)

It is essential that funding be provided for smolt monitoring. A required and necessary monitoring function is performed by this project, but the proposal is marginally prepared. The proposal should have provided more information concerning the adequacy of the personnel to conduct this monitoring.

The basic rationale connecting this work to subbasin management plans should be more clearly explained. The connection to other projects was incomplete in the narrative and only three BPA related projects were listed and briefly described on the administrative form. The sponsors should be able to provide much more information concerning past history and accomplishments.

The objectives were clearly stated but methods are described only in general terms. Details concerning how these tasks will be accomplished are scant in the proposal. It would be useful to have a better explanation of the links to resources located elsewhere. There is insufficient detail provided about the new aspects of the proposal, e.g., exploration of video techniques to monitor smolts.

The ISRP suggests that the sponsors provide more details and an evaluation of the contributions of the project in future proposals or a summary report. The project history presented in this proposal provides information in terms of administrative changes, changing work elements, and tasks completed. For a project that has been operating since 1982, much more technical detail needs to be provided, including a list of biological accomplishments and reports.

198910700 - Statistical Support For Salmonid Survival Studies

Sponsor: University of Washington

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$371,546 FY08: \$382,507 FY09: \$391,038

Short description: Improve monitoring and evaluation capabilities by developing state-of-the-art study designs and analysis tools to estimate juvenile and adult salmonid survival and survival relationships. Provide statistical guidance to investigators in the Northwest.

Recommendation: Fundable

This is an excellent proposal that clearly describes an important and useful ongoing project. The relationship of this project to other projects is clearly summarized. The proposal provides a list of organizations that have been provided statistical support from this project

The methods are based on sound scientific principles. The project history section of the proposal provides a very impressive and significant list of contributions that this project has accomplished. The results have been reported to the region via a large number of technical reports and peer reviewed papers. There is an impressive history of peer-reviewed publications related to the past activities of the sponsors. Past performance indicates that facilities and personnel are very well qualified.

The evaluation of the success for most of the project activities is stated in terms of method development, computer program development, hours of consulting provided, and number and quality of journals for publications. Lacking is consulting client satisfaction survey information. Although the consulting load and presumable return of clients provides indirect evidence of satisfaction, there may be valuable information for improving quality that may be obtained by surveying all clients, not only those who return regularly. Sponsors should conduct a survey of consulting clients to obtain evidence of satisfaction and to provide information for quality improvement in the future and report the results of this survey in future proposals.

199302900 - Survival Estimates for the Passage of Juvenile Salmonids Through Snake and Columbia River Dams and Reservoirs

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,688,376 FY08: \$1,739,026 FY09: \$1,791,197

Short description: Provide precise measurements of survival of juvenile salmon as they migrate through dams and reservoirs in the Snake and Columbia Rivers and relate to adult returns.

Recommendation: Fundable

The size and complexity of the project warrant periodic special review. The region is again advised to think about the future of this research and monitoring effort, which is a cornerstone of salmon evaluations in the mainstem of the lower Snake and Columbia rivers.

This is a very well prepared proposal that rates high marks for all ISRP review criteria. The ISRP's positive comments on the FY 2000 and FY2003 proposals remain germane. The excellent publication record continues.

New for the project since the last review is the evaluation of adult returns of PIT-tagged fish to further understand relationships among adult survival, juvenile survival, travel time, migration timing, and other factors, such as numbers of bypasses or passage routes that juveniles encountered during their downstream migration. This is a natural and worthwhile evolution of project objectives and will continue to keep this project a cornerstone of salmon survival evaluations in the mainstem.

200304100 - Evaluate Delayed (Extra) Mortality Associated with Passage of Yearling Chinook Salmon through Snake River Dams

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,328,500 FY08: \$1,346,306 FY09: \$1,364,645

Short description: Determine if downstream migration through three Snake River dams and reservoirs results in extra or delayed mortality in Snake River yearling Chinook salmon smolts as hypothesized during the PATH process.

Recommendation: Response requested

This is a high priority project that deserves funding. The problem addressed in this project is delayed mortality. This project addresses the lack of empirical experiments designed to quantify delayed effects associated with hydrosystem passage. The proposal refers to the ISRP Retrospective Report (2005) and the BiOp Remand as requesting similar research needs as are found in this project's objectives.

There is some effort to document other funded work in the area but the description is too vague to be useful. Only general relationships are briefly discussed. Relationships to other projects should be identified in more detail. Sponsors should be consistent about labels: delayed, extra, and differential mortality, or carefully explain differences in terminology.

The history of the project is briefly described by noting reasons for lack of progress. Although the project has recently started, more details on what has been accomplished should be provided.

The overall objectives are clearly stated. The proposal states that the project will use smolt-to-adult return rates (SAR) of PIT-tagged yearling Chinook salmon smolts exposed to two different migrational experiences within the FCRPS to test the hypothesis of extra or delayed passage mortality. However, there are three treatment groups. It is unclear from the proposal how the three treatment groups will be compared and what the implications of all comparisons are. Also a response should provide more details on the estimation of standard error for the L/I ratio that is fundamental in determining target sample sizes.

Details concerning facilities, equipment and personnel should be provided including brief resumes for all participants.

200500200 - Operation of the Lower Granite Dam Adult Trap

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$283,220 FY08: \$291,717 FY09: \$300,469

Short description: Operation of the adult salmonid trap in the fish ladder at Lower Granite Dam.

Recommendation: Fundable

The importance of the Lower Granite Dam adult trap is described in good detail. This project is clearly linked to several other high priority projects, and the proposal provides adequate justification for continued funding support. Although the justification focuses upon NOAA Fisheries requirements, there is an obvious benefit to Council's Fish and Wildlife Program by providing data need for implementation of several subbasin plans.

200202700 - Forecasting Hydrosystem Operations to Benefit Anadromous Fish Migration

Sponsor: US Department of Energy (DOE)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$446,547 FY08: \$451,931 FY09: \$454,888

Short description: The project sponsors propose to apply state-of-the-art computer models that describe the complex power-generation, hydrodynamic, and water quality environment in the lower Snake and lower Columbia rivers and to relate this information back to impacts on migrating salmon.

Recommendation: Fundable

This proposal is intended to link results of individual hydraulic, power generation, water quality, and particle tracking models (some of which have been in use for several years) to improve the forecasting/optimization abilities for anadromous fish. The investigators would validate the hydrodynamic and water quality models, and apply the models to the 2008 salmon migration period.

In addition, improved visualization techniques will be developed. This proposal does a good job of outlining the values of the individual models and the combined model suite. With the possible exception of the FINS model that puts them all together, the individual models have been tested and accepted in the basin. The linking of hydrodynamic and water quality models should begin the movement to a more dynamic management of the hydrosystem.

The proposal provides discrete systematic objectives, with reasonable timelines. Quantifying impacts of hydrosystem operation will decrease the uncertainty about the effects of flow augmentation and load following, and will help optimize spillway discharge, make tradeoffs in alternative volume allocations, and forecast alternative watershed conditions. The investigators will file project reports and, if appropriate, publish in peer-reviewed journals. Also, they will explore making their results available in near real time, which would be of great value to

managers of the Federal Columbia River Power System (FCRPS). However, they have not been very good about communicating their results in the past -- mainly a handful of project reports and proceedings.

The proposal could be improved by providing more details about the biological benefits and the adaptive management aspects. They talk about the need for a three-dimensional model but state they are going to use a two-dimensional model. Salmon are treated as passive particles, which can be problematic. There will be limits to how this can actually be applied.

Even with the limits of the fish components of this model, exploration of the physical components of the model will be useful. This effort should get better as time and knowledge progresses. For load following, they might need shorter duration than eight-hour periods. It is good that they are looking at this.

A better understanding of the dynamics of the hydrosystem and better control of temperature and dissolved gas enabled by these models would benefit both anadromous fish and non-focal species.

199602100 - Gas Bubble Disease Research & Monitoring of Juvenile Salmonids

Sponsor: Columbia River Research Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$23,946 FY08: \$25,081 FY09: \$26,906

Short description: The States require smolt monitoring for signs of gas bubble disease. The project sponsors provide training and QA/QC of the monitors with this project.

Recommendation: Fundable

Monitoring of smolts for gas bubble disease is an essential activity in the Columbia River basin. This is an ongoing project that has obvious ties to subbasin plans, regional programs, and other research projects. The methods proposed for this project have been employed for many years and are adequate for detecting gas bubble disease. This project has achieved very useful results in the past, and the investigators did a good job of communicating the results in project reports and peer-reviewed publications.

200714400 - Evaluation of water temperature exposure in the Columbia River hydrosystem on reproductive success of adult and juvenile Chinook salmon and steelhead

Sponsor: University of Idaho

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$132,630 FY08: \$136,825 FY09: \$141,161

Short description: This proposal outlines a comprehensive evaluation of the relationship(s) between warm water exposures to juvenile and adult anadromous salmonids as they migrate up- and downstream through the FCRPS and reproductive potential.

Recommendation: Fundable

The authors propose to study the relationship between temperature stress on both juvenile and adult Chinook salmon and their reproductive success. They make a good case for the importance of the study based on the literature review and what is known about increasing summer temperatures in the river. Although this is a new proposal, the investigators have done earlier work that is relevant to this effort; limited research supported by Anadromous Fish Evaluation Program (AFEP) looked at the relationship between temperature exposure history in the lower Snake River and gamete quality.

The proposal provides an excellent description of objectives and work elements. They are using a reasonable, systematic approach that is likely to yield valuable information. The authors should consider the value of cold-water controls, representative of pre-impoundment conditions. I.e., they are using the sub-lethally warm temperature histories that the fish provide, but how will they know the lipid content of fish that swam in the unimpounded river? How would they sort out the effect of previous ocean experience on egg count or other such "longer term" parameters?

The work elements are clearly laid out and linked to biological objectives. The authors did a nice job of suggesting alternatives and pointing out why they chose the elements that they did. They've worked out contingency plans if cost sharing of radio receivers (from USACE or PSC) is not available; they would just use the temperature recorders and not radio tracking.

The investigators should put some thought into how their findings can be directly applied to altering hydrosystem operations. If they find a sublethal temperature effect, will that dictate exactly how to change flow releases to improve temperature (because each fish will have a unique temperature history)? What if the cause is low water velocity and not high temperatures? Can other factors be sorted out so that there are clear directions for the hydrosystem operators? The adult component looks better than the juvenile component of the proposed research. Relating the reproductive success of adults based on exposure as juveniles is a stretch. Nonetheless, their studies will yield good information about salmon biology.

200725600 - Physical and Biological Testing of a Flow Velocity Enhancement System

Sponsor: Natural Solutions

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$251,546 FY08: \$330,691 FY09: \$0

Short description: Natural Solution's patented Flow Velocity Enhancement System has been developed to provide migration cues using mechanically generated turbulent-flow fields. It is proposed that strategic placement of these flow fields will enhance smolt migration.

Recommendation: Fundable

The problem regarding migrational passage problems of juvenile salmonids at hydroelectric projects is extensively described, and the rationale for potential passage benefits of an effective system is well defined. The "low flow" fish passage problem is identified in several subbasin

plans. The proposal makes good use of studies in the basin that have described behavior of juvenile salmonids in response to flow, and identifies a device that might produce flows for guiding them to appropriate passage routes.

There is nothing quite comparable being funded through the Fish and Wildlife Program. The proposal includes reference to an existing research project, the Cowlitz Falls Fish Collection Facility (presumably funded by Tacoma Power Public Utility District (PUD)), which includes radio tagged juvenile salmonids used to evaluate the effectiveness of a trap above Cowlitz Falls Dam. Fish that escape the trap will be available for use in evaluation of the device's (educator) effects on migrating fish. The trap is operated by WDFW. The operators will provide data on timing of fish migrations and other elements. The phased, systematic development of the educator technology is good.

They propose to set up the turbulence-generating educators, characterize the flows, observe fish-flow interactions with a Didson camera, and enumerate the guidance of fish into a trap. It is not clear how they will express the flows and the turbulence intensity, or what aspect of the generated flows will be related to fish behavior. For example, if they see a fish response, will they know what precise aspect of the flow field caused it? Unless they are able to focus on particular parameters (e.g., velocity difference between the spot where fish reacted and that in reservoir, or turbulence intensity or size), they will not know what to manipulate experimentally in Phase II. There is a need to get away from trial-and-error that characterizes many of these studies.

The proposal was responsive to earlier concerns (ISRP comment in 2003) that shear-related mortality might be a factor in this experimental system. This research has potential of facilitating or improving effectiveness of juvenile fish passage facilities in the basin such as the removable spillway weir (RSW).

200733600 - Effects of short-term flow fluctuations on salmon migration

Sponsor: Oak Ridge National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$129,646 FY08: \$164,968 FY09: \$188,194

Short description: Research will determine if short-term flow fluctuations affect juvenile salmonid migration through the Snake River.

Recommendation: Fundable

This is a well-prepared proposal that addresses a major uncertainty in smolt passage -- the effects of short-term flow fluctuations from mainstem dams on smolt movements in mainstem reservoirs that may affect survival, particularly in the Snake River. Despite control of reservoir elevations to within one foot during outmigrations, large flow fluctuations occur on hourly time frames, based on available flow records, especially during late spring-summer outmigration of fall Chinook juveniles. These flow fluctuations propagate through the reservoirs.

Technical and Scientific Background: The proposal describes a problem, which is the lack of a good computational hydraulic model to provide instantaneous values of hydraulic variables (volumetric flux, cross-sectional average velocity, cross-sectional flow area, water surface elevation, and cross-sectional average temperature) in Columbia and Snake river reservoirs. Such a model would help the region design studies to determine the potential effects of short-term flow fluctuations on fish migration behavior. The ISAB (2003-1) identified the problem, documented a suggestive relationship between the flow fluctuations and smolt survival, and later recommended an experiment to measure the effects of load following on survival of juvenile salmonids (ISAB 2005-3). These are referenced in the proposal. Further documentation of actual Snake River flow fluctuations during late spring and summer migrations of ESA-listed fall Chinook would have been helpful for making the case for the study.

Rationale and significance to subbasin plans and regional programs: There is no relevant subbasin plan for the mainstem Snake River. For significance to the Council's Fish and Wildlife Program the proposal refers to the ISAB review of Council's Proposed 2003 Mainstem Amendments.

Relationships to other projects: The proposed work is linked to several other projects with respect to sharing data and analysis. There is an appearance of a possible minor duplication with part of Proposal 200736400, but there is really no overlap because this is a modeling project and that one is an empirical one. This proposal mentions that it will obtain data on fish behavior from ongoing projects in the Snake River. However, the proponents were apparently unaware of one another's decision to present a proposal on this subject. Our summary and recommendations consider what might be done to take this into account as BPA funds them both. At a broad scale, this project makes use of similar modeling conducted by the Tennessee Valley Authority for operating its chain of reservoirs.

Objectives: There are clear biological objectives to analyze the impact of load-following or other short-term flow fluctuations on patterns of flow downstream to assess possible effects on migrations of juvenile salmon.

Tasks (work elements) and methods: Further thought should be given to description of the parameters to be used in the analysis, particularly the practical boundaries to be set in describing the load following episodes. The proposal discusses "indexes." These indexes should in some way incorporate measures of magnitude of flow fluctuation relative to base flow, as well as duration and frequency of the episodes. It would have been helpful to describe what the indexes would include.

Monitoring and evaluation: This is a project in which there is no experimental manipulation, so M&E is inherent in the study design.

Facilities, Equipment, and Personnel: The personnel and facilities are exceptional.

Information Transfer: An interim report is specified. There is no mention of data storage. Plans for long-term storage of data and meta-data should be specified.

Benefit to focal and non-focal species: It is very likely that this project will provide important information for the management of the hydrosystem related to juvenile salmon migration with benefits to focal species.

Summary: This project deserves support because this information is of vital importance in isolating causes of low survival of Snake River juvenile salmonids and such a study is long overdue.

The two proposals to study this issue are both worthy of support. Where 200733600 proposes work only in Little Goose Reservoir and puts primary emphasis upon radio tracking of juvenile fish to record their behavior in response to load following episodes, with secondary emphasis upon monitoring of hydraulic conditions associated with those episodes, the present proposal, 200733600, encompasses the reservoirs of all four lower Snake River projects and puts primary emphasis upon measurement of hydraulic conditions as affected by load following, and would depend upon information on fish behavior that would be available from ongoing projects. It is apparent that neither group was aware of the proposal being developed by the other, but they complement each other very well.

Both proposals are well prepared and submitted by well-qualified groups. Funding of both would have merit because information on hydraulic conditions in all four reservoirs is certain to be useful in extrapolating the implications for fish behavior observations beyond Little Goose Dam. We recommend that the BPA contracting officer arrange for the two proponents to agree among themselves as to whether there is any duplication of effort that could or should be avoided.

Both groups would benefit from further thought given to the designation of the parameters that would serve as the basis for analysis. Proposal 200733600 is probably overly concerned about refining time intervals of turbine adjustment beyond hourly to include what are likely minor, short-term, fine-tuning adjustments by the hydrosystem operators that are not likely to have measurable effects on fish behavior. It is our feeling, that since there are hourly coordination agreements in place among the hydropower operators, the hourly changes are likely to be those of most significance. Otherwise, particularly in the lower Snake River, due to lack of storage capacity, operations of powerhouses in either upstream or downstream directions could lead to violation of reservoir levels established in the BiOp and elsewhere.

Similarly the proponents of proposal 200736400, need to give further thought to the boundaries to be set in the analysis of load following episodes. Some sort of grouping would seem to be necessary in order to conduct a meaningful analysis of effects of magnitude, duration, and/or frequency of episodes on fish behavior, which in turn will probably differ according to those features of load following. Similar groupings should be used in both proposals.

200736400 - Determining the effects of load following on reservoir hydraulics and migration behavior of juvenile salmonids

Sponsor: Columbia River Research Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$711,105 FY08: \$760,883 FY09: \$814,145

Short description: The goal of this project is to measure the behavioral response of juvenile salmonids to load following operations in the reservoir upstream of Little Goose Dam. To fully understand this response, both hydraulic conditions in the reservoir.

Recommendation: Fundable

The need to better describe flow instability in Snake River reservoirs from daily load following at the dams (or other causes) in the summer low-flow season and possible relationships to disorientation by juvenile salmon outmigrants (fall Chinook) is well described, and the proposed work is well justified. The basis for the proposed work is primarily a response to a hypothesis by the ISAB (Report ISAB 2001-3) rather than subbasin plans or the Council's Fish and Wildlife Program, although the proposal identifies links to the NOAA Biological Opinion. Relationships to several other projects are described in good detail, especially USGS studies of fish movements for the Corps and the Pacific Northwest National Laboratory's hydraulics studies for BPA at Lower Granite and Little Goose reservoirs. The proposal could have been improved by mention of NMFS survival studies or the Comparative Survival Study that use PIT tags. The proposal identifies ongoing work that has the potential of data sharing. Sponsors were apparently unaware of Proposal 200733600, with which it is complementary.

Objectives are clearly developed and sensible. The phased approach in Objective 4 is good, in case the study is unable to discern clear relationships in the first year. Whether it is realistic to operate one of the dam/reservoirs in an experimental fashion will depend on the strength of relationships seen in the initial research conducted with normal operating regimes. There is a high likelihood that this project will produce information of great significance in resolving primary uncertainties associated with the Council's Fish and Wildlife Program, NOAA Fisheries ESA processes, and state and tribal fisheries management programs, especially summer flow augmentation, summer spill, and survival of listed Snake River fall Chinook salmon.

Although the proposal is fundable in its own right, the ISRP offers some comments that may aid the research. No response is required, but we believe the region would benefit by the proponents consideration of our comments

While the proposal points out that NOAA Fisheries investigators (Smith et al. 2002) found a break point at 100 kcfs in the relationship between flow and survival of juvenile salmonids, it does not note that this flow coincides (approximately) with the hydraulic capacity of the lower Snake River hydropower projects, as pointed out by the ISAB. The frequency, magnitude and duration of fluctuations of flow were found by the ISAB to increase when base flows in the Snake River declined to below 100 kcfs and continued to increase the further the flow declined. The study will be most useful if both the "breakpoint" and the trend at lower flows are recognized. Because the base flow normally declines with time during the period of a summer

study, the descriptions of fish behavior might possibly be interpreted as natural trends in behavior similarly associated with time (season). The study design might overcome this problem to some extent by simultaneous observations of fish behavior and hydraulic features in the reservoir.

There is no mention of comparison of nighttime with daytime observations of fish behavior associated with load following operations. As base flows in the Snake River continue to decline through the summer, a point is reached where load following leads to virtual shut-down of the hydropower plants at night when electricity demand is lowest. A day-night comparison might provide contrasting flow scenarios, even though there would not be a true controlled experiment as suggested for subsequent years.

The locations and number (2) of ADCP arrays may not be sufficient to relate to salmonid movements. If the ADCP will be used to validate an existing hydraulic model of the reservoir, the data may be enough for that purpose. But can the model predict velocities with sufficient accuracy and sufficiently small scale to be useful in the context of fish behavior (Objective 3)? Also in Objective 3, what are the models of fish movement that will be compared to hydraulic data? Is the study at risk of incorporating only conventional understanding in its hydraulic and fish models rather than seeking truly new insights?

While the proposal states that reports of results will be available on BPA's website, there is no mention of what disposition will be made of the data and metadata. Will data and metadata be made available on StreamNet or some other regional data source?

The ISRP reviewed two somewhat similar proposals, and these comments will be shared with each. It is apparent that neither group was aware of the proposal being developed by the other. While this proposal (200733600) and proposal 200736400 might appear to duplicate one another, the duplication is slight to negligible. Proposal 200733600 proposes work only in Little Goose Reservoir and puts primary emphasis upon radio tracking of juvenile fish to record their behavior in response to load following episodes, with secondary emphasis upon monitoring of hydraulic conditions associated with those episodes. The other proposal, 200733600, encompasses the reservoirs of all four lower Snake River projects, puts primary emphasis upon hydraulic conditions as affected by load following, and would depend upon information on fish behavior that would be available from ongoing projects.

Both proposals are well prepared and submitted by well-qualified groups. Both studies have merit because information on hydraulic conditions in all four reservoirs is certain to be useful in extrapolating the implications for fish behavior observations beyond Little Goose Dam. We recommend that the BPA contracting officer arrange for the two proponents to agree among themselves as to whether there is any duplication of effort that could or should be avoided.

Both groups would benefit from further thought given to the designation of the parameters that would serve as the basis for analysis. Proposal 200733600 is perhaps overly concerned about refining time intervals of turbine adjustment below hourly to include what are likely minor, fine-

tuning adjustments not likely to have measurable effects on fish behavior. It is our feeling that since there are hourly coordination agreements in place among the hydropower operators, the hourly changes are likely to be those of most significance. Otherwise, particularly in the lower Snake River due to lack of storage capacity, operations of powerhouses in either upstream or downstream directions could lead to violation of reservoir levels established in the BiOp and elsewhere.

Similarly the proponents of proposal 200736400, are advised to give further thought to the boundaries to be set in the analysis of load following episodes. Some sort of grouping would seem to be necessary in order to conduct a meaningful analysis of effects of magnitude, duration, and/or frequency of episodes on fish behavior, which in turn will probably differ according to those features of load following. Both studies should use the same groupings.

200737400 - Investigating Juvenile Salmonid Mortality Associated with Lock Flushing

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: To date, it appears that no one has considered mortality of juvenile salmonid through the FCRPS via lock passage. This proposal seeks to address this gap in our understanding of juvenile salmonid mortality through a lockage.

Recommendation: Not fundable

This is an inadequate proposal. The objectives and tasks proposed are completely unrelated to the background and rationale sections. It appears that two proposals got mixed. No explanation or itemization of the budget of \$10k and its relationship to the proposed work is provided.

The background section discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It provides extensive excerpts from the COE report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvements, it may become a more realistic alternative if adaptive migration efforts are not successful. Table 6-11 is mystifying in both its relevance and its units of measurement. The proposal would perform an economic analysis to estimate the revenue effects of decommissioning Lower Snake River dams. A brief description of the contribution of the Lower Snake River dams to the Pacific Northwest power supply is presented.

The rationale section describes various court findings that identify the potential of future dam breaching. It also includes extensive excerpts from the Salmon Subbasin Plan, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These include reference to the Snake River dams but don't appear to have direct relevance to the work proposed here. It also cites the Army Corps of Engineers' Lower Snake River feasibility report in which the relative effectiveness and economic effects of dam breaching and alternatives

are mentioned, presumably to make the case that dam breaching is a realistic option deserving analysis.

This proposal and accompanying proposals from the same sponsor relate to the 2000 BiOp RPA 147 "plans to mitigate disproportionate impacts on communities, industries." The proposal makes the point that analysis of some of the alternatives won't be done by the public agencies until it is shown (through a failed check-in) that current alternatives aren't working. The proposal is to analyze alternatives before the failed check-in, in order to be better equipped to address valid concerns of communities and industries and make planning more feasible. It discusses the politically charged discussion over alternatives. It is unclear what Table 6-14 "summary resource comparisons" is intended to communicate.

The objective is to close a data gap in understanding of juvenile salmonid mortality during lock flushes. This objective is unrelated to the earlier stated purpose of projecting revenue effects of dam breaching. Work elements describe an experiment using a sensor fish in inadequate detail. The experiment would be performed by PNNL. No monitoring or evaluation is described.

200737700 - Cooler Temperatures for Federally Controlled Reservoirs

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: An investigation is proposed to consider the biological and economic attributes of a temperature-control structure which could be installed at Idaho Power's Brownlee Dam

Recommendation: Not fundable

This is an inadequate proposal. It addresses a reasonable question, but without an adequate description of methods. It is unclear from the proposal whether information from other dams on temperature control intake structures already exists to answer this question (it does). No explanation or itemization of the \$10k budget is provided.

The proposal is to consider the costs and potential biological benefit of installing a temperature control intake structure at Brownlee Dam. It then cites the Lower Snake and Salmon Subbasin Plans to indicate that water temperature is a limiting factor. It also cites a number of strategies for terrestrial species, which are of dubious relevance to the proposed work.

The proposal has a single objective to investigate the biological and economic attributes of a temperature control structure at Brownlee Dam. The objective is reasonably explained, but without documentation of statements about the effect of irrigation withdrawals on temperatures in downstream reservoirs. Work elements describe a number of steps to acquire data on temperature and temperature control structures at other dams. The analysis tasks are described in more detail than in any other of this group of proposals, but details of analytical methods are missing.

200737800 - Investigating Reservoir Sediment Concerns of a Restored Free-Flowing Lower Snake River

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: The objective of this proposal is to reduce the uncertainty concerning reservoir sediment being redeposited downstream, were the Lower Snake to be restored to a free-flowing river.

Recommendation: Not fundable

This is an inadequate proposal. It does not demonstrate that other entities aren't already investigating the sedimentation question or why this type of investigation wouldn't be a standard part of the US Army Corps of Engineers' planning for dam removal should that become a realistic possibility. No explanation or itemization of the \$10k budget is provided.

The background section duplicates much of the information presented in proposal 20073744. It discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It provides extensive excerpts from the Corps' report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvement, it may become a more realistic alternative if adaptive migration efforts are not successful. A detailed discussion of sedimentation problems is presented for various dams and reservoirs.

The rationale for the proposed work is based in citations of Court findings and the 2000 BiOp RPAs 147 and 148 describing the Corps' responsibilities for developing project management plans and engineering and design work. Also included are extensive excerpts from the Lower Snake and Salmon Subbasin Plans, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These include reference to the Snake River dams but don't appear to have direct relevance to the work proposed here.

A single objective is to provide information about reservoir sediment deposition after removal of Lower Snake River dams. Methods are inadequately described. No detail is provided. The proposal does not demonstrate why the approach described would be the appropriate one.

200737900 - Surveying Jobs that Depend on the Existence of Lower Snake River Reservoirs

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: It is proposed here that a thorough survey be performed to investigate the current level of employment that is dependent upon the continued existence of the Lower Snake Reservoirs.

Recommendation: Not fundable

This is an inadequate proposal. It presents an inadequate description of survey methods and does not demonstrate relevance of the survey information. No explanation or itemization of the \$10k budget is provided.

The background section duplicates information presented in other proposals from this sponsor. It discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It provides extensive excerpts from the US Army Corps of Engineers' report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvement, it may become a more realistic alternative if adaptive migration efforts are not successful. This proposal is to provide a survey of jobs dependent on the continued existence of Snake River Reservoirs, in preparation for the contingency of dam breaching.

The rationale is based on citations of Court findings and the 2000 BiOp RPAs 147 and 148 describing the Corps' responsibilities for developing project management plans and engineering and design work. Also included are extensive excerpts from the Lower Snake and Salmon Subbasin Plans, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These include reference to the Snake River dams but don't appear to have direct relevance to the work proposed here. Nothing presented here is specifically related to the question of job loss.

The objective is stated as "expanding the list of alternatives to be considered in a reevaluation study which would follow a failed check-in..." However, it is not clear how an employment survey would expand the opportunities except for the brief mention of the utility of clarifying the economic costs of dam breaching. The methods are described in inadequate detail. From the detail provided, however, it is clear that the proposed approach does not represent good survey design, would not provide representative sampling, and would generate biased results. A similar survey is referenced but not cited.

200738000 - Keeping Irrigators Whole in the Event of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: Proposed here is a review of ACOE plans that would allow irrigation to continue in its present state if Lower Snake Reservoirs were removed. A pipeline along the current shoreline of Ice Harbor reservoir will be considered and compared to the ACOE plan

Recommendation: Not fundable

This is an inadequately written proposal to compare costs of irrigation alternatives under dam breaching. It proposes to do work that would be a routine component of a NEPA analysis conducted by federal agencies if dam breaching were proposed. No explanation or itemization of the \$10k budget is provided.

The background section duplicates information presented in other proposals from this sponsor. This proposal is to review the US Army Corps of Engineers' report "Lower Snake River Juvenile Salmon Migration Feasibility" for its consideration of irrigation effects of dam breaching in the event that the Ice Harbor reservoir were removed, do a cost comparison of alternative means of providing irrigation, and consider a 30-mile irrigation pipeline. The premise appears to be that the Corps' isn't considering a full range of alternatives with regard to the irrigation effects of dam breaching.

The rationale for the work is in citations of Court findings and the 2000 BiOp RPAs 147 and 148 describing the Corps' responsibilities for developing project management plans and engineering and design work. This section actually contains some discussion of job loss that the jobs survey proposal does not.

This proposal objective is to "expand the list of alternatives" by seeking to clarify the economic costs of changes in the irrigation delivery system. Methods are described in inadequate detail. Methods for developing cost estimates of the various components are not described. Reference is made to a series of equations that will represent the costs and benefits of a proposed irrigation system, but these are not described. A paragraph following the work elements appears to present the sponsor's view that a gravity-fed system will be superior to what the Corps' will propose.

200738300 - Keeping Commodity Shippers Whole in the Event of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: A study is proposed to investigate the concerns surrounding the loss of the Lower Snake Reservoir shipping channel, in the event that these reservoirs were to be removed which may be deemed necessary for the recovery of Idaho's anadromous fish.

Recommendation: Not fundable

This is an inadequately written proposal to compare costs of irrigation alternatives under dam breaching. It proposes to do work that would be a routine component of a NEPA analysis conducted by federal agencies if dam breaching were proposed. No explanation or itemization of the \$10k budget is provided. The background section duplicates information presented in other proposals from this sponsor. Summary details of current shipping volume and levels of subsidy are provided.

The proposal's single objective is to investigate the concerns surrounding the loss of waterborne transportation if the Lower Snake reservoirs were removed. Methods are described in inadequate detail and consist primarily of obtaining information from various transportation industries and agencies. Details on methodology to be used to determine which products or commodities would no longer be cost-effective to produce in the absence of the Lower Snake reservoirs are not provided.

200738400 - Reducing the Cost of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: A competition is proposed to engineering students where entrants will consider the costs associated with removal of Lower Snake River dams. The breaching of these four dams may be deemed necessary for the recovery of Idaho's anadromous fish.

Recommendation: Not fundable

This is an inadequately written proposal to conduct a design contest among engineering students to find a more cost-effective means of reservoir removal than those considered to date by the Army Corps of Engineers. The proposal provides some information about the contest but is quite generally written and is not persuasive as to why alternatives are needed, why the Corps will not be analyzing an expanded list of alternatives should breaching become a realistic possibility, or why the contest would be the best way to go. No explanation or itemization of the \$10k budget is provided.

The background section discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It contains excerpts from the Corps report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvements, it may become a more realistic alternative if adaptive migration efforts are not successful. Some description of alternatives being considered by the Corps is presented. The intent of the proposal is to reduce economic effects on the ratepayers of Lower Snake River dam and reservoir removal. A summary list of major costs associated with these removals is included with a more detailed description of one (turbine modification) as an example of how costs might vary with different designs.

The single objective of this proposal is to expand the list of alternatives to be considered in a re-evaluation study, which would follow a failed "check-in." It seeks to lower the economic costs of dam removal. The methods section describes some alternatives that the Corps did not consider which might be lower cost. It describes some explanatory information from the Corps as to why certain configurations would not be considered, then notes that this information should be kept from the public until after the competition to ensure fairness. The proposal does not indicate whether this information is already available in published form. The proposal states that entries will be judged on "economic viability" and "affordability," without explanation of how these are defined. A list of work elements provides a general description of how the contest will be conducted.

200738500 - Investigating Flood Control Benefits and Flooding Risks of Federally Controlled Lower Snake Dams

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: This proposal seeks to investigate the purported flood control benefits of the Lower Snake River dams and discuss and summarize the flooding risk of these impoundments.

Recommendation: Not fundable

This is an inadequate proposal. It is quite generally written and is not persuasive as to why such flood control issues are not already known and routinely considered by the river operations system. No explanation or itemization of the \$10k budget is provided.

This proposal would prepare for the contingency of dam breaching by clarifying the differing perspectives on whether the Lower Snake River dams provide flood control benefits or risks. The background section contains much of the same information as in the other proposals from this sponsor, with a focus on the US Army Corps of Engineers report "Lower Snake River Juvenile Salmon Migration Feasibility."

The rationale for the proposed work is stated as finding viable alternatives to Corps' plans. The proposal rests on the assumption that this is an issue best clarified in advance of a decision about dam breaching so that political acceptability of options can be discerned. It also rests, as does the entire set, on the need to assess the categories of impacts, in which the Corps identifies that adaptive migration might be a preferred alternative to dam breaching.

The single objective of this proposal is to "clarify and investigate" competing claims about flood control risks and benefits of the Lower Snake River dams. Work elements are inadequately described and incompletely referenced. The risk/benefit analysis is not described. The proposal does not describe the type of information the river operating system already routinely tracks and assesses with regard to flood control.

200738600 - Estimating Bonneville Power Administration Revenue Effects in the Event of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: This proposal will use power production and energy market modeling software to project revenue effects of the BPA should Lower Snake Dams be removed. The breaching of these four dams may be deemed necessary for the recovery of Idaho's anadromous fish.

Recommendation: Not fundable

This is an inadequate proposal that seeks to copy a Council analysis of rate changes resulting from court-ordered spill and apply the Council's approach to clarify the economic costs of dam breaching and expand the list of alternatives. Specifically, this proposal would prepare for the contingency of dam breaching by analyzing the revenue impacts to the BPA of lost power production. It is motivated by the asserted need to assess these revenue impacts but does not demonstrate that the Council, Army Corps of Engineers, or BPA economic analysts would not be conducting such analyses.

Four of the proposal's work elements consist of asking Council analysts how they did the revenue analysis of spill, installing model software, copying Council methods, and running the Aurora model. The sponsors provide no evidence of the economic modeling expertise needed to do the proposed analysis. No explanation or itemization of the \$10k budget is provided.

Like the other Bluefish proposals, the background section focuses on the Corps report "Lower Snake River Juvenile Salmon Migration Feasibility." In this proposal, forty-six pages of examples of financial impacts to ratepayers and changes to the power system are excerpted directly from the Corps' report.

Sturgeon

198605000 - White Sturgeon Mitigation and Restoration in the Columbia and Snake Rivers Upstream from Bonneville Dam

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,613,363 FY08: \$1,591,637 FY09: \$1,613,212

Short description: Restore and mitigate for hydrosystem-caused loss of white sturgeon productivity through intensive fisheries management, supplementation, and modified hydropower system operation. Assess success of mitigation and restoration efforts.

Recommendation: Fundable

This is an excellent proposal from a group with good record of producing high quality technical reports and peer reviewed publications. The project is a key component in sturgeon stock assessment and management in the river above Bonneville. It appears to be worthy of high priority consideration. The rationale for the work is well established, although the narrative is not very specific. The proposal adequately relates its work to the Council's Fish and Wildlife Program (2003 Mainstem Amendments), NOAA Biological Opinion, subbasin plans, and sturgeon plans. The proposal provides an excellent history. A considerable amount of high quality research has been completed, and many technical reports and peer-reviewed publications have been produced.

Although fundable in its own right and not requiring a response, the project may benefit from a few ISRP comments. As more knowledge about white sturgeon is obtained, and technical skill

and technologies evolve, is the project still collecting the best information? Based on data generated to date, some of the stock assessment methods could be reviewed for possible improvements (e.g., obtaining sex-specific data). Are the pragmatic management strategies in this proposal keeping pace with the developing science of habitat requirements of the species? As other white sturgeon projects in the basin focus on obtaining data related to clarifying and resolving a “survival bottleneck” in the phase of early life history from egg incubation to early juveniles, does this project have relevant field information to share or study opportunities? What opportunities are there for collaborative research between this project’s field crews and other sturgeon investigators? The project personnel have a history of innovative thinking and research that might be reactivated in light of recent developments in white sturgeon research elsewhere in the basin.

200713300 - Systemwide distribution of genetic variation within and among populations of the white sturgeon (*Acipenser transmontanus*)

Sponsor: University of California at Davis

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$303,737 FY08: \$247,741 FY09: \$245,704

Short description: The project sponsors will analyze microsatellite genetic variation within and among white sturgeon populations throughout their range to assess both the interrelationships of populations to one another and the genetic health of the populations within the Columbia basin.

Recommendation: Not fundable

The project sponsors propose genotyping white sturgeon from various (all) locations in the Columbia basin at a minimum of 15 microsatellite loci. The purpose of the genotyping is to provide a better understanding of the population structure of white sturgeon. The background section fails to provide a sufficient summary of the current consensus opinion on the metapopulation structure of white sturgeon - both with the Columbia basin and across the species range - to establish the need and basis for the proposed genotyping. The recruitment problem facing white sturgeon is presented, but the management options for addressing it, and how the data from this project would be used to decide among alternative management choices are not presented. The case that this data will be used to decide among the options available for improving the condition of white sturgeon is not compelling.

Although the key geneticists on the west coast are on board, nothing in this proposal has emanated from managers. It needs to have compelling endorsement by the managers who might actually need this information.

It is not clear how the results of the genetic analyses would (or should) be interpreted. Sponsors assert (page 12) - "Systemwide population genetic data and derived management recommendations generated from this project will provide meaningful guidelines and quantitative benchmarks for the recovery and preservation of native white sturgeon throughout the Columbia basin." This assertion is not supported by a presentation of the types of guidelines and quantitative benchmarks the data could be used to generate. Page 15: "For example, if recruitment failure is confirmed in a particular population, this project can provide valuable

information about whether the native remnant population provides sufficient genetic variability to legitimately act as a re-founding stock." Is there a credible empirical basis for this assertion? How would the sponsors decide what the threshold level of genetic variation should be to determine that a remnant stock is unlikely to provide viable re-founding? Page 15: "Data from this proposed study can also be used to estimate minimum number of breeders contributing to a naturally produced year class, the degree of representation of wild alleles into a conservation aquaculture program, or can be used to assign unknown juvenile fish collected in the wild to hatchery or wild spawned parents." This is true. The important issue is whether or not this information is actually needed by managers to decide between management options they have available to them. Sponsors do not establish this.

The ISRP had specific comments on the "description of proposed project benefit" as follows (numbers are from the proposal):

5. Assess historic gene flow patterns to assist with various aspects of sturgeon management. Comment: This would be an important contribution -- the question being whether there was really more than a single population in the anadromous portion of the Columbia basin. The sponsors need to demonstrate that the data they generate could actually accomplish this task, beyond the usual calculation of N_m from F_{st} .

7. Assess relative genetic health and associated demographic conditions of the extant and remnant white sturgeon populations. Comment: How do the sponsors propose to arrive at these conclusions from their data? Is there an established method to make these decisions?

12. Provide valuable new empirical population genetic data for systemwide white sturgeon management and viability and persistence modeling. Comment: How do the sponsors propose to incorporate genetic data into modeling population viability and persistence?

13. Evaluate individual or systemwide population and species status to help determine the urgency and magnitude of management or conservation intervention. Comment: How do the sponsors propose to use genetic data to make these decisions?

The sponsors have been involved with sturgeon genetics in other geographic regions. They could provide more compelling evidence that the data they produced are actually employed to help select among alternative management choices to initiate management options.

200714800 - Monitoring and Models for Restoration and Adaptive Management of White Sturgeon in the Columbia River Basin

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$153,282 FY08: \$281,257 FY09: \$264,040

Short description: A metapopulation model for white sturgeon will help managers to evaluate restoration strategies (e.g., harvest regulation, translocation, stocking) for this species, and indicate how monitoring data might best be used to provide feedback.

Recommendation: Fundable (Qualified)

This proposal to assemble the basin's monitoring information on sturgeon, their habitat, and the efforts underway to manage sturgeon appears worthwhile. The ISRP has been asking for coordinated efforts among the sturgeon researchers, and the proposal intends to collect relevant data from all of them. One thing they likely will find is that the habitats differ among subpopulations, and likewise the management strategies.

The metapopulation model is a reasonable framework for assembling the information, although strictly speaking it is hard to see the currently isolated populations as a functioning metapopulation. The model would build on a similar model developed for white sturgeon in the Snake River above the Hells Canyon Project, where remnant populations still exist, primarily above Brownlee Reservoir. A strong point, again from the perspective of the ISRP's desire to see the sturgeon researchers cooperate, is the planned workshop for planning the model. The existing Snake model considers spawning rates, rates of export of larvae from one reservoir to the next downstream, upstream movement of adults (negligible), water quality (mainly temperature and DO), the bioenergetics of sturgeon growth (using a bioenergetics submodel), etc. It does not include specific habitat factors such as the hypothesized riparian connection for egg and larval survival, although these could be included in an updated version for the whole basin. There seems to be room in such a model for the conservation hatchery outputs on the Kootenai, as well as egg mortality in the silty substrate there. Translocation such as is done in the lower Columbia can be included. A key to model success will be the discussions about what to include in it (models will only manipulate the factors put in them, not instigate new ones). The model can serve as a valuable conceptual framework rather than an exercise in precise mathematical formulation and prediction.

The model has another advantage for the Fish and Wildlife Program. It is one case where Idaho Power has done the initial work and would contribute funding to the BPA effort. This cooperation would be almost unique and something to foster.

The ISRP finds this proposal Fundable (Qualified). The qualification is how the model would be used as a tool for assembling the data and making management recommendations, and whether it is intended to be a computational predictor or a guide.

The sponsors also need to establish that the project has the support of the various researchers in the basin from whom the monitoring and research data will have to come. The results of data

assembly, model assembly, model runs, and assessments need to be discussed in follow-up workshops with fish managers, and not just lead to a publication for the authors.

200715500 - Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$141,687 FY08: \$145,040 FY09: \$148,491

Short description: Develop a Master Plan to create a regional Columbia Basin rearing facility for the enhancement of selected white sturgeon populations in reservoirs upstream of Bonneville Dam and downstream of Grand Coulee and Granite dams.

Recommendation: Not fundable

The technical and scientific background is overly general regarding the conditions for using artificial production to enhance white sturgeon in the middle sections of the Columbia River Basin. The discussion of white sturgeon culture provides sufficient evidence that production of hatchery fish can be successfully accomplished. It is less clear that the reservoirs and river reaches in question are suitable for growing sturgeon to augment a sport and commercial fishery. It is not clear from the background and other sections of the proposal whether this proposal is to provide a put-grow-and-take sport and commercial fishery, or to provide adults to "supplement" and "restore" a self-sustaining population. Justification for a broad-scale, conservation hatchery is not provided.

The team preparing any future proposal should take into consideration the comments below about clarifying the goals, intent, and deleterious effects when developing their assessment.

The proposal identifies that there was a tribal request in the 1994 Fish and Wildlife Program calling for a facility to supplement white sturgeon populations and that concerns were raised about disease, genetics, and biological risks. The proposal indicates that these have been addressed by projects 19860500 and 198806500. A statement is provided asserting that persistence of white sturgeon lies at the heart of the Fish and Wildlife Program's requirement to restore the Columbia River ecosystem. It is not clear however, whether the proposed action is to restore the sturgeon populations or restore sturgeon fisheries or both. These need to be resolved before the initial assessments guiding a Three-Step Review. The same issue is germane to the relationship to the NOAA Fisheries Biological Opinion - increase lamprey and sturgeon to self-sustaining levels within 25 years. It is not clear whether the proposal will contribute to establishing self-sustaining populations or supporting fisheries.

The objective to increase population abundance of white sturgeon in the Lower Middle Columbia River is clear. The objective to reduce predation on sturgeon eggs and larvae in the Lower Middle Columbia subbasin is not at all clear.

The scope of the benefits is not clear. There might be conservation benefits to the focal species, but that is not very likely to persist. There could be benefits to humans by sustaining a depleted

fishery through artificial means. With other funded projects in the basin focusing on re-establishing natural reproduction, with a conservation hatchery as a temporary adjunct, it is not clear why the region should move toward wholesale artificial production of white sturgeon.

200721300 - Assessing Recruitment Failure Across White Sturgeon Populations: Differences in Prey Availability and Physical Habitat Among Areas with Consistent, Inconsistent, and no Annual Recruitment to Age-1

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$547,057 FY08: \$773,105 FY09: \$727,882

Short description: Investigate causes of recruitment failure in white sturgeon populations across the Columbia Basin by comparing availability of forage at the onset of exogenous feeding, channel morphology, and hydraulic conditions in several sturgeon spawning areas

Recommendation: Fundable in part

This is a generally well-prepared proposal on work that is logically important for understanding the mystery of poor white sturgeon recruitment in many parts of its range. Sponsors are uniquely qualified to do the laboratory studies, but proposed field studies are not well coordinated with others in the field already. The modeling seems overemphasized except as a conceptual framework for more data collection and analysis. Therefore, the ISRP recommends funding in part for the laboratory work and coordinated data collection and analysis from existing field studies.

The otherwise adequate background fails to cite relevant literature on the topic. Much of what is proposed has been published in concept by others, but not acknowledged in this proposal. Recognition of the reproductive bottleneck in the egg-to-early-juvenile stage should have referenced Vaughn Paragamian and his colleagues, who have published several papers on the Kootenai River situation. The importance of riverine habitat differences among spawning locations across the species' range should have been credited to recently published reviews. It is entirely appropriate to propose to investigate these ideas, which are presented with significant logic and justification, but their origins should be properly credited.

There are links to plans and programs in the basin. Other relevant projects are noted but without adequate acknowledgment of their contributions to the logic of the present proposal. The proposal is not adequately integrated with ongoing field activities in the region.

The objectives are well expressed for the several main areas of work, as are the relevant tasks. But there seems to be more emphasis on modeling than necessary or useful. The main tasks are the lab and fieldwork. Methods seem appropriate to the tasks. It is unclear that the tasks provide adequate linkages between expected results and conclusions that can be drawn. For example, if prey are scarcer in the Kootenai, would we not already know that? Does this necessarily imply a causal linkage to less recruitment? If so, can it be proven by the work to be conducted?

The Cook lab has excellent lab facilities suitable for the laboratory portions of the work. Although the lab also carries out much fieldwork on a variety of projects, the bulk of the white sturgeon field research across the basin is carried out by others (states, consulting firms, tribes). The field sampling of this work would have been better if coordinated (or better yet, run completely) by these organizations because each has ongoing field sampling in the locations proposed for sampling here. How many different field crews need to be out there only partially coordinated with each other? It is not clear that the USGS staff is the best for this fieldwork. With good coordination, the existing field crews could obtain data not now being collected but perceived valuable by the Cook staff. The lab staff has an excellent record of publication, so results would likely become readily available.

There is likely great benefit to white sturgeon management from establishing the sorts of habitat relationships suggested in this proposal. There are probably some important general habitat attributes and other site-specific factors. However, the benefits are less likely to happen if these investigators go it alone without coordination with others working on the same topic.

Lamprey

200702200 - Characterizing stress responses in lampreys: assessments based on cDNA microarrays

Sponsor: Columbia River Research Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$191,116 FY08: \$226,225 FY09: \$225,658

Short description: This project will evaluate the efficacy of cDNA microarrays for documenting the molecular and physiological responses of lampreys to a variety of common environmental stressors.

Recommendation: Not fundable

This is an innovative research project that would probably meet standards for basic research. Unfortunately it fails in the present context because of its inability to indicate a direct benefit to fish and wildlife or to arise directly and specifically from a measure spelled out in the Council's Fish and Wildlife Program (including adopted subbasin plans).

Technical and scientific background: The proponents have done an excellent job of describing why research on methods for determining stress response are important for lamprey conservation and management in the Columbia River Basin. The literature review was instructive and well written. One reference is missing (Wiseman et al.).

Microarray technology clearly is the way ahead for assessing stress response in lampreys, a topic which has not received attention in the Columbia River Basin.

The sponsors clearly describe the problem but do not make a convincing case that stress research will contribute significantly toward addressing these problems. The sponsors making sweeping claims about how stress research had benefited salmonid management, but they did not provide specific examples. For example, what specific changes in passage at dams have occurred as a direct result of stress research, over and above passage improvements that would have occurred anyway? Similarly, what specific changes have been instituted in capture, handling, and tagging?

Is there a threshold where a fish can be judged to be stressed and, if not, how are the judgments made so as to conclusively warrant large investments in technological improvements? Have changes in stress response been convincingly associated with reduction in growth, survival, or key behavior influencing fitness? Has research been done to convincingly demonstrate that improvements have significantly reduced stress levels?

Change in gene expression in response to a stressor appears to be a phenotypic-like response. If so, how can this knowledge be used to distinguish between stocks and life history forms? The sponsors do not discuss the limitations of the proposed approach.

The technical and scientific background focuses narrowly on the issue of stress and review of studies pertinent thereto. When the proponents attempt to justify this research project on the allegation that "Information on responses of fish to environmental stressors has also been useful for such things as modifying and improving routes of passage at dams, refining fish transportation techniques, and conducting survival and tagging studies", they go too far. Measurements of stress based upon blood constituents and the like, that accompanied such passage studies go back to 1980. However, the adjustments in the passage facilities resulted from observation of more easily seen expressions of stress, such as death, descaling and other externally visible signs of injury.

Another justification the proposal attempts is that it might provide a means of marking lamprey that have been stressed, deliberately or otherwise. The proposal presents no information that suggests such a mark is needed. Lamprey are being PIT tagged and fitted with radio tags. Where would this proposed technique fit into the picture?

Rationale and significance to subbasin plans and regional programs: The research is generally related to the call to address problems and uncertainties related to lamprey recovery, but the sponsors do not cite objectives that specifically identify a need for physiological research on stress to address the problems. Reference is made to the general interest in work on lampreys

Relationships to other projects: The relationship to other microarray and lamprey projects is well described. The experiments are particularly important to 199402600, and collaboration is ongoing with the proponent of that project. Microarray work with salmon is also coordinated. Collaboration with staff at PSU is an integral part of the project. This is a specialized area of work, and the small group of people with the expertise is working together. This project is broadly related to other lamprey projects in the basin, and the sponsors say they will closely collaborate with an ongoing but as yet unfunded (2007-2009) lamprey project. Reference is made

to CBFWA's Lamprey Technical Working Group, but there is no discussion of whether that group has called for studies such as this.

Objectives: The objectives are well defined with measurable outcomes. The sponsors do not propose to make concurrent measurements of physiological changes or growth, so it will be uncertain how observed changes in gene expression affect fitness-related attributes, i.e., whether they really represent a stress response.

The proponents should give a perspective or discussion on future monitoring in their proposal. Assuming the microarrays work out, what agency would deploy the method to assist in projects to restore or conserve lampreys?

200716500 - Relative abundance, distribution, and population structure of lampreys in the Columbia River Basin

Sponsor: Columbia River Research Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$667,711 FY08: \$900,464 FY09: \$1,001,775

Short description: This project will form a multi-agency collaboration to estimate the relative abundance and distribution of all life stages of lampreys in basins not studied previously. The project sponsors will also collect tissue samples for genetic analysis of fish in different areas.

Recommendation: Fundable in part

This is a very ambitious program to sample lamprey in numerous locations throughout the Columbia River Basin and to synthesize past data collected by other investigators. Investigators on other lamprey projects have been working for years on single rivers to develop reliable estimates of the parameters the sponsors propose to measure.

It should be possible to extend what has been learned about limiting factors by the group of lamprey researchers presently funded to the other projects (such as the one proposed here) so as to design appropriate management measures, without the need to conduct basic types of studies in each watershed. The proponents clearly recognize the need for collaboration with other projects since one of their goals is to capture information from all the different lamprey projects in the Columbia River Basin. The proposal would benefit from more discussion on how the proponents plan on engaging the people involved in the various projects. The proposal would also benefit from some evidence that the other researchers are indeed willing to collaborate. What is the role of the Lamprey Technical Work Group in this regard? This part of the proposal seems premature.

Partial funding is recommended to produce a lamprey sampling manual (Task 1.3). This would be a significant contribution that would lead to improvement in interpretation of results of the numerous lamprey projects underway or proposed in the Basin. Preparation of the manual could accomplish some of the coordination goals of the broader proposal.

200718700 - Use of Mainstem Habitats by Juvenile Pacific Lamprey (*Lampetra tridentata*)

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$144,910 FY08: \$166,255 FY09: \$100,033

Short description: Characterize the use of mainstem Columbia and lower Snake river habitats by juvenile Pacific lamprey and identify river reaches with high potential for restoration or expanded use.

Recommendation: Fundable

Short-term hydropower operations may have discernable effects on abundance and reproduction of mainstem spawning lamprey, as it does with fall Chinook salmon. This project will provide much needed information on juvenile lamprey use of Columbia and Snake River mainstem habitats that could be used to identify the areas with highest potential for restoration of mainstem lamprey populations, and reduce risks from stranding of juveniles from hydropower operations. The objectives are clear and measurable. The approach is innovative and has been used successfully by the sponsors to identify potential fall Chinook mainstem habitat.

This proposal received a fundable recommendation from the ISRP during the last review cycle. The ISRP continues to believe that this work will be an important component of lamprey recovery within the Columbia Basin.

Technical and scientific background: The proposal clearly explains the need for a study of habitat utilization by lamprey in the mainstem Columbia and Snake. This study would be the first of its kind to characterize mainstem lamprey habitat. The sponsors propose to identify options for restoration of mainstem habitat and to reduce risk of stranding due to changes in water surface elevation. The narrative refers to Wydoski and Whitney (1979). This publication was updated in 2003 and includes many lamprey references that appeared after the first edition was published (Wydoski and Whitney 2003. *Inland Fishes of Washington*. American Fisheries Society and University of Washington Press.)

Rationale and significance to subbasin plans and regional programs: Lamprey restoration is identified as a priority in several subbasin plans.

Relationships to other projects: The proposal complements other ongoing studies that primarily address use of tributary habitat. The proposal also addresses critical uncertainties identified by the Columbia Basin Pacific Lamprey technical work group. The sponsors say they will employ approaches and performance measures similar to other lamprey projects to ensure consistency among projects. This is a new project, so active collaboration with other projects has not yet been undertaken.

Objectives: Objectives are clearly defined and outcomes are measurable. A reasonable timeline is specified. The Hanford Reach will be the focus of the first years work because a great deal is

known about its habitat characteristics. In the following years the work will shift to the tailraces of three dams.

Tasks (work elements) and methods: For the most part the methods are adequately explained. The sponsors should give some thought to the following questions:

1. Has it been demonstrated that boat electroshocking is an effective means for sampling juvenile lamprey?
2. The sponsors state that the product of objectives 1 and 2 will be a description of all rearing areas and relative abundance of lamprey in the entire reach. How will the data from selected sampling sites within a reach be extrapolated to the entire reach, or is this product to be generated by the landscape modeling?
3. The sponsors state that a habitat model will be developed for each reach. They need to provide more detail about the model. Is it a statistical model, a GIS-based model?

Monitoring and evaluation: The project results will allow for determination of success or failure, and will be applicable to other lamprey projects.

Facilities, equipment, and personnel: The Pacific Northwest National Lab is a well-known research facility and the personnel are highly qualified for this work.

Information transfer: The proposal promises quarterly and annual reports, but there is no mention of long-term storage of data or meta-data. The sponsors have a good record of peer-reviewed publication. There is every reason to expect they will publish the results of this work.

Benefit to fish and wildlife: The project should provide long-term benefits for lamprey populations. The sponsors propose to identify options for restoration of lamprey in mainstem areas. The sponsors are aware that electroshocking could be deleterious to juvenile salmon using shallow water habitats. Their highly trained technical staff should minimize danger to non-focal species. The work could lead to improvements in mainstem habitat that could benefit non-focal vertebrate and invertebrate species.

200706300 - Use of drift nets to monitor production and limiting factors in recruitment of larval Pacific lamprey

Sponsor: Oregon State University

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$122,284 FY08: \$124,379 FY09: \$126,713

Short description: The primary purpose of this proposal is to assess a larval drift protocol for general application throughout the CRB, describe local spawning stock - larval recruitment relationships, and quantify factors limiting early recruitment of Pacific lamprey.

Recommendation: Fundable in part

Fundable in part – Objective # 1 only.

This proposal addresses the problem of accurately assessing the abundance of early life stage lamprey larvae and developing spawner-larval recruitment relationships. The sponsors objectively discuss the advantages and disadvantages of sampling techniques including their own and conclude that the technique they propose would be better for sampling early life stages of larvae. Data on lamprey abundance are identified as a priority in the Willamette subbasin plan. The proponents have done substantial networking with other lamprey researchers in the Columbia River Basin. The latter are not using drift methodology, so the proponents could have a unique methodology that could be integrated with studies elsewhere. The proponents have laid out a measured and defensible plan to assess the drift methodology with a proof of concept approach.

Comments on Objective 1: “Establish and assess a monitoring protocol that employs larval drift sampling to gauge Pacific lamprey distribution, status, and life history in large river basins where little information exists.” The proponents should assess sampling efficiency of the drift nets. As well, cross channel differences in lampreys could affect abundance estimates depending on where the three nets were deployed. It is likely that habitat impacts vary between the eight subbasins to be investigated. And it would be useful to tie this work into habitat planning as much as possible as data on flows, substrates etc could be used by others studying the Willamette basin. This would enhance the benefits of the study.

Comments on “not fundable” objective 2: “Investigate the relationship between Pacific lamprey spawning stock and recruitment to larval phase.” The design for objective 2 does not mimic the natural situation that will occur in most rivers. Downstream drifting emergents may come from several spawning areas upstream, mortality would occur as they drift downstream, and some would have settled out before reaching the sampling. It would be virtually impossible to predict the number of spawners that produced the larvae captured in the drift nets. The investigators do not discuss how corrections will be made for net efficiency. Nor do they discuss the kinds of stock-recruitment models that would be appropriate. To estimate abundance of emergents it would seem simpler to just cap nests and determine the number of eggs that survive to emergence. The types of analyses that will be conducted are not given.

Comments on “not fundable” objective 3: “Describe and quantify the chief factors limiting Pacific lamprey larval recruitment in focal spawning areas.” The sponsors do not explain how mortality from egg predation will be quantified. How will the affect of abiotic variables be analyzed taking into account differences in fecundity, which will not be measured? Adult predation and redd superimposition were other factors mentioned but no details on how they would be assessed were given.

Smelt

200736000 - Columbia River/Cowlitz River Eulachon Research and Monitoring Plan (ERMP)

Sponsor: Steward and Associates

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$438,881 FY08: \$410,542 FY09: \$410,542

Short description: The ERMP addresses critical information needs for improved management of eulachon in the Columbia River and its tributaries. This effort is consistent with sub-basin planning objectives, and anticipates needs related to a potential ESA status review.

Recommendation: Fundable (Qualified)

Eulachon are an important and underappreciated anadromous species in the Lower Columbia River. The timing of their spawning migration and their exceptionally high lipid content makes them an important food resource for many fish and wildlife at a time when other food types are scarce. Both salmon and sturgeon feed on smelt, as well as a variety of birds and scavenging mammals. The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

Overall, the background information in the proposal was fairly complete. It would have been helpful to have presented data on historical abundance. Current runs are far lower than those of several decades ago, but no data are given. Coastwide, this species has experienced a significant decline that is consistent with Columbia River Basin populations. Even commercial harvests, although notoriously inaccurate, would have suggested the magnitude of current declines in the lower river. Nevertheless, the fact that the smelt runs have gone from supporting a commercial fishery to being considered for Endangered Species Act (ESA) listing make this species an important candidate for monitoring. The proposal covered the local scientific information adequately but did not reference the important research done on this species elsewhere in the Pacific Northwest, including Alaska. The proposal should take into account the research conducted elsewhere.

Conditions in the marine environment can also be important limiting factors. Other than the Mt. St. Helen's eruption changing the freshwater habitat in the lower Columbia, the marine environment may be where the greatest changes in their habitat have occurred. The project should look at historical eulachon abundance in relation to Pacific Decadal Oscillation (PDO) cycles and El nino/La nina events. Other concerns are human harvest, bird predation, and food availability in the marine environment. Canada is looking at eulachon bycatch in the shrimp fisheries off the West Coast of Vancouver Island. A consideration of these issues should be incorporated in the project.

Care should be taken to ensure sample sizes are sufficient. Has there been a power analysis to show that proposed fish samples are enough? The proposal mentions a potential link to the

LCREP effort in the estuary, but relatively few details are given. How will this project use estuary data? Physical methods are fairly well described but a few more details could have been given, e.g., sediment monitoring methods on p. 13 of the proposal.

Freshwater Mussels

200729100 - Developing and Assessing Freshwater Mussel Distribution, Abundance and Life History Survey Methods in the Columbia Basin in Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$55,330 FY08: \$0 FY09: \$0

Short description: The project sponsors propose to conduct a pilot survey of freshwater mussels in a subdrainage of the Columbia River to develop methods to collect data necessary for sound management and to gain experience at conducting such surveys for likely future work.

Recommendation: Not fundable

Although no one doubts that freshwater mussels are highly imperiled, the rationale and significance of this proposed project is too weakly developed to warrant funding at this time. There are insufficient references to specific subbasin plans. The reference to the Fish and Wildlife Plan is very general and does not provide a sufficiently strong tie to justify this proposal. The technical background needs to be fleshed out more. The goal of the project is to develop freshwater mussel survey methods; however, the study plan basically describes a 1-year mussel survey of the Similkameen River. Moreover, the proposal does not consider the potential pitfalls of limiting the investigation to a single year.

There are few references to other mussel survey techniques (surely this work has been done in the south), and alternative methods are not described. There is no mention of other BPA-supported mussel research projects that has been going on in the Umatilla and John Day Rivers since 2003.

The "3 or 4" mussel species in the Similkameen River are not identified, nor are their life cycles or intermediate hosts given. The basic question "Why do we need mussel distribution, abundance, and life history survey methods?" for the Columbia Basin, as opposed to other areas where such methods have been worked out, is not addressed. Additionally, the reason for choosing the Similkameen River over others is not adequately justified. The proposal does not give enough detail to understand exactly how they are going to proceed with the project. This proposal is a plan to develop a plan and is inadequate.

The tasks are delineated, but much of the preliminary design work should have been completed before the proposal was submitted. References are given for the tasks but no methods are

described in detail. There is no discussion of evaluating alternative sampling techniques. Have survey protocols already been determined? If so, should the proposal have a different title?

At a minimum, this proposal should have addressed the following questions: (1) what are the sampling challenges for determining mussel distribution, abundance, and life history, (2) what alternative sampling methods are being evaluated, and (3) what are the cost/effectiveness tradeoffs of different survey techniques? These questions are inadequately addressed in the proposal.

The objective of Task 1 is to develop a statistically valid survey method, but the lead investigator has apparently already done so "in a subdrainage of the Columbia River in 2005" (p. 2). Task 2 proposes to focus on the Similkameen River because it contains a diverse mussel assemblage, but it is not clear that results would be applicable elsewhere in the Columbia River Basin. The Similkameen River is a transboundary tributary that has been heavily impacted by mining and agricultural practices and survey methods for this system may not be the most appropriate for cold montane rivers.

Task 3 was too generally written to be helpful for understanding database management. Were data to be stored in Excel or Access, or in some proprietary WDFW database management system? The objective of Task 4 is to determine distribution, abundance and life histories of the mussels, but there is no mention of sampling any intermediate hosts. Do the mussels require only native fish species as intermediates, or can the glochidia infest non-native fishes?

The second reference (Stevens and Olsen (2004) is not in the literature cited. The design to look above and below a dam is a good concept. But not enough detail was provided to understand exactly how the project would proceed.

200203700 - Freshwater Mussel Research and Restoration Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$294,953 FY08: \$293,713 FY09: \$352,316

Short description: The purpose of this study is to provide information essential for restoration of freshwater mussels in the Umatilla River. Mussel restoration complements the Tribe's efforts to rebuild ecosystem diversity, and traditional and cultural opportunities.

Recommendation: Fundable (Qualified)

This proposal gives a nice background presentation including data collected (including maps) in previous years. This proposal has an exemplary section on past results and reporting of data. It is surprising that more taxonomic work has not been done on these organisms so the genetic analyses in the proposal are well justified, particularly if *Anodonta* turns out to be a species complex with multiple habitat and fish host requirements. One point that the background section could have made more clear was why so few mussels exist in the Umatilla River relative to the John Day River since both rivers have a long history of anthropogenic disturbance (e.g., mining grazing and logging), and intuitively they should have similar mussel faunas.

Some of these mussels are very long-lived, e.g., 50 years, and the shells can be used like tree-rings to track environmental changes. This fundable recommendation is qualified because better documentation is needed that the sample size is adequate. Have they done a power analysis to show that their sample size is adequate? It is of interest to note that in some areas around Seattle, mussels are used to monitor habitat restoration project effectiveness. It would also be useful to know if other mussel translocation efforts have been attempted in the Columbia River Basin, and if so, how well they have succeeded.

200707800 - Characterizing the Geographic Distribution of Freshwater Mussels in the Columbia Basin Using Museum Collection Data

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$30,500 FY08: \$8,200 FY09: \$0

Short description: All available collection records will be examined for accuracy, species identifications will be checked, and location and date of collection will be recorded. Species occurrence data will be plotted in a GIS and made available online.

Recommendation: Response requested

The goal of this project is to establish mussel distributions based on museum collections. This work would help determine if the Basin has lost some species. If the quality of the collection is good enough, they could get useful information on biodiversity and distribution. However, the background statement does not adequately describe what is currently known. For example, there is an incomplete discussion of the Nedeau et al. (2005) report in freshwater mussels of the Pacific Northwest. There should have been a description of the subbasins where mussel distribution and species composition data are sparse or lacking. Additionally, there was no mention of specifically which museums contained mussel collections or the adequacy of those collections.

In addition, this proposal does not make a convincing case that mussel sample libraries would be adequate from the Northwest alone to provide greater understanding of the present and historical distribution of freshwater mussels in the Columbia River Basin. If this exercise was completed, the proposers should evaluate samples from early survey work in museums nationwide -- Philadelphia, Washington DC, New York, Berkeley and San Francisco, etc. They would need to contact all major museums in the US and ask about mussels in the Columbia River system (a broadcast query to likely over a 100 museums). Mussel specialists in federal agencies such as the USGS should be contacted. Also, does evidence exist from initial inquiries that the historical distribution (as described) is incomplete or specimens misidentified, and that additional data are available for use? This is an important question because most early museum researchers were quite thorough. Also, more rigor is needed in describing the methods for proper species identification and no provision was made for ground-truthing the museum records. Is this work designed to fill gaps in the 2005 report on freshwater mussels of the Pacific Northwest. If so, they should explain the gaps/problems in the report and justify this project.

200717600 - Freshwater Mussel Watch for Biomonitoring in the Columbia River Basin

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$276,971 FY08: \$313,691 FY09: \$302,043

Short description: The project sponsors propose to establish a long-term, basinwide ecosystem biomonitoring program in the Columbia River Basin using freshwater mussels as bioindicators – The Freshwater Mussel Watch.

Recommendation: Not fundable

The technical and scientific background information was generally well presented. The use of mussels as bioindicators has a long history in the biomonitoring literature. However, the proposal does not adequately address its limitations. Mussels in the Pacific Northwest usually do not occur in high gradient headwater streams, particularly those prone to frequent bedload movement. Thus, the distribution alone makes the mussel group less suitable for use in monitoring than other taxa. Furthermore, numerous other proposed projects have discussed the fact that the mussel group is in jeopardy. In addition, the areas selected for study (Upper Columbia, John Day, Upper Salmon, and estuary) are all within the anadromous fish zone. It would seem that mussels could provide biomonitoring value to resident fish areas as well, but none were chosen.

In addition, a filter feeder will not have high concentrations of most contaminants, even if they are present. Other ephemeral contaminants will depend upon the time of the year the sample was collected (spray season), and can be more easily completed with a semi-permeable membrane device (SPMD) placed in the water. The Mussel Watch Program along the coast came into existence before the advent SPMDs, which can now be used for monitoring purposes (independent of mussel distribution). SPMDs collect contaminants from water just like the filter-feeding mussels. The ISRP was surprised that no contaminants were scheduled for analyses, although some samples were going to be archived for possible analyses.

It would seem like the condition of the mussels will be so dependent upon local conditions that it would be very difficult to compare locations and associated habitats in a meaningful way to obtain overall patterns and to understand what is responsible for them, i.e., age ratios, growth rates, other body measurements, etc.

No single approach is best for monitoring contaminants in the Columbia River Basin, but a combination of SPMDs, selected fish species and top predators (mammalian or avian) may be effective. Top predators should be evaluated if there is concern about contaminants that biomagnify up the food chain. With certain contaminants, the timing of collections (e.g., related to spray season for non-persistent pesticides) is very important.

Relationships to other projects is clearly articulated. However, some of the proposed work in the John Day River may duplicate John Day mussel research in the ongoing BPA-funded study. A weakness of the proposal is a lack of detail on how contaminant levels in mussel tissues will be

related to pollution sources. As described in the proposal, there does not seem to be a strong connection with water quality monitoring agencies such as EPA, Oregon DEQ, and Washington DOE. Such a partnership would help this project.

A couple of the tasks (e.g., 2.d) call for physiological studies conducted in the lab, where it will be very hard to duplicate typical diurnal and seasonal variability in basic parameters such as temperature. For contaminants, this issue becomes even more difficult because many contaminants are pulsed into the drainage system. One approach the investigators might consider is devising a mobile laboratory that can travel to the sites and utilize flow-through water supplies, making it much easier to simulate natural conditions. Such a setup can provide a more controlled environment than the mussel caging studies without sacrificing some of the natural environmental variability.

Predator Control and Invasive Species

200737100 - Documentation of food-web linkages in the mainstem Columbia River towards understanding the role of invasive species and establishing a baseline trophic state

Sponsor: Columbia River Research Laboratory

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$209,774 FY08: \$232,226 FY09: \$105,146

Short description: The project sponsors propose to use stable isotopes to document food web linkages in the Bonneville Reservoir. The project sponsors propose to determine isotopic signatures of representative trophic levels and use multi-source mixing models to quantify food web sources and pathway.

Recommendation: Response requested

Taking an ecosystem approach towards an understanding of the role of invasive species is worthwhile and the ISRP appreciated the proponents' ideas toward this end. The literature review was well done. Understanding food webs would help forecast effects of invasive species and the use of stable isotope is innovative. While the proponents try to make the case that the main effects of invasive species in the Columbia River Basin is via food chain effects, other mechanisms may be operating for example structural changes from invasive plants such as milfoil. A specific study that integrated structural and food web effects would require a more complex project.

To improve this particular proposal, responses to the following would be very useful to the ISRP:

1. The proponents should provide a focused and strategic approach with a set of well-developed hypotheses rather than a synoptic study as described.

2. More details and description of the specific food webs that the proposed study would focus on are encouraged. For example white sturgeon are mentioned as a target fish species in the narrative but in Task 1.5 fish (in general) are to be obtained opportunistically from a variety of sources. If the Asian clam/white sturgeon food linkage is of most concern, this should be focus of the study. Has contact been made with fish researchers in the study area? The ISRP was also concerned that no empirical data on gut contents of the top predators (fish) were to be obtained.
3. The proposal would benefit from an explanation of how “baseline” data on stable isotopes in the food webs of the highly altered river system (above Bonneville) would provide information for managers. Are the methods too complex to use operationally?
4. Information on where the stable isotope analyses will be determined and the capability of the laboratory staff would improve the proposal.

199007700 - Develop Systemwide Predator Control for Northern Pikeminnows

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$3,884,045 FY08: \$3,990,748 FY09: \$4,102,784

Short description: The Northern Pikeminnow Management Program is designed to remove predator-sized northern pikeminnows at an annual rate of 10-20%, resulting in the restructuring of their population which modeling shows could reduce predation on juvenile salmonids by 50%.

Recommendation: Response requested

This is an ongoing project that has proven its worth through repeated technical and economic reviews since its inception. The notion that a major predator on juvenile salmonids could be reduced in numbers and the survival of salmonids improved thereby has been validated by many years of data and analyses. The project has responded well to reviews. The predator removal program seems to have reached its objectives over the years, although better information might be provided on how this has improved smolt-to-adult return rates (SARs). A number of peer-reviewed publications have been prepared and specific reporting has been completed. This history of results is adequately presented in the proposal. The general context is well explained through coverage of the existing regional plans relevant to the project, but linkages with other predator related projects in the Columbia River Basin are only briefly mentioned. Good outline of work elements. The proposal is slim on methods, although these have been well standardized over the years. An established database and reporting program is in place. The proposal calls for significant increase in effort toward data synthesis and interpretation; this should be supported.

Despite a generally favorable response, the ISRP raised several questions to be addressed in a response by the proponents.

- 1) The basic premise of capturing the northern pikeminnow at an appropriate size (to reduce the effect of older fish) seems sound, but the increase in survivorship of the smolts is not well documented. Jones et al. (2005) are cited as having produced a useful model, but the model has

not been peer reviewed (and is not yet in the grey literature). What progress is being made toward publication?

2) There is some uncertainty about the scale of predator removal effects on smolt SARs. Benefits are short term in that the work has to be done every year. Has an attempt been made to relate the predator removals and estimated smolt benefits to SARs?

3) What is meant by systemwide response? Is this assumed simply because of the passage of all the upstream salmon through the reaches encompassed by the effort? Is something happening in the ecosystem from northern pikeminnow harvesting that is of immediate concern to the fish and wildlife program of the basin? Would the proponents benefit from a wider involvement in Columbia River Basin ecosystem related management? More clarifying information on the concept of a systemwide response would be helpful.

4) In the ISRP's Retrospective Report, the ISRP noted the issue of invasive species and salmonid predators, e.g., walleye and bass, which are regulated for a fishery. Is reduction of the northern pikeminnow population by this project opening habitat for increased bass and walleye populations? What relationships do the proponents see between the efforts for northern pikeminnow and other predatory fish in the basin?

199702400 - Avian Predation on Juvenile Salmonids in the Lower Columbia River

Sponsor: Oregon State University

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$700,000 FY08: \$860,000 FY09: \$900,000

Short description: Determine predation rates by waterbirds on juvenile salmonids, evaluate the efficacy of management initiatives to reduce avian predation, and assist resource managers in the development of plans for long-term management of avian predation, as warranted.

Recommendation: Fundable (Qualified)

This is a strong proposal, and avian predation is definitely a problem that has been documented in a useful series of studies. This project is being funded by a number of entities, the Corps and BPA. The Council/BPA/Corps and the sponsor should clearly delineate who is funding which tasks.

This recommendation is qualified, because the ISRP questions whether it is necessary to condition new sites for the terns (this pertains only to those sites more than 200 miles away), or even evaluate potential new habitat at great distances from the present colonies. These birds are adept at finding suitable habitat when the present habitat is no longer rendered suitable and will likely redistribute to their more historical range, instead of the recent concentration in the Columbia River estuary. More suitable alternative sites need to be provided within 200 miles of the present colonies, because birds need alternative sites or they will not readily move.

Fisheries investigators should consider a similar approach to this project's in sampling for PIT tags in dredge material at Burbank Slough (at mouth of Snake and Columbia).

200700900 - Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids (*Oncorhynchus* spp.) in the Columbia River Basin

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$102,930 FY08: \$52,930 FY09: \$29,273

Short description: The project sponsors are proposing to develop a spatially explicit and web-accessible database (and spatial analysis tools) to facilitate access to juvenile salmonid (*O. spp.*) mortality data from avian predation based on PIT tag detections; Columbia River Basin.

Recommendation: Not fundable

This is a well-written proposal, but does not make a compelling case about why information should not be handled by PTAGIS. Has PTAGIS been asked to track this additional information? It seems this data could easily be incorporated into PTAGIS with some coordination with the project sponsor. Modification of the existing data base system (PTAGIS) is likely a more efficient option to improve data accessibility and to add spatial considerations. The ISRP is concerned about duplication of effort with this proposed project. The parties need to get together.

200708900 - Monitoring Invasive Species in the mainstem Columbia River: the development of a design to monitor the status and trends and provide for the early detection of invasive species

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$350,902 FY08: \$403,695 FY09: \$221,763

Short description: The project sponsors propose to formulate a survey design to monitor the status and trends and to provide for the early detection of invasive species in the mainstem Columbia River.

Recommendation: Response requested

This is a proposal to formulate a survey design for invasive species in the mainstem Columbia River and to provide early detection. The proposal needs to be more strategic. What is the link to management? There should be more demonstration of management implications. What will this project result in (in terms of benefits to the native resources)? How much good work has been done solving these invasive species problems after they have been documented? Maybe something can be done if resource managers arrive on the situation early, and that may be the big benefit of this type of project, i.e., better understanding their distribution and abundance to concentrate the management response. Perhaps, the project sponsors could identify vectors to cut off -- ballast inspections, etc -- and methods.

There is no single sampling method to do this research. The proposal needs to be prioritized to focus on types of invasive species that may be the most critical. When looking for everything,

they may miss the key invasives that influence focal species. Specific research may be required to find the strategic focus, but this may be a more appropriate investment at this time given that we already have a fair knowledge of what invasives are found in the Columbia River Basin.

Reviewers like the idea of probability sampling, but the specific gear chosen for sampling fish in particular is of questionable utility. One of the listed tasks is to evaluate effectiveness of sampling gear, but there are many experienced personnel who could advise that, for example trawls or gill nets will not be effective for sampling largemouth or smallmouth bass if one is looking for an index of abundance.

The background section is good but somewhat lacking in specifics concerning why the invasives are a problem in the Lower Columbia. Clearly invasive species could potentially affect salmonids and other native biota in the Columbia River Basin. However, the background falls short with respect to invasive fish already present and does not explain which of the 81 aquatic invasives and 123 cryptogenic species (below Bonneville) are the most important to track (for possible control or vector management). For example, if the invasive clams are good food for sturgeon (as claimed), then why worry about them?

What is being done to resolve the invasive species issues with other species? We know that American shad is a major invasive, yet no one seems to be doing anything about the 7 million shad that must be competing with some species (even research to identify the impacts). If we have a monitoring program for invasive species, what do we do with the information and how will it be used to benefit the native resources? Reviewers would be interested in hearing response on this issue. It seems like this whole area is one that is ripe for creativity to solve the problem. Although this project is just a plan to document the problem and the changes in distribution and abundance, the region needs to go beyond this monitoring program.

The Independent Scientific Group (2000) provided a list of native and invasive fish species in Table 5.3 page 156-160. They expressed a particular concern about northern pike, which have been introduced into one or more lakes in Idaho where they have access to tributaries leading into the mainstem Columbia River. (ISG 2000. Return to the River. NWPCC 2000-12). The same may be said of many other fishes.

The proposal relates well to Council's research plan, Columbia Gorge Subbasin Plan, and the regional invasive species working group. The proposal describes fine coordination with LCREP, LCRANS, and other fish sampling programs. Apparently, this project is trying to build on the presence/absence data in earlier work and develop a better sampling scheme based on EPA's EMAP design.

The objectives of the proposed synoptic program are not well targeted on organisms that could affect fish. The proponents should provide specific information on the most likely "dangerous" invasives. More survey type information may not be that useful. The proposal contained detailed and informative tasks and methods. The use of EMAP method to use sample site is appropriate.

The proposal would benefit from more strategic thinking about what to sample, not where to sample. Continued evaluations of the findings would be part of the project.

The Cook Lab of USGS is well set up to do this work and has good staff. They have the facilities, good working relationships with other research groups, and a USGS mandate to do this sort of work. However, given the range of organisms they propose to sample (phytoplankton to fish), it is not clear if the correct taxonomic expertise is available. Specimens may have to be farmed out to specialists. Additional types of gear may be required to sample some fishes in proportion to their possible abundance

Proponents have a good publication record for journal articles, but the proposal could better describe provision for long-term storage of data or meta-data.

200727500 - Impact of American shad in the Columbia River

Sponsor: Columbia River Research Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$278,736 FY08: \$360,313 FY09: \$365,160

Short description: American are the most abundant anadromous fish in the Columbia River, although The project sponsors know little about their potential impacts on salmonids and other parts of the aquatic community. The project sponsors propose basic research on potential impacts of juvenile and adult shad.

Recommendation: Fundable

Fundable with high priority. This is a well thought-out proposal, whose results could be of great significance in the management of salmon, steelhead, sturgeon and other fishes in the Columbia Basin. The ISRP has identified several uncertainties associated with American shad in the Columbia Basin (ISRP Retrospective Report, ISRP 2005-14.) This proposal reviews those and is designed to address them.

A proposal similar to this one was previously submitted by the same proponents under the Innovative Proposal initiative of the Council. The ISRP gave it a high ranking and recommended it for funding. The Council also recommended to BPA that it be funded. However, BPA did not fund it. Because there is so little known about shad in the Columbia River Basin even a small increment of knowledge on their effects on other species would be beneficial.

Technical and scientific background: The proposal clearly identifies and reviews the shad problem. The proponents could have given more details on how they arrived at the four identified hypotheses.

One hypothesis is that there is competition with salmonids for food, which might lead to an effect on growth rate of salmonids. To demonstrate this would require significantly more intensive research than is proposed. The proposed isotope work is not necessarily a short-cut method to arrive at such a conclusion.

Early research summarized in the proposal suggests another hypothesis, that availability of juvenile shad may provide a consistent food source to northern pikeminnow when salmonids are not available, thus contributing to the ultimate size of the pikeminnow population and the associated increase in losses of juvenile salmonids. The shad population is a substantial biomass. A bioenergetics model would be required to analyze the validity of this hypothesis.

Work on other hypotheses (disease, shad as prey, nutrient deficiency) might be appropriate at this time, but not necessarily as part of this proposal.

Rationale and significance to subbasin plans and regional programs: There is no relevant Mainstem Subbasin Plan. However, the questions addressed by this proposal are of considerable significance in implementation of mainstem measures in the Council's Fish and Wildlife Program.

Relationships to other projects: The work is put in context. The proposal would benefit if linkages were shown to several other projects working on food web relationships (e.g., 20030100). Other projects, which might obtain related information are identified, but there are none being conducted on shad per se.

Tasks (work elements) and methods: The proposal does not adequately consider the difficulties in assessing competitive effects on growth and survival of anadromous fish and sturgeon. The simplified food web in the narrative is overly generalized and does not show linkages from invertebrates to algae or detritus from vascular plants. These links, and others, complicate isotope work. Addition of sulfur into the isotope analyses might help. The other components (disease, nutrients, shad as prey) are adequately described and appropriate.

Monitoring and evaluation: The project includes no manipulation, and is itself monitoring in nature.

The facilities, equipment, and personnel are adequate.

Information transfer: There is a good plan for data release, and the proponents have commendable publication records.

Bull Trout

200714600 - Bull Trout Population Status Monitoring in the Snake River Basin of Southeast Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$129,372 FY08: \$129,991 FY09: \$125,590

Short description: Monitor bull trout distribution and relative abundance using summer sampling and fall spawning surveys. Collect tissues and genetically characterize the populations and metapopulation structure in southeast Washington.

Recommendation: Response requested

This proposed work could serve a meaningful purpose by providing information on the status of bull trout in a fairly remote region. The authors however, provided little specific detail of what they intend to do with the data they propose to collect.

A response is requested that provides a brief description of the currently understood population structure of bull trout, the location of the core populations in this region, more details on the sampling history in this region, a better summary of the sampling that needs to be completed from this area for the full initial status monitoring (species distribution) to be complete, a better rationalization why population size is needed - rather than just presence/absence and distribution, and that the sampling to be executed under this proposal will fill a reasonable portion of the outstanding tasks.

Some reporting of previous work is presented, but more could have been provided (specifically, a full listing of the previous sampling - Table 5 is only a sample). The results of the PIT tagging in the Tucannon need to be summarized (since this project will continue that work). The management implication of these previous efforts needs to be provided.

Objectives are mostly inventory; finding out what is where. It is do-able, but the implications of possible results should be more carefully articulated.

A more thorough listing of the miles (kms) of stream that are to be surveyed each year, and their location needs to be provided. The relationship of these areas to areas of "gaps" in the bull trout status review and recovery plans needs to be established. The need is there to continue the PIT tagging to monitor movement from the Tucannon to the Snake River. If the project is funded it most definitely should collect scales for aging and fin tissue for genetic analysis. Getting into the field to sample the fish is the challenge. Scales and fin tissue can be stored for long periods of time and analyzed as funds and the need for information arises.

199405400 - Migratory Patterns, Structure, Abundance and Status of Bull Trout Populations in Subbasins of the Columbia Gorge, Columbia Plateau and Blue Mountain Provinces

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$466,260 FY08: \$460,337 FY09: \$453,849

Short description: Proposed objectives address distribution and temperature associations of subadults in Mill Cr./Walla Walla R.) migration characteristics of Hood River bull trout and development of bull trout monitoring plan for the Grand Ronde and John Day subbasins.

Recommendation: Response requested

This proposal addresses what seems to be a set of problems that are not well integrated with each other or with management options for bull trout. The project sponsors provide brief summaries of previous work on four topics -- genetics/metapopulation structure, bull trout/brook trout interactions, bull trout migration, and monitoring. The summary of population structure is adequate, but the others leave the conclusions and next steps too open ended. A response is needed to clarify that the design of the model development and standardized monitoring protocol is adequate, and that studying juvenile and subadult movements is required in each of these subbasins.

It is difficult to ascertain how critical the results of this study would be for management. There do not seem to be any managers in the various basins actively on board and involved with this proposed work (at least as presented in the proposal). The direct linkage is not well established between the proposed research and benefits of implementation on the species basinwide. The summary of relationships to other projects (section D) is not adequate to establish that the facilities, equipment, and personnel are appropriate to complete the work identified in this proposal.

For preparing a response, the ISRP provides these additional comments/questions for the sponsors to consider. What is the bottom line on bull trout/brook trout interactions? Do we need to evaluate hybridization on a case-by-case basis or can generalizations be extended to unstudied regions? What do ecological interactions tell us about habitat protection issues? Similarly for migration patterns, from these previous investigations how should subsequent investigations be conducted? What are the new questions? Is it necessary to investigate migration of juveniles from the natal headwater areas to adult holding areas in lower tributaries or the mainstem Columbia in every subbasin? Is it possible to establish generalizations that can then be used to develop water quality and diversion performance standards in other subbasins? What do we need to learn to move from investigation of life-history variation to implementation of restoration actions?

The background section lacks focus. The text references streams (e.g., Mill Creek in the Walla Walla subbasin) without placing them in context. Some terms are used improperly (e.g., on page 4, anthropomorphic should be anthropogenic). The linkages between subbasin-specific tasks and

objectives are sometimes missing. For example, movements and connectivity in the Hood River and Walla Walla (work elements 1 and 2) are not linked conceptually with work element 3 to develop standard protocols for monitoring bull trout. It is not at all clear how this project will serve to provide "guidance for reintroduction assessments" (page 6).

The listed objectives are really tasks to complete the work elements. Objectives in terms of goals to achieve protection and restoration of bull trout are needed.

Several questions for each of the three primary tasks need to be clarified. Objective 1: how is ambient water temperature determined? How are survival rates determined - specifically how is tag loss/non-detection and/or migration out of the area incorporated into the survival estimates?

How will bull trout be monitored (tracked) in Bonneville Reservoir. Task 2.1.2. Who operates the Middle Fork screw trap? Is this project going to operate a trap to catch 20 fish per year? If not, are fish trapped and captured by another project holding bull trout until they are tagged? Who does the tagging?

For objective 3, the linkage between the stages on page 18 and the tasks (work elements) needs to be established; it is not clear from the text. No tasks are associated with stages 1 and 2 or 4 and 5. The reference "Rosenberger and Dunham 2005" is not in the citations. What is going to be done with Work Element 3.4 - Landscape Modeling? It is not clear. It is not clear how the patch characteristics are going to be measured and then evaluated and finally incorporated into a landscape model.

The addition of several maps would greatly improve the clarity of the proposal, especially the section regarding the migration patterns of bull trout in the Hood River watershed.

200703300 - Monitor sub adult and adult bull trout passage through Lower Granite, Little Goose and Lower Monumental juvenile bypass facilities

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$141,912 FY08: \$113,729 FY09: \$120,090

Short description: Enumerate bull trout passage through Lower Snake River dams' juvenile bypass systems. Evaluate as a potential source of take through the incidental barging of migratory bull trout. Determine most likely origin of bull trout utilizing these facilities.

Recommendation: Response requested

The proponents need to provide convincing evidence that a significant problem exists for bull trout passage at the Lower Snake River dams' juvenile bypass systems. A response is requested to include some preliminary estimates of the number of bull trout potentially impacted and summarized data from the Battelle report (2004) that may strengthen the justification for this project. Along these lines, a task should be added for collection of data to make a real estimate of the significance of this problem.

The goals of the tasks stated in the proposal are reasonable (i.e. establish sampling protocols, determine the extent and timing of bull trout occurrence at Lower Granite, and identify sources of take within juvenile bypass operations). However, the methods that are going to be used to estimate these effects are not described in sufficient detail to determine how the tasks will be specifically accomplished.

Other comments:

Technical and scientific background: The proponents cite a Battelle report (2004) to establish that direct mortality and incidental barging of bull trout may be a significant cause of decline of these populations. However, no specific information is provided on the evidence used to decide on the scale of the problem.

Rationale and significance to subbasin plans and regional programs: The need to better understand how the Federal Columbia River Power System (FCRPS) affects bull trout was identified in the Fish and Wildlife Program mainstem amendments, the USFWS bull trout recovery plan, and the FCRPS BiOp is adequately presented.

Relationships to other projects: The proponents need to identify the ongoing projects that are essential to executing the research project. Section D clearly states that cooperation will be needed and that they are going to depend on other juvenile collection projects to PIT tag bull trout. However, they state "establishment of a cooperative effort with the researchers would increase the sample size." Is this a statement that they have the cooperation, or is it a suggestion that they might pursue cooperation?

Objectives: The objectives in Section F. are too task specific (i.e. establish sampling protocols that will increase the likelihood of detecting any bull trout utilizing juvenile passage facility). Objectives are needed that relate to improving the status of bull trout populations, with specific timeframes.

Tasks (work elements) and methods: The goals of the tasks are reasonable (i.e. establish sampling protocols, determine the extent and timing of bull trout occurrence at Lower Granite, and identify sources of take within juvenile bypass operations). However, the methods that are going to be used to estimate these effects are not described in sufficient detail. How do the sponsors propose to achieve the goals of these tasks and work elements?

Monitoring and evaluation: This is a research/monitoring project to evaluate bull trout use of bypass systems at Snake River dams. The details of the work elements section are not sufficient to evaluate whether the estimates of loss, barging, etc., will have the necessary precision or bias.

Facilities, equipment, and personnel: The proponents indicate they will collect tissues for genetic analysis, although the reason for doing this is not developed in the proposal and relationships with projects genotyping bull trout are not indicated. Further, PIT tagging by other projects appears to be essential for this project to succeed, but the relationships to the projects that might

perform this task are insufficiently described. Consequently, it is not possible to confirm that the facilities, equipment, and personnel to complete the entire project are sufficient.

200729700 - Effect of Elevated Water Temperature and Gas Supersaturation on Bull Trout Reproduction and Growth

Sponsor: Abernathy Fish Tech. Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$138,396 FY08: \$157,998 FY09: \$158,158

Short description: This project seeks to determine the effect of sublethal stress on growth and reproduction of bull trout. This project will fill a data gap concerning the effect of environmental stress on bull trout performance and individual fitness.

Recommendation: Not fundable

The summary of the effects of elevated temperature and stress on the reproductive function in rainbow trout is very well done. The assumption that these stressors may have similar effects on the growth and reproductive capacity in bull trout may have merit, but first the proponents need to convince us that bull trout are having a significant problem with growth and reproductive capacity in the wild. Problems with reproduction in bull trout are currently not known to exist. We are convinced that this laboratory study will produce quality data and results, but how will those data be applied?

This proposal will remain at a low priority for funding until elevated temperature or total dissolved gas effects on growth or reproductive capacity of bull trout are identified as potentially significant problems.

200722300 - Genetic characteristics and movement patterns of bull trout populations between Chief Joseph and McNary Dams, within the Columbia Cascade and Columbia Plateau Provinces

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$400,298 FY08: \$404,786 FY09: \$395,429

Short description: Proposed work is to use existing and new bull trout population information. Approach will use genetic analysis techniques, radio telemetry and pit tagging will be used to look at populations (same as new project 200722200 in the Columbia Plateau Province).

Recommendation: Not fundable

The problem identified is that there is widespread uncertainty about the population structure, distribution, abundance, and habitat use of bull trout in the Basin. Sponsors intend to reduce the uncertainty about bull trout metapopulation dynamics by tagging and following fish, and by inferring migration and interrelationships from genetic data.

The genotyping to complete the population structure assessment of bull trout and hybridization dynamics is justified. However, given that bull trout move around so much, it is not clear what

will be measured by evaluating allele frequency differences of fish from different streams. Many of them may reshuffle in another year or so, and the sponsors have not addressed that difficulty. For these same reasons using assignment tests may be meaningless under these biological conditions.

A more thorough justification is needed to conclude that the telemetry work is not adequately being covered by other projects in the basin. In view of previous work on this topic by these people, it is disappointing that they did not clearly frame the bull trout problems based on their ongoing work. Before funding would be considered, the results of the ongoing study should be clearly used, evaluated, and understood, and there is no indication yet that they are, either with reference to the basin or more broadly in bull trout conservation in the basin and beyond.

Chelan and Douglas PUDs are implementing radio telemetry within the mainstem Columbia River. The proposed work will extend that effort to the full basin. The technical background does not establish the necessity of this expanded work. How will this proposal lead to more complete assessments of bull trout, and reduce uncertainty in the management options facing the region?

Reiman and Allendorf (2001) is not in the citations; Manel et al. (2005) has an incomplete citation.

Deficiencies in the methods section include a lack of information on the number and location of samples needed to complete the genetic survey of population structure of bull trout. In the background section, a table of the locations that have been analyzed to date could be included, with a summary of the needed sampling to complete this effort in the Columbia River basin. More detail is needed on how each of the seven hypotheses will be evaluated. It is not clear what Hypothesis 5 means (Movements of bull trout depict how they are assigned using genetic assignment tests). If fish being tracked with telemetry go to reaches without arrays, how do you know it and incorporate that into the movement and survival estimates?

Completing the population structure analysis will benefit bull trout management. It is much less clear that the telemetry work will add to the broader understanding of life-history diversity in bull trout. At what point can migration and life-history variation studies in other subbasins be generalized and incorporated into the habitat, water quality, and water diversion standards needed to protect and restore bull trout?

Habitat

200201301 - Water Entity (RPA 151) NWPC

Sponsor: National Fish & Wildlife Foundation

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$5,000,000 FY08: \$5,000,000 FY09: \$5,000,000

Short description: Fund water right transactions that restore streamflows and focused riparian easements on critical fish-bearing Columbia Basin tributaries. Implemented as the Columbia Basin Water Transactions Program (CBWTP) in a partnership between BPA and NFWF.

Recommendation: Fundable (Qualified)

This project will likely result in long-term benefits to focal species. Water withdrawals have been identified as one of the primary sources of habitat loss in the Columbia River Basin, and this project attempts to address the problem directly. Before this review, the ISRP had not reviewed the results of the Water Transactions Program, but had favorably reviewed NFWF's transaction/project selection criteria. In the ISRP's review of the criteria and in the Retrospective Report, the ISRP recommended a review of the transaction program's results. The FY07 review process allowed us to consider some of the questions below:

1. How has CBWTP investments increased the capacity of Qualified Local Entities (QLEs) to engage in water transactions?
2. How have the investments in water transactions affected the quantity of flow and amount and quality of habitat for salmonids?
3. How have the investments in water transactions changed the responses of salmonids?
4. How well has CBWPT offered an effective means for coordinating federal, state and local organizational efforts for increasing instream flows?
5. How have federal partners changed in meeting specific federal mandates for protecting key species of salmonids?
6. How has CBWPT programmatic activities affected the agricultural uses in achieving targeted water flows?

The proposal did a reasonable job of defining the problem and describing the project's history, but the background section did not go into much detail about how the water transaction program's efforts to increase instream flows will actually result in improved survival and productivity. Some references to the beneficial effects of increasing flows on spawning, juvenile rearing, and migration (both smolt and adult) phases of the life cycle would have been helpful in setting the stage.

The ISRP is not requesting a response, but the proposal and continuing project would be improved by addressing the following comments:

The detailed project history section of the proposal begins with a statement of the underlying assumption that water transactions provide a mechanism to increase tributary flows for the

benefit of fish and wildlife. A transaction is a voluntary agreement in which water that has previously been diverted is left or released to instream flows. The process by which proposed transactions are reviewed is described. An extensive and very thorough discussion describes the history of the program. For each year from FY 2003 to present, the number of transactions, tools used, and particular issues are described for the overall program and for the individual states. The proposal includes a good interpretive discussion, with interesting and innovative transactions highlighted. However, while the proposal goes into a lot of detail about the agreements that have been reached, it does not always show how much streamflows increased as the result of these agreements. The project history section describes the efforts to establish a flow and biological monitoring program for instream transactions, and summarizes the monitoring work done by eight QLEs. These efforts may help address the ISRP's comments about the biological benefits of this project.

The proposal would also have benefited from including a brief section describing the problem of low tributary flows in the Columbia Basin, recent changes in water law that re-define instream flow as a beneficial use, the existence of programmatic mechanisms to change the purpose of use of existing water rights, and the identification of inadequate stream flow as a key limiting factor for fish in a number of subbasin plans.

It would help to know more about prioritization of projects. The ISRP previously reviewed criteria for review of water acquisition projects. How do QLEs prioritize their submissions for review? The sponsors should provide information about the priorities and review criteria for riparian easement proposals, so QLEs will be fully informed. The project sponsors also leave monitoring to the QLEs. In many cases QLEs do not possess flow gages or the telemetry equipment to send data to a remote server, so real changes resulting from water transactions may be undocumented. This proposal contains an element that would facilitate the installation of stream gages, which is needed.

A primary concern is that the scale of the projects still seems fairly modest in relation to the overall problem. For example, the following statement identifies numerical goals for part of the Columbia Cascade province: "The updated proposed action for the Biological Opinion seeks to secure 12 cfs of flow through water transactions by the end of the 2007 fiscal year and a total 40 cfs by the end of the 2010 fiscal year. For riparian protection, the target is four miles by the end of 2007 and a total of 12 miles by end of 2010. These targets are applicable to the Entiat, Methow, and Wenatchee subbasins, with implementation of conservation measures also focused in the Okanogan subbasin." The targets seem low in relations to the total flow in these subbasins or the total miles of riparian zones.

One additional comment relates to the history of water right acquisition since the project's inception. The graph in the proposal showing water protection over time declines sharply for the first three years of the project and then levels out. Does this mean that new agreements will be increasingly difficult to come by, resulting in diminishing returns per dollar invested in the program? What strategies will be adopted to ensure that new water protection agreements can be sustained over the life of the project? Are some projects in the queue waiting to be finalized?

Also to note, in FY 2005, the CBWTP worked with BPA to establish the Columbia Basin Riparian Conservation Easement Program. It set up Land Qualified Local Entities (LQLEs) to propose easement projects. A technical advisory committee was established to review the projects. Two have been funded and are described.

200703600 - Mid-Columbia Trophic Dynamics Project

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$633,000 FY08: \$533,000 FY09: \$533,000

Short description: Conduct a trophics dynamic project using conventional fish capture methods, bioenergetics modeling and stable isotope analysis as well as mobile hydroacoustics surveys to quantify the impacts of predators on salmonids within the Mid-Columbia.

Recommendation: Not fundable

The proposal in its present form is not fundable. This is a proposal to develop a research, monitoring, and evaluation plan. The proposed location-specific information on predators and predation rates on salmonids in the Mid-Columbia would be both more up-to-date and local than existing information from the lower Columbia. A better understanding of the impacts of the predators is warranted but this proposal is not sufficiently justified to address this data gap. Particularly, the methods are insufficiently described. If the proposal focused on developing a method to estimate predator population size and food habits, it could be developed into a fundable project. Additional comments by ISRP reviewers are listed below.

Technical and scientific background: Scientific and technical information related to the Columbia River Basin is adequately explained with references. This section of the proposal is brief, and would have benefited from a brief review of relevant studies in other geographic regions.

Rationale and significance to subbasin plans and regional programs: The potential significance of predators is noted in the subbasin plans for the project area and is generally recognized as a problem in the basin. The proponents mention subbasin plans and Council's research plan, but do not make a strong case for whether predator trophic dynamics studies are a high priority in these plans.

Relationships to other projects: The proponents provide a description of how their results will be applicable to several ongoing and newly proposed studies. They plan to work with the Chelan County and Grant County Public Utility Districts' pikeminnow removal programs to collect additional stomach and tissue samples if required.

Objectives: The first objective in which the proponents want to do the project planning with project funding suggests that this proposal is incomplete; i.e., this is a proposal to do a proposal.

The general objective to improve the understanding of predatory fishes' impact on migrating salmonids is very appropriate. However, the relationships among the specific objectives listed in the proposal are not clear. For example, in work element 3.1 the statement is made that a population estimate of predators will not be possible. However, much of the sampling effort (e.g., littoral sampling, hydroacoustic sampling) seems to be focused on developing some understanding of predator abundance. In fact, without a good estimate of predator abundance, it will not be possible to estimate impacts on migrating salmon, even with the use of the bioenergetics model. One of the primary objectives of this work should be developing a methodology that will provide an estimate of predator abundance.

The rationale for collecting the water quality data is unclear. Developing a relationship between water quality attributes and salmonid susceptibility to predation would require sampling at frequent intervals, across a range of water quality conditions, at at least one site within each of the broad habitat classes (forebay, tailrace, reservoir). However, sampling will occur only in spring and fall. Therefore, only two points per site, per year will be collected. The possibility of developing a meaningful understanding of the relationship between water quality and predation rate seems pretty remote given the paucity of the data.

The objectives at the end are presuming good results and go on to actions, which are acceptable for projecting ahead, but are premature for inclusion in this proposed work.

The proposed timelines for the three phases of the project are not clear.

Tasks (work elements) and methods: Many of the work elements are not clearly described. This point clearly applies to the issue of estimating predator population size, mentioned above. Much more thought needs to be given to this aspect of the study. In fact, the usefulness of the information collected in this project would be severely compromised unless some estimate of population size is made. The use of multiple sampling techniques to enumerate predator populations exacerbates the problem. Is it possible to combine data collected during the littoral sampling with the hydroacoustic data? The issue of data compatibility is especially problematic given that the littoral data is collected in the spring and fall and the hydroacoustic data in mid summer. It might be worthwhile to consider restricting the sampling effort to a much smaller section of the river (between two dams, maybe) and concentrate on developing a solid estimate of salmonid losses to predation at this site. Subsequently, the methodology could be applied to other locations.

The proponent's description of Phase 2 indicates that evaluation of any predator control strategy will require monitoring of predator population size. This point further emphasizes the need to develop a method for measuring population size.

It is not clear what types of samples (other than fish muscle) will be used in the stable isotope analysis. In order to construct a food web for the system, samples of all the major food items of the predatory fishes need to be collected for isotopic analysis. Without these data, it will not be possible to draw any conclusions about the diets of the predators beyond what you learn from the

gut contents. If samples of food items are planned, this should have been described in the proposal. If there is no plan to collect samples of food items, the stable isotope analysis should be omitted from the study.

Work element 1.1: This is a proposal to do a literature search to further develop research, monitoring, and evaluation methods and a sample design. In general, the proposal would have been improved if this work had been completed prior to submission of the proposal.

Work element 1.2: Standard WDFW protocols for selecting samples sites will be used. Methods of random site selection are not described. Sampling methods to be used include gillnetting, electrofishing, fykenetting, and angling but no details on gear (e.g., mesh size), fishing methods, or fishing strategy with respect to target species are provided. Additional habitat types will be designated depending on gear types. The proposal would have been improved if the study area and sampling design had been completed and included as part of the proposal.

Work element 2.1: The proponents would limit sampling to the spring to "when smolt are migrating" and fall "to ascertain diet data associated with smolt absence." Why isn't predation on juvenile salmon parr, which might be rearing and feeding in reservoirs throughout the year, of interest in this study? Part of the description of hydroacoustic methods is written in past tense - is this methodology derived from another study conducted by the proponents? Again, the proposal would be improved by a description of the net sampling gear and procedures that would be used to validate species composition and size distribution.

Throughout the proposal, statistical data analysis procedures -- sample sizes/statistical power -- are not provided. Work elements for phase II and III of the proposal are not fully developed.

Monitoring and evaluation: This is a monitoring and evaluation project. However, there are deficiencies in the design that should be addressed before the project is implemented.

Facilities, equipment, and personnel: The budget request includes a new boat, a new truck and several other capital items. These needs suggest that current equipment and facilities may not be sufficient to undertake this project. Where will the stable isotope analyses work be done? Only the lead staff person's CV was given, and a few other names are listed in the text as writers. We have to presume that the state staff knows how to do the planned work. What are the roles of Polacek, Simmons, Bennett, and Schroder in the proposed study?

Information transfer: The public outreach component is especially noteworthy. The proposal would have been improved if plans for publication of results in a scientific journal were included. Plans for release and long-term storage of data and meta-data are not described.

Benefits to focal species and non-focal species: The proposed project is intended to benefit salmon populations through predator control (if warranted by the results), but it is not demonstrated that benefits would be significant or persist over the long term. Without a good estimate of predator population levels, the impact of these fishes on migrating salmon cannot be

estimated and the effectiveness of any predator control strategy that is implemented cannot be assessed. This problem reduces the benefit of this project to the focal species. Knowing more about the predatory fishes and the consumption of salmon will likely benefit salmon populations, but there is some uncertainty.

There are potential adverse effects of the sampling (e.g., electrofishing) on salmonids and other species of native biota. Any predator control program implemented as a result of this work could have unforeseen impacts on aquatic communities in the mainstem. However, it would seem unlikely that these impacts would be to species that are the primary targets of recovery efforts. There likely will be some beneficial information gathered on species other than the major predator and prey species that are being targeted.

200704900 - Efficacy of carcass analogs for restoring the productivity of nutrient limited salmonid streams

Sponsor: Columbia River Research Laboratory

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$442,707 FY08: \$476,635 FY09: \$501,996

Short description: This project will assess the influence of seasonal additions of salmon carcass analogs on various measures of stream productivity and nutrient flow through the aquatic community.

Recommendation: Fundable

There are not many studies that have evaluated this issue, so this is a valuable proposal. The background for the proposal was adequate. This study has the potential to evaluate carcass analogs, provided a suitable experimental design can be implemented. The development of carcass analogs represents a new technology that deserves investigation in controlled field studies before the region commits to wholesale acceptance.

In general, the proposal does a good job of relating the study to the general issue of deliberate nutrient enrichment to boost stream productivity, although the early work of C. E. Warren and colleagues at Oregon State University on nutrient enrichment of streams is often overlooked and should be reviewed by project sponsors. The practice of releasing salmon carcasses from hatcheries is widespread, but there are considerable logistical problems with deploying large numbers of carcasses throughout a stream network. The recent development of carcass "analogs" has been suggested as a much more tractable method, with the additional advantage of being able to deploy the material at the desired time and place -- not just when fish are available from a hatchery. Relatively few studies have monitored the biological effects of deliberate carcass releases, and with this new technology the effects remain largely unknown. The proposal does not explain what carcass analogs are (pelletized, pasteurized fishmeal derived from spawned-out hatchery salmon), and of the five assumptions about their advantages given, only assumption 3 (easy to transport) and assumption 5 (stable supply) should be taken at face value. The others (pathogen-free, closely mimic nutrients from natural carcasses, and similar breakdown rate) should be tested.

The proposal describes how carcass analogs have been deployed in the Wind River watershed in 2005, but does not mention any results. The claim is made that the Pearsons et al. (2003) study of carcass analog enrichment of a Yakima River tributary "restored food pathways by direct consumption and food chain enhancement"; however, in a recent presentation these authors have further stated "Except for an initial increase in growth approximately 6 weeks after analogs were stocked, we detected no effect of analogs on either growth or abundance of trout." Two other important references are omitted: Sanderson and Kiffney's (2003) progress report on carcass analog additions to streams in the Salmon River basin, and S. Claeson's M.S. thesis at OSU on experimental whole carcass effects on food webs in the upper Wind River.

The objectives are worthwhile and the proposal does a good job of covering the bases with regard to biological response -- water chemistry, periphyton, benthic invertebrates (although it is odd that only grazers will be analyzed for stable isotopes), resident fishes, and contaminants.

Using a predetermined range of carcass analog densities is a good idea, since the Yakima study of Pearsons et al. did not appear to have detected sustained trophic enrichment. One of the most important questions the proposal does not address is how the amount of natural spawning by Chinook and steelhead will be factored into the analyses. Although the proposal does not contain a map of the study streams, they appear to be located in the vicinity of the Carson hatchery. Thus, it seems possible that there will be some natural spawning in the study streams (the proposal does not specify if sites will be located above barriers to anadromous species). If natural spawning is distributed unequally among the study sites it could confound the objectives of the research. If there is no salmon spawning at any of the study sites, the objective of the work is slightly compromised because the study will have taken place in streams where aquatic communities have not adapted to historical salmon spawning over time. The proposal does not justify why a 500m upstream control and 500m downstream treatment approach was selected, as opposed to treating an entire stream with carcass analogs and pairing sites with untreated control streams to the extent possible.

The methods for sampling the periphyton, aquatic invertebrates, and fishes are standard techniques and should work well. Surprisingly, fish species were not specified. How does fish community composition vary among streams?

200713100 - Screening diversions for conservation of fish populations in the Columbia River Basin: entrainment losses, prioritization, and the efficacy of alternative technology designs

Sponsor: Columbia River Research Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$407,735 FY08: \$375,200 FY09: \$338,824

Short description: This project will estimate entrainment of fishes in unscreened diversions in the CRB to help set priorities for screening. The project sponsors will also conduct hydraulic and biological evaluations of alternative technology fish screens in the field.

Recommendation: Fundable (Qualified)

This proposal builds from an earlier project in the Hood River subbasin that investigated the efficacy of overshot horizontal flat plate fish screens. The problem of fish entrainment in unscreened diversions is widespread throughout the interior Columbia River Basin, and the background section provides an adequate justification for the work. It would have helped to have discussed whether entrainment problems have been observed at screened diversions using standard rotating drum or other self-cleaning screens, in order to put the evaluation of alternative screening techniques in context. Having an alternative to screens that require electricity would be cost-effective at sites where getting power to a screen is problematic. A photo or drawing of a miniaturized overshot flat panel screen would have been helpful. The proposal provides a clear rationale for the study and frames the issue in a series of questions previously applied to fish entrainment problems in California's central valley.

Methods for each work element were adequately described and appropriate. The use of fluorescein dye to check for injuries of fish passing over screens was clever. The use of underwater video to document fish behavior in the vicinity of the screens was also a good idea.

The ISRP emphasizes that the project shouldn't just look at the total number of fish entrained, but rather should consider the fraction of the population entrained. In a very low population, entrainment of even a few fish could be a significant problem. They should also consider spreading their study sites out a bit to get more independent information providing a wider range of response.

200713600 - Beavers as stream restorationists? Determining systemwide status and trends in beaver impoundments in tributary streams, and the relationships between beaver impoundment and salmonids

Sponsor: University of Idaho

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$106,695 FY08: \$105,890 FY09: \$85,889

Short description: Beaver dams have strong effects on stream processes, fish, and wildlife. The project sponsors will use GIS to estimate status and trends in beaver ponds, and GIS and existing fisheries data to test hypotheses about how ponds affect salmonids at watershed scales.

Recommendation: Fundable in part

The proposed work addresses an important problem and could lead to significant benefits for focal and non-focal species. Only Objective 1 is fundable. The results from this work could serve as a basis for designing large-scale empirical studies on the influence of beaver dams on salmonid abundance. Objective 2 is not fundable. For numerous reasons detailed below, research on objective 2 is not likely to be meaningful. The sponsors need to identify related projects within the basin and search for possible collaborative relationships.

Technical and scientific background: Overall, the background section is fairly complete. The problem is well defined and relevant to fish and wildlife. The sponsors point out that beaver

ponds could be preferred habitat for introduced brook trout, but are they also used by other non-native aquatic species? And do they promote the establishment of non-native aquatic and riparian plants? The sponsors also did not discuss potential negative effects of beaver dams such as elevated water temperature. Nor did they discuss how human activities have affected beavers historically, the extent to which these impacts persist today, and the realistic possibility for beaver restoration.

A number of the references (particularly the Naiman and Pollock refs) were based on data from the coastal rainforest ecoregion, suggesting that relatively little is known about fish ecology in beaver ponds in the northern Rocky Mountains. Aren't there more appropriate references for the interior Columbia, e.g., with respect to fish use as wintering habitats?

There appears to be an assumption that beaver had access to all potentially impoundable reaches and, if so, the assumption should be justified or at least acknowledged?

Rationale and significance to subbasin plans and regional programs: The proposal addresses specific biological objectives in the Fish and Wildlife program and information needs identified by the ISAB and ISRP. Little is said about the proposal's significance to subbasin and regional plans. Surely this project can be related to specific action items in, say, the Clearwater subbasin plan (where part of this study is likely to occur).

Relationships to other projects: The sponsors do not identify any relationships with ongoing projects or collaborative efforts. There surely are other projects that are related to the proposed project such as wildlife mitigation, wetland restoration, projects directed at restoring stream function and salmonid habitat, and so forth. There is no mention of the habitat assessment projects that are currently ongoing, or the road decommissioning projects, which may affect beaver distribution. There are so many habitat improvement projects related to the proposed work that it is important to know how they might affect the results of this GIS-based analysis of current vs. historical beaver ponds.

The sponsors need to identify related projects and search for possible collaborative relationships (these could take a variety of forms including information exchange) with, for example, sponsors of other projects, state agencies and tribes. As currently envisioned, the project gives the appearance of standing alone and apart for other efforts within the basin.

Objectives: Objective 1 is accomplishable, given certain clarifications as described below. First, have the investigators considered the possibility that some beaver impoundments in small headwater streams might be obscured by the forest canopy and might not be easily seen in air photos? Second, is it possible that other flow obstructions (e.g., landslide and debris flow deposits, push-up dams) might create impoundment shapes that can be mistaken for beaver ponds? Third, given the available GIS coverages, how confident can we be that data layers for beaver ponds are up to date and have been ground-truthed? Finally, comparison of current beaver ponds with data from 1927-1939 (example given for Clearwater/Nez Perce) will contrast

existing conditions with an area that had already been impacted by trapping, grazing, mining, and other anthropogenic disturbances. How will this be taken into account?

Objective 2 is not likely to yield meaningful results on the influence of beaver dams on salmonid abundance because a number of other important variables influencing abundance apparently will not be taken into account in the analysis.

1. There are many other projects (e.g., supplementation) that might affect the number of smolts produced by different watersheds. It will be difficult to attribute differences in smolt yield to beaver ponds without explicitly considering the effects of these projects.
2. Variables that are important in determining productivity of streams for salmonids, such as pool frequency and depth, large wood abundance and amount of spawning gravel apparently will not be taken into account at the watershed scale in the analysis.
3. The proposed work does not consider temporal variability in pond complexes resulting from disturbances such as flood and fires. A dynamics view of beaver pond complexes is needed.
4. Beaver ponds could benefit juvenile rearing (especially for coho), but the effects may be masked by post-juvenile mortality resulting in low outmigrant or adult abundance. To be meaningful the benefits of beaver should be assessed by life stage and species. To demonstrate possible effects would require demonstrating that fish use the ponds in preference to the upstream and downstream flowing water section of the stream.

Tasks (work elements) and methods: The procedures for conducting the GIS analyses are adequately described. However, there was no mention of field verifying the results of GIS analysis in a subset of the selected watersheds. For example, there didn't seem to be any way of determining with certainty that an impoundment was created by beaver activity or some other process. Field validation of a sample of the territory seems essential.

The sponsors need to carefully consider the following:

Task 1.1: What is the resolution of the aerial photos for detecting ponds? How small of a pond can be detected? From which subbasin will the HUCs be selected, and why were they chosen? Why does the selection of HUC's need to be stratified? Why not just random selection? If there are only five HUC's per subbasin why bother to stratify?

Task 1.3: Will the HUC's used in task 1.1 also be used for this work? If not, why not?

Task 1.4: The sponsors refer to land use and ownership categories. What are the categories? The sponsors propose to estimate future impoundable reaches under policies encouraging landowners to permit beaver use. What are the policies? Will there be different scenarios reflecting different kinds and extents of land use change? What would be some examples of "active or passive" management actions?

Monitoring and evaluation: There did not seem to be any discussion of monitoring or evaluation. In fairness to the proposal, there was no easy way to do this, but the study appeared to lack any provisions for ground-truthing the results of what was essentially a desktop analysis. A field verification component was needed.

Facilities, equipment, and personnel: The facilities, equipment, and personnel appear well qualified to carry out the stated objectives.

Information transfer: The proposal mentions building a standalone website to display and disseminate results but does not mention peer-reviewed publications. An analysis of current vs. historical beaver pond distribution and abundance would make an interesting paper. Information will be made available to managers to aid in making habitat restoration decisions.

Benefits to focal and non-focal species: A project that leads to increasing the abundance of beaver ponds will likely benefit a variety of focal fish and wildlife species. The proposal could have done a better job of describing how the GIS-based beaver impoundment analysis will be compared to known migration blockages so that a better understanding of potential vs. realized benefits can be estimated (e.g., what fraction of the historical distribution of beaver ponds are currently upstream from impassable barriers?). Objective 2 likely is not accomplishable and therefore would yield no benefit.

Since beavers are not a focal species, it is assumed this project will ultimately benefit them directly. The task that examines the influence of beaver ponds on non-native brook trout abundance is worthwhile, although teasing out the specific effects of beaver ponds on brook trout (as opposed to, say, water temperature) will be difficult.

200715100 - Nutrient Enhancement Business Plan

Sponsor: Lower Columbia Fish Enhancement Group

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$100,000 FY08: \$50,000 FY09: \$0

Short description: This proposal seeks funding to develop a business plan that describes how a model nutrient enhancement program would be established to utilize hatchery carcasses to create the carcass analogs necessary for large scale nutrient enhancement.

Recommendation: Not fundable

This proposal rests on insufficiently tested assumptions about the efficacy of carcass and carcass analog enrichment. Whether or not carcass analogs will provide the anticipated benefits awaits further field-testing, and the technology deserves a fair and thorough evaluation prior to widespread implementation. Most of the technical background section consists of verbatim quotations from existing reviews (e.g., Winter et al.) coupled with a lengthy response from Dr. Stockner to a set of questions. There was a very strong advocacy tone throughout the background section. However, little attention was given to those studies that have not demonstrated a sustained growth or survival response to carcass related nutrient enhancement in the Columbia River Basin (e.g., Pearsons et al. paper; S. Claeson, MS thesis at OSU). Nearly all of the case studies cited in the proposal have taken place in Alaska and British Columbia, and extension of those findings to the Columbia River Basin should not be assumed without careful research. It is quite possible that the proposed nutrient enhancement program might work, but the methods and technology have not matured nor have they been properly evaluated in this area.

The suggestion that hatchery fish treated with antibiotics or other chemicals can be used to produce carcass analogs that can be widely deployed will require careful evaluation by water quality agencies. The occurrence of unwanted antibiotics in public waters has become an important environmental concern.

The technical background section argued for a broad-scale nutrient enhancement program, but the real purpose of the proposal was to secure funding to develop a business plan to stop federal and state hatcheries from selling hatchery salmon carcasses to private buyers and instead form a regional cooperative that would pool fish from different locations and make the carcasses (or carcass analogs) available throughout the Pacific Northwest. This seems less like a science issue than a policy and economics question. The proposal argues that carcass additions are consistent with regional programs and subbasin plans, but the rationale for building a regional non-profit entity which would essentially broker carcass products to watershed councils and other enhancement groups is not explicitly related to those same programs. Would having such a non-profit entity make more carcasses available (what is the evidence for this)? Would it really be self-funding through food grade carcass and egg sales (what is the evidence for this)? The proposal lacks hard evidence that such an entity would be more efficient or more effective than existing arrangements.

200718000 - Evaluating and prioritizing restoration of riparian habitat for improving in-stream conditions for anadromous salmonids in the Columbia River basin

Sponsor: US Forest Service (USFS) - Pacific Northwest Research Station

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$190,328 FY08: \$197,144 FY09: \$210,019

Short description: Develop an aquatic-riparian model that predicts dynamics of streams and riparian zones, the potential distribution of salmonid habitat in watersheds, the potential for passive management to meet restoration goals, and the effects of management decisions.

Recommendation: Fundable

The proposed work is innovative and potentially of great use for stream restoration planning. The proposed work is a logical and important extension of the sponsor's planning model and should greatly improve its utility. The model is particularly significant in that it is process-based and can be used to evaluate the effects of natural disturbances and land-use practices on aquatic and riparian habitats. The model could be used basinwide for restoration planning. An important addition to the model would be evaluation of the impacts of climate change.

Technical and scientific background: The model addresses the problem of projecting future habitat states resulting from various land-use practices and can be used as a planning tool for managers. This model is unique in that it incorporates temporal dynamics of riparian condition and stream habitat. The problem is well defined and, for the most part, the technical background including the structure of the model and its outcomes are clearly explained.

Rationale and significance to subbasin plans and regional programs: The model addresses objectives in the Grande Ronde and John Day subbasin plans but is broadly applicable to many arid land subbasins. It also addresses elements of the Council's Research Plan and the Fish and Wildlife Program.

Relationships to other projects: The project is relevant to several projects funded in the Fish and Wildlife Program. The sponsors plan collaborative efforts between the BLM, other units of the USFS, and the Oregon Department of Forestry.

Objectives: The objectives logically follow from the work completed to date. As proposed by the sponsors, expansion of the model by making it spatially explicit would be an important addition and would increase its applicability. The sponsors propose to validate the model in three watersheds, a necessary step for examining its accuracy and applicability. The sponsors should include water withdrawal as a land-use practice.

Tasks (work elements) and methods: The methods seem appropriate. The sponsors appear to have a lot of experience dealing with the various types of models used in the modeling framework. Field sampling will follow well-established protocols.

Monitoring and evaluation: The work supports M&E. The sponsors approach is broadly consistent with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Monitoring and Evaluation Program (CSMEP), and they state that they can modify their methods to adapt to basinwide monitoring protocols.

Facilities, equipment, and personnel: The USFS facilities are well equipped to support the work. The sponsors are well qualified, having already produced peer-reviewed publications on the model. They are experienced in working with the suite of models making up the modeling framework.

Information transfer: The sponsors will establish a web site and make the model available basinwide. Peer-reviewed publications are planned. There is every reason to believe that they will be completed because the sponsors have already published work on the model.

Benefits to focal and non-focal species: The work is unique in the Columbia River basin and will benefit salmonids by projecting long-term land use impacts on stream habitat and providing a tool for assessing restoration actions. The utility of the dynamic model needs further validation. The work will not deleteriously effect non-focal species and likely will benefit wildlife that use the riparian zone.

200719700 - Evaluating the sublethal impacts of current use pesticides on the environmental health of salmonids in the Columbia River Basin

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$336,400 FY08: \$354,000 FY09: \$366,000

Short description: Evaluate the direct and indirect effects of pesticides on the physiology, behavior and growth of individual salmon and the productivity of salmon populations.

Recommendation: Response requested

The issue of toxic contaminants in the Columbia River basin as an influence on salmon populations has always taken a back seat to various aspects of hydropower development, including turbine-induced mortality, delayed migration, elevated temperatures, etc. It is valuable to see proposed research directed at toxic pesticides, for the intensive agricultural development of basins like the Yakima introduces a mix of potential toxic materials from herbicides, insecticides, and other crop treatments. These are monitored chemically in water by various agencies, but the implications of chronic exposures for salmon remain unclear.

This said, the current proposal has good parts and poor parts, and the ISRP requests a response. This proposal is improved from the previous one by focusing the research on salmon. Laboratory studies to determine the biological effects of pesticides on salmon, particularly the low-level, chronic exposures, seem especially relevant for relating to monitored levels in the spawning, rearing, and migration environment. However, the proposed model may, at this point in time, be more useful as a conceptual tool rather than as a mathematical, predictive tool. Thus, we recommend that the laboratory research, as validated by field assessments, be given priority, while the model development be curtailed.

The technical background and need for the project is quite well presented. The impact of toxic substance on ESA-listed and other species is an important problem and is poorly understood in the Columbia Basin. This proposal seeks to address the problem through a combination of empirical research and modeling, with the outcome to be a model predicting toxic impacts on population dynamics. This is an ambitious but speculative approach. The information required for the model is difficult to obtain for natural populations and habitats. If there is any inadequacy to the background section, it is the omission of references to the work done in the 1960s and 1970s by Charles Warren and his students at Oregon State University. There was a very strong effort there to relate contaminants (mostly pulp and paper manufacturing wastes) to the ecology of salmonid fishes, from the individual up to the population level. An excellent synopsis of the earlier work appears in Warren's book "Biology and Water Pollution Control" (Warren, C. E. 1971. W. B. Saunders, Philadelphia), but even after the book was published there were excellent studies on bioenergetics (e.g., Wayne Wurtsbaugh's research on the effect of ration size on juvenile steelhead). This body of work is well worth checking out.

The rationale is clearly spelled out with regard to large regional programs, but there is little reference to how this work fits into the context of some of the larger subbasin plans (e.g., Yakima). The proposal is broadly related to Objectives and Strategies in the Council's Fish and

Wildlife Program. It directly addresses uncertainties identified in the Biological Opinion Remand and the Council's Research Plan. The proposal describes opportunities to link to most of the significant federal and state water quality monitoring efforts. More local monitoring efforts (tribal, county, municipality) are not mentioned, but perhaps these are few and far between. The sponsors plan to use data produced by two monitoring programs in the basin to parameterize the model.

In general, the objectives were clearly explained and sufficiently detailed. The fundamental question is how meaningful the results will be to actual pesticide impacts on populations.

The methods for the basic toxicological studies, likewise, are thoughtfully detailed, although there were a few concerns.

Task 1. The standard 96-hr exposure tests work great in the lab but are not always the best approximation to the real world. Is there any chance of dosing the experimental channels at Manchester with single or binary pesticide mixtures to study direct effects on feeding and growth? Also relative to Task 1, in the lab it might be more realistic to feed the fish a standard ration that represents a "moderate" food level (say, 0.5% body weight per day), as opposed to feeding to repletion.

It appears that the toxicological studies will expose fish at likely lethal levels. This would be a positive control, but the answers are likely obvious. They should consider a graded study, 20, 30, 40% associated with various agricultural surveys (e.g., graded levels of expected cholinesterase inhibition). It would be useful to look at field monitoring studies to obtain exposure levels; this would be more realistic, mirroring likely environmental exposure. A combination of long- and short-term exposures would also be more realistic.

Task 2, Study 1. The sponsors shouldn't overlook the literature on bioassessment metrics such as RIVPACS. There is quite a large body of information on the effects of various pollutants on aquatic invertebrate community composition in Europe and Australia/New Zealand. RIVPACS is mentioned because the Washington Department of Ecology has been developing a reference-site database on bugs for relatively unaltered streams -- many of which are in the interior Columbia Basin. Chuck Hawkins at Utah State University has applied the RIVPACS approach to many sites in Washington and Oregon. He'd be a good contact.

Task 2, Study 2 (relationship between prey quantity and salmon behavior and growth). There is a fairly rich literature on this both in the west (e.g., see some of the papers by Fausch et al. at Colorado State University, Jim Hall and his students at Oregon State, Ken Cummins and Peggy Wilzbach at Humboldt State) as well as in Europe (check out some of the Atlantic salmon literature). Additional background work will help with this task.

Task 2, Study 3. The sponsors will probably find that stomach contents of relatively young fry contain really tiny organisms like mites, copepods, and really small chironomids. Many of these are smaller than early brine shrimp instars. It might be a good idea to have a backup source of

really small critters when conducting the small, medium, and large prey study (Daphnia might work).

Several of the methods for the ecological studies deserve greater explanation. How will swimming and feeding behavior be quantified (Objective 1, study 2)? How will variation/uncertainty in performances such as insect response to exposure be incorporated into the model (Objective 2, study 1)? The sponsors have not provided sufficient detail about the bioenergetics model and how it will incorporate the multiplicity of environmental factors the sponsors propose to include in the model. The sponsors do not indicate where the data will come from for Objective 3, Study 1. Methods for objective 3, study 3 are vague, simply calling for the incorporation of new data into the model.

The modeling component of the proposal as a whole was troubling. One really doesn't know how the research relates to what fish are doing in nature. The proposal plans model development as if many ecosystem relationships were known, but they aren't (growth rates in the ocean, etc.). The development of a predictive model, although stylish these days, detracts from this proposal. The ISRP strongly favors a conceptual model (even with some quantification) as a guide to the research, but finds the full quantification into a predictive model to be premature.

Plans for comparing predictions of the model with results in the field are lacking. Perhaps it might be possible to conduct studies with caged fish in streams during the time they're exposed to pesticide runoff, or perhaps there are ways you can use hatchery fish to evaluate some of the model's predictions.

The facilities and personnel are very well qualified to conduct this project. Staff members have good publication records.

The research plans suggest benefits to fish in the long run. The work focuses on Chinook salmon although there will be plenty of opportunities to carry the findings to other species. The lack of information on this potentially important topic makes the laboratory component of the effort a high priority. The benefits from the modeling aspects of the project are uncertain, however. On the one hand modeling effects of chemical contaminants on focal species is needed, but on the other it is not clear that this model can provide much insight into the problem that will be applicable. The information required to parameterize the model is difficult to obtain for natural populations and habitats, and can be highly variable. The sponsors do not explain very well how variability will be dealt with.

A response is needed on the laboratory component, responding to items discussed above. The modeling component does not appear to be fundable, except as a conceptual guide to the research, but the sponsors may respond with better justification. The effort would be better focused on experimental portions and related field assessments in association with chemical monitoring data.

200723600 - Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change

Sponsor: Portland State University

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$490,430 FY08: \$491,812 FY09: \$477,808

Short description: The FCRPS must respond to climate variations and change. The project sponsors will develop much-needed hydrologic and economic models, remotely-sensed habitat metrics, and scientific understanding of FCRPS impacts on juvenile salmonids in the river, estuary and plume.

Recommendation: Fundable

The region must begin to face the certainty of climate change and its effects on regional economies and salmonid recovery. This project addresses the critical need of adaptively managing the hydropower system to meet the demands of salmon survival and power production under conditions imposed by climate variability and long-term climate change. A stellar group of scientists, experienced with research in the Columbia Basin, have joined together to undertake the project. Importantly, they are planning to form an advisory group of river managers to help guide the work. This will increase the chances that the work will be relevant to hydrosystem operations and that it will be used to inform management decisions.

Technical and scientific background: The sponsors address the critical problem of strategically managing the hydropower system to enhance salmon survival under conditions of climate change. This problem is undoubtedly one the region will have to deal with now and in the future. There is, thus, an immediate need to develop scientifically valid ways to address the problem. The overall objective of building models that allow for predictions of the effects of different hydrosystem operation scenarios on early ocean survival of anadromous salmonids is admirable. The very large scale of this integrated effort is probably unique. The decision support tools that are the ultimate goal of the project will assist in developing annual hydrosystem strategies as well as in-season adjustments in operations to improve early ocean survival. The payoff for this proposal could be quite significant.

Rationale and significance to subbasin plans and regional programs: The proposed work is broadly consistent with the FCRPS Biological Opinion, the 4 H's report, and to specific recommendations in the ISRP's Retrospective Report. The sponsors did not point out relationships to the subbasin plans, specially the estuary plan.

Relationships to other projects: The project is related to two ongoing NOAA-Fisheries estuary and plume projects, an National Science Foundation project, a US Army Corp of Engineers estuarine project, and a University of Washington climate impacts project. The sponsors propose to use information obtained by these projects for their work. Collaboration will be facilitated because a number of the sponsors are also investigators on these other projects.

Objectives: The proposal contains very ambitious, but potentially valuable, objectives. The combination of efforts to model both the physical, biological, and economic aspects of climate

changes on hydrosystem operations in an integrated fashion is an excellent idea. Few other projects have ever adopted such a big picture approach. The objectives are clearly defined and explicitly identify the steps and tasks needed to develop this complex model.

Tasks (work elements) and methods: Methods for modeling the flow, plume characteristics, temperature, and nutrients/productivity are described in detail. The investigators have extensive experience conducting the kind of research outlined in this proposal and have published their work in respected peer-reviewed journals. That the "plume habitat metrics" for smolts have not yet been determined (p. 18) could be a problem if satisfactory measures of plume characteristics that can be clearly related to salmon performance are not found. The elements of Objective 3 - economic analyses - describe mostly what will be done, but not how they will be done (contrast this with the description of the physical modeling tasks).

Monitoring and evaluation: The proposal identifies an innovative means of monitoring and evaluating progress - the formation of a Project Advisory Board composed of managers and scientists. If it works, this could be an effective way of monitoring progress on large scale, multi-species projects such as this one. The proposal ties with other projects with more explicit monitoring objectives such as NOAA-Fisheries estuary project.

Facilities, equipment, and personnel: The investigators are highly competent, have received funding for and conducted extensive research on the Columbia River estuary and ocean, and have stellar records of publication. The facilities are adequate to conduct this work.

Information transfer: The proposal does not go into much detail with regard to information transfer. In part 1, Section 1 there is a mention of web postings of models, images, and habitat metrics. The Project Advisory Board will apparently be a means of transferring information to FCRPS managers. The investigators all have long publication track records, so there will surely be peer-reviewed papers.

Benefits to focal and non-focal species: This project could have very large benefits for focal species if tools to assist hydrosystem operators to optimize reservoir releases for fish survival and economic considerations are developed. The ability of the models to forecast decadal climate and ocean condition changes make the benefits of this project long-term. There is little discussion of the effects of the reservoir optimization scenarios on non-focal species (e.g., shad and other introduced game fishes). The proposal seems to be oriented toward spring migrants which raises the question of how hydropower system changes favoring spring outmigrants will influence other species, both resident (e.g., white sturgeon), migrant (e.g., fall chinook), and other native species.

200725200 - Multi-scale assessment of hyporheic flow, temperature and fish distribution in Columbia River Tributaries

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$226,306 FY08: \$195,372 FY09: \$178,888

Short description: The project sponsors propose to develop and implement tributary floodplain assessments to evaluate the importance of hyporheic exchange, geomorphic diversity and temperature patterns to salmon productivity across all tributaries of the Columbia River Basin.

Recommendation: Fundable (Qualified)

Floodplains are among the most productive areas of rivers for salmonid fishes. An important process influencing floodplain productivity is hyporheic flow that creates thermal regimes highly favorable for spawning, incubation, and rearing. The proposed work will identify hyporheic areas in subbasins, predict their effects on stream temperatures, and assess the importance of hyporheic flows fish productivity in floodplain habitats. The work addresses a critical need for habitat restoration in large rivers and is the only work of its kind in the Columbia River Basin. The work will help identify areas of subbasins where restoration would likely yield large benefits for salmonids.

The sponsors list an expected benefit as “classification all major floodplains in the Columbia River Basin.” While this benefit may accrue in the future, the funded work should be restricted to the eight key test basins.

Technical and scientific background: Parts of the technical background are quite good. The graphics describing large-scale hyporheic analyses are excellent and would be a valuable addition to any subbasin analysis and plan. The background also makes a strong connection between hyporheic flow paths and stream cooling, which will certainly influence where some of the most productive segments of the drainage system for salmonids will be located.

There are also some questions that deserved greater attention. The actual influence of hyporheic flow (apart from temperature moderation) could have been more fully explored. Hyporheic zones influence nutrient dynamics, which in turn will affect stream productivity; however, nutrients are not really addressed. The ways in which anthropogenic disturbances have altered hyporheic development (and how these disturbances can be undone) also need to be addressed -- otherwise, how will the information generated by this project be effectively used? Are there some changes (e.g., severe downcutting) that have altered the hyporheos to the point that natural conditions can't be restored for decades or more? Can such changes be detected by the proposed analytical methods?

Although a minor point, some of the figures appeared to have been misplaced in the text (several pages from where they were referenced) and legends were missing, e.g., Fig. 2.

Rationale and significance to subbasin plans and regional programs: Developing a cost-effective, accessible technique for identifying areas with high hyporheic potential would clearly benefit

subbasin plans. The selection of study areas would seem to be most applicable to Mid-Columbia and Columbia Cascade provinces. The stated goal of classifying "all major floodplains in the Columbia River Basin" would seem to be a bit optimistic without a broader spectrum of study areas; e.g., none of the sites were located in tributaries of the Lower Columbia or Willamette River. However, for the area in which the study takes place, the project would likely provide valuable information.

Relationships to other projects: The proposal references many linkages but is not entirely clear about how these linkages would occur. For example, the statement "Outcomes of this project will be directly coordinated with several projects in the Umatilla River Basin; specifically, Quantitative Assessment of Migrating Upstream Lamprey, Project #9402600, Umatilla Habitat Project, #8710002, Walla Walla Basin Habitat Enhancement, #9604601, North Fork John Day River Basin Anadromous Fish Habitat Enhancement, #200003100, Walla Walla Basin Natural Production Monitoring and Evaluation Project, #200003900 and Characterize Genetic Differences and Distribution of Freshwater Mussels, #200203700" simply states the relationship but does not describe how the integration would be achieved; i.e., what products or information will be exchanged.

Nearly all the other projects are located in the Mid-Columbia and there is no mention of linkages to related projects in other parts of the basin. This would not be a problem except one of the project's objectives is to classify hyporheic potential throughout the Columbia River Basin, and referencing floodplain work in other areas would be helpful.

Objectives: The four objectives were clearly defined, although without much specificity with regard to products or timelines. The objectives also were not explicitly tied to elements of the Fish and Wildlife Program or to individual subbasin plans. The first three objectives describe the methods to be used for classifying floodplains with regard to hyporheic potential. These objectives were very specific.

The fourth objective (Relating the importance of hyporheic flows to fish use) was concerned primarily with relating areas with well-developed hyporheic flowpaths to spawner abundance. While this is worthwhile, many of the focal species may not be primarily floodplain spawners but instead may spawn in smaller montane streams. Juvenile salmonid abundance would certainly be worth associating with floodplains with well-developed hyporheic systems. Perhaps this component could be added to the project.

Objective 4 also states that geomorphically and thermally diverse stream segments will be related to salmon abundance, species diversity, and life history diversity. While this is also a worthy goal, the proposal does not provide a clear indication of how spatially defined existing biological data are, relative to the stream segments in question.

Tasks (work elements) and methods: For the geographic analyses, the proposal describes the methods very completely. For the biological parameters, not enough information is presented to

adequately judge the methods. The investigators are experienced with the methodologies required for this work and have successfully applied the approach in the Umatilla basin.

Monitoring and evaluation: There are not very many places in the proposal where ground-truthing model predictions are mentioned. While this is probably not a problem in the Umatilla subbasin where CTUIR maintains a very complete database, it could be a real problem for areas of the Columbia River Basin that do not include study sites.

Facilities, equipment, and personnel: Facilities are well equipped for this work and the sponsors are well qualified with demonstrated peer-reviewed publication records.

Information transfer: The proposal mentions only online data storage and retrieval. There is no mention of reports, publications, or scientific presentations. The sponsors have a good record of peer-reviewed publications and surely results of this work will be published in scientific journals.

Benefits to focal and non-focal species: This project has the potential to be of great benefit to focal species if areas with high hyporheic potential can be accurately identified and either protected or restored. The effects of anthropogenic alterations such as diking, shallow water wells, stream downcutting, and removal of riparian vegetation are inadequately discussed. Protecting and/or restoring hyporheic potential should benefit non-focal species too.

200726200 - Enhanced Landscape Classification to Improve Assessment of Conservation Restoration and Mitigation Projects

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$295,911 FY08: \$306,851 FY09: \$291,753

Short description: Integrated landscape analysis and hydrologic modeling will be applied to spatially define ecosystem attributes used to quantify the contribution/influence of land parcels to riparian and watershed function and fish and wildlife productivity.

Recommendation: Response requested

The proposal is well written and clearly describes the objectives and work elements. The project goal is to develop decision support tools (primarily maps) that will assist in forecasting restoration action effectiveness. Most of the techniques involve recently developed geospatial mapping programs and models. The personnel are extremely well qualified to complete the tasks associated with the work elements.

The proposal makes a number of assertions, yet it was not clear how the classification system would satisfy those assertions. It is also not clear what the benefits are going to be for fish and wildlife. Does enhanced landscape classification result in improved assessment of projects? The links between enhanced landscape classification, the assessment of improvement of limiting environmental attributes identified in each subbasin's EDT analysis, and the benefit to fish and wildlife are not clear. Additionally, the sponsors should address whether the classification will be spatially hierarchical and, if so, how the hierarchy will be developed. If the classification is not

hierarchical, then the sponsors should address how smaller-scale activities and impacts will be assessed.

Development of landscape classification components may be worthwhile, as long as the products are truly new (and do not duplicate existing coverage). The futuring exercises - estimating land use change impacts and cumulative effects, sensitivity to climate change, exploring optimal scheduling, for example - should be more fully developed in concert with others engaged in similar exercise. There also was an almost total lack of reference to existing landscape-scale datasets. For example, the extensive GIS coverage that resulted from the ICBEMP project aren't mentioned until a parenthetical reference under the methods for Work Element E, yet these data constitute a major effort to assemble many of the land, water, and focal-species coverage throughout the entire Columbia Basin. Furthermore, there are up-to-date geospatial databases in many of the tribal, national forest, and state agency offices throughout the region that could help this project, but are not mentioned.

There are general references, mostly to the 2005 ISRP Retrospective Report, but the proposal lacks specific reference to subbasin plans, especially Yakima and John Day, where the proof-of-concept work will be done. A stronger discussion of how the objectives of the project would help in implementing the subbasin plans is needed -- e.g., how can the results be used to prioritize in-stream restoration needs? It appears that the mapping work will be most useful to identifying priority areas for wildlife mitigation and less useful for deciding where streams need more structure, but it was hard to tell from the general description given.

More details are needed to justify some of the models. For example, the erosion models are based on surface erosion models from the American southwest, but there are a number of erosion models from the Pacific Northwest. Why weren't these used? On the other hand, the DHSVM hydrology-soil-vegetation model is quite good and offers a lot of promise for the Columbia Basin. Lettenmeier and his colleagues used it to model flow changes in response to climate warming.

The results for this project are maps, decision support tools, and meta- and derived data. Milestones are stated, although the proposal does not make explicitly clear how delays in completing one task might delay the completion of others. Nevertheless, it is assumed that progress will be adequately monitored. One concern with using existing datasets is that the accuracy of the data may be unknown. Some geospatial data might be out of date or inadequately ground-truthed, and the proposal should detail how accuracy of these underlying data will be verified.

Regional Monitoring

200301700 - Integrated Status and Effectiveness Monitoring Program (ISEMP):

The design and evaluation of monitoring tools for salmon populations and habitat in the Interior Columbia River Basin

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$3,950,858 FY08: \$4,520,935 FY09: \$4,749,337

Short description: ISEMP is a collaborative effort to design, implement and evaluate Status and Trends Monitoring for salmon and steelhead populations and habitat and watershed-scale Effectiveness Monitoring for restoration actions impacting salmon habitat in the CRB.

Recommendation: Fundable (Qualified)

This is a good proposal overall. The large scale, basinwide approach is good. A project such as this one is clearly needed in the Columbia Basin to integrate M&E efforts and provide consistency among diverse M&E projects. The technical background and rationale are discussed and clearly establish the need for an integrated monitoring program for the Columbia Basin that could contribute to development of an adaptive management plan for the basin. If the process proposed in this project succeeds in bringing together a wide variety of large environmental data sets in a new and integrated fashion, it will represent a major breakthrough in describing and managing tributary restoration efforts.

The proposal is very complex. How are all of the separate parts of the proposal going to be integrated? Some questions related to the technical background of the project and its objectives need to be addressed:

- 1) What is the role of the sponsors in this project? Coordination? Data collection? Data analysis? Will the sponsors have some involvement in each objective?
- 2) What does monitoring at the subbasin scale mean?
- 3) What are some examples of metrics that represent subbasin-scale performance?
- 4) How will the information generated by the projects be integrated and analyzed to accomplish overall project objectives such as determining limiting factors and evaluation of basinwide project effectiveness?

The project history is clearly described, with a good justification of why the work should be continued and why the suggested pilot-scale sites were chosen. The list of accomplishments is impressive. The three-year history of the project shows how it has grown in both scope and linkages over time. The project is linked to numerous state and federal projects within each of the targeted subbasins.

The objectives are very broad in most cases and involve continuing work begun in 2003. The Wenatchee and John Day projects do a good job of relating objectives of each individual project to the overall project objectives. The objectives for the South Fork Salmon River and Lemhi are

not as clear. How do the objectives for this work relate to overall project objectives (item 3.0)? The South Fork Salmon and Lemhi projects should use the same format as the Wenatchee and John Day.

Methods were clearly explained, and the approach will involve innovative techniques. This proposal builds on using many of the best available long-term population status and habitat inventory datasets in the region. The proposal notes that it will take a long time to determine the success of the integrated status and effectiveness monitoring program, but the provisions for long-term monitoring and the choice of monitoring sites were clearly thought out.

200303600 - CBFWA Collaborative Systemwide Monitoring and Evaluation Program

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,024,245 FY08: \$1,024,245 FY09: \$1,024,245

Short description: CSMEP seeks to undertake additional metadata inventories of Columbia subbasin fish data, expand their strength and weaknesses analyses of this existing data, and broaden their collaborative design of improved M&E methods for the Columbia River Basin.

Recommendation: Fundable (Qualified)

The proposal presented a thorough and detailed explanation of the background and need for the project, as well as a scientific overview of the challenges of large-scale monitoring. The problem created by inadequate data and the challenges to obtaining them in a large setting like the Columbia basin is well presented. The continuation of the ongoing project should be useful in establishing better monitoring and evaluation programs systemwide.

The proposal clearly describes the rationale and significance of the project to the Fish and Wildlife Program, BiOp, subbasin planning, and other large-scale monitoring programs such as the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). It quotes relevant passages from the Research Plan and the ISAB/RP's supplementation report. It also provides helpful diagrams and a very detailed explanation to relate this project to other projects.

The history of the project is described objective by objective. The summary of how CSMEP has addressed each of its early goals is well done. This project has made much progress in a relatively short time. It probably represents the most significant collaborative multi-species fish population monitoring effort in the Columbia River Basin, if not the entire US. Progress is adequately described, with hot links to additional information, reports, and presentations.

The proposal, specifically Table F1, gives an excellent overview of the tasks, description of products, and timing, as well as a list of collaborating entities for each of the work elements. Details of each objective were cleanly laid out in an organized fashion. There is an extensive list of work elements described but not always with enough detail to assess. Some of the methods are ongoing, while others await development among collaborators, but the methods are well described in general and appropriate to their particular settings. There are so many tasks that

progress on each is not completely uniform; e.g., the hatchery action effectiveness work is perhaps not quite as far along as some of the habitat or status and trend monitoring. For example consider the question raised in Table F4: "To what extent can hatcheries be used to enhance viability of natural populations while keeping impacts to non-target populations within acceptable limits?" This begs for a definition of "enhance viability". The sponsors should consider using the RASP definition of supplementation and questions that arise from that definition. Also, in the nine listed questions there is no explicit identification of the important questions of whether natural origin (NOR) abundance can be maintained or improved by supplementation, and no mention of the long-term fitness consequences of supplementation. These are deficiencies that should be addressed.

The proposal clearly shows that the project investigators have given much thought to monitoring and evaluation, and their conclusions to date indicate that they place strong emphasis on analyzing monitoring data, not just collecting data.

The proposal identifies excellent plans for information transfer including via CSMEP's web accessible meta-database, project reports, and PowerPoint presentations. All products developed by the project will be made freely available on CSMEP's public access Internet site maintained by CBFWA.

There is likely to be indirect long-term benefit to focal species through links with other projects. The project investigators should consider the effects on non-focal species because this project provides a rare opportunity to update the status of some of these species at a broad scale.

As the elements of CSMEP move from planning to implementation the ISRP or ISAB should be used to review these elements. Some workgroups are further along than others; the questions they are asking, and how they are being approached is still under development. Independent peer-review at timely intervals will help ensure that the analyses will serve the regional management needs.

200726700 - Probabilistic Monitoring of the Status and Trends of Habitat, Water Quality, and Fish Presence in the Washington Portion of the Columbia River Basin

Sponsor: Interagency Committee (IAC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$835,391 FY08: \$1,076,591 FY09: \$1,076,591

Short description: The Washington State Office of the Interagency Committee (IAC) on behalf of the Governor's Forum on Monitoring (FORUM) and in cooperation with the Department of Ecology, Governor's Salmon Recovery Office (GSRO), and the Lower Columbia Fish Recovery Board.

Recommendation: Not fundable

The principal thrust of the proposed work is to determine status and trends of habitat, water quality, and fish. The proposal, however, primarily describes and justifies the sampling design. In effect, there are no methods proposed to accomplish the stated objectives. The parameters that

will be measured are simply mentioned, the specific metrics and sampling methods are not given, and the methods of data analysis and quality control are not presented. The proposal was not fully developed.

200600600 - Habitat Evaluation Procedures (HEP)

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$341,828 FY08: \$348,308 FY09: \$364,036

Short description: This proposal is to conduct Habitat Evaluation Procedures (HEP) independently and/or with assistance from W/L managers on extant and new mitigation project lands and to provide technical oversight, review, and/or audit of current/past HEP data.

Recommendation: Fundable in part

Overall the ISRP viewed the use of HEP as a policy decision. HEP has played and can continue to play a role in the Council's program by establishing mitigation credits against the initial baseline losses that were agreed to be reasonably indexed by habitat units (HUs) derived from HEP. However, HEP is no longer considered to be a good method for evaluation of value of land to wildlife, as there have been significant improvements in both analytical methods and available data that underlie estimation of the relationships of wildlife species and assemblages to habitat. Further, HEP is not a sufficiently direct measure to support the purposes of monitoring and evaluation. Far better monitoring approaches and metrics are now available, and use of more direct approaches is required for effective evaluation of benefits to wildlife. In sum, HEP alone does not provide adequate biological M&E, and direct biological M&E is not improved by continuing HEP.

If the Council continues to use HEP as the basis for initial determination of mitigation value, then a consistent approach to evaluation is desirable and a standardized HEP approach could help to achieve such consistency. In this case, the proposed project should present more clear explanation of methods to be used, including the timing of sampling and what specific HEP models would be used to evaluate the structural characteristics of habitat, and any additional needed details to allow evaluation of sampling methods.

The reviewers found the CHAP portion of the proposal Not Fundable. The proposal did not provide convincing evidence that the approach of NWI would be a significant improvement over the HEP-derived habitat unit metric now in place. In particular, the methods used to determine habitat value (HV) were not clearly presented. It would have been useful for the proposal to include a more clear explanation of the calculation and use of habitat value, with an example from a subbasin of how to use the metric, habitat value, as a measure of progress towards mitigation. It seems likely that direct biological M&E will almost always be more convincing, more interpretable, and thus more useful for evaluation and application to management decision-making than would be a less direct, HEP-type measure. The proposal did not convince the ISRP that the NWI efforts to improve HEP would be as good as direct biological M&E.

The ISRP also noted that actual evaluation of wildlife projects was rarely provided in proposals. The use of HEP or CHAP would imply that habitat was an adequate proxy for value to wildlife, but this proposal does not articulate habitat goals or how and when progress towards goals would be measured. The use of HEP to provide monitoring and evaluation is not considered scientifically well advised. The relationships of HEP- or CHAP- derived metrics to focal species identified in subbasin plans or to non-focal species were not defined.

200700100 - Aquatic survey protocol comparison

Sponsor: US Forest Service - National Headquarters

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$450,000 FY08: \$450,000 FY09: \$450,000

Short description: This project seeks to evaluate the accuracy, precision, and comparability of aquatic protocols used by different management and research organizations within the Pacific Northwest.

Recommendation: Not fundable

The narrative portion for this proposal is missing so the proposal does not contain necessary justification.

Note that the ISAB has reviewed this study design before; see ISAB 2005-1, www.nwcouncil.org/library/isab/isab2005-1.pdf. It's not clear whether the sponsors have addressed the ISAB comments.

200702500 - Project Compliance Monitoring

Sponsor: XLSolutions

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$459,790 FY08: \$459,790 FY09: \$403,883

Short description: The project compliance monitoring determines whether specified project criteria are being met.

Recommendation: Not fundable

While the concept of developing better tools to evaluate project compliance is a good one, this proposal did not provide enough information to warrant funding. The material provided did not engender confidence that the deliverables would be useful. The technical and scientific background section did not adequately explain the issue of compliance monitoring as related to the Columbia River Basin. No references were cited. Technical difficulties were not discussed. The proposal needed a more detailed discussion of compliance monitoring in relation to regional plans. The challenges of compliance monitoring for each of the four Hs -- hatcheries, harvest, habitat, and hydro -- in the context of regional programs should have been presented.

The methods were inadequately described, and in general were not given at all. For example, the meaning of the term "population" in the context of stratified sampling referred to the population of restoration projects, not to fish and wildlife populations. Without clarification, it was

impossible to know what was meant. Also, it was not clear what "fieldwork and site visits" would accomplish.

Finally, the ISRP questions whether a fish and wildlife program project should review the compliance of other projects; this should be a job for Bonneville's contracting officers.

200719800 - Next Steps in Subbasin Planning: Umatilla Pilot Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$382,432 FY08: \$420,675 FY09: \$462,742

Short description: The purpose of this project is to nurture regionally standardized modeling of managed salmonid stocks using a pilot study of Umatilla Summer Steelhead, and will include collaborative sub-contracts with Columbia Basin Agencies and Authorities.

Recommendation: Not fundable

The project is ambitious and does address what some would consider a critical need within the basin. A key selling point for the proposed work is that the model framework would be broadly used within basin. The sponsors, however, did not provide evidence of clear and direct support for the proposed work from agencies and tribes. The basin's experience with PATH and the large-scale investment of agencies and tribes in their own models may not be conducive to their participation in the proposed work.

The proposal does a poor job of identifying the difficulties in accomplishing the proposed work. Many, perhaps most, of the models that could become modules in the proposed integrative model have not been rigorously field validated, and many have not been subject to critical scientific review. These kinds of problems will impact the applicability of the proposed modeling endeavor as a decision-support tool. Furthermore the ISAB, in a review of Columbia River Basin models, recognized the shortcomings as well as the strengths of all the major models and recommended the use, not of a single grand model, but of multiple models to support decisions.

200721600 - Pacific Northwest Aquatic Monitoring Partnership-Fish Population Monitoring (FPM)--RME Design and Protocols. Programmatic and Standardized Work Products for PNW and the Columbia Basin

Sponsor: Pacific Northwest Aquatic Monitoring Partnership (PNAMP)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$19,718 FY08: \$28,718 FY09: \$28,718

Short description: This proposal will support four FY 07-09 tasks to standardize RME protocols, indicators, methods and analytical processes. All tasks have been approved by the PNAMP Steering Committee representing 20 Charter Agencies. www.reo.gov/PNAMP

Recommendation: Admin (see comments)

Having standardized protocols for aquatic habitat and fish population monitoring is a high priority. However, this proposal is for coordination assistance and administrative support. The ISRP therefore recommends that it be classified as an Administrative proposal.

The Pacific Northwest Aquatic Monitoring Partnership is a very widely ranging effort with partners that include state, tribal, and federal entities, as well as NGOs. The focus of PNAMP is on developing standardized protocols for monitoring status and trends in aquatic habitat and fish populations, in order to achieve greater consistency and comparability among data collected by various organizations. Artificial production, mainstem passage and survival, estuary survival, and harvest are not really included in PNAMP's scope. Overall, the technical and scientific background for this proposal is not clear. The budget only requests \$77K over a 3-year period, and this is for several tasks that represent a small (but significant) subset of PNAMP activities having to do with fish population monitoring. This needed to be more adequately explained in the background section. Additionally, the proposal contains some statements that represent serious simplifications and that are not referenced, e.g., "Thirty five years ago, the abundances of juvenile and adult salmonid populations were found to be well-described using 4 variables: gradient, elevation (or stream width), temperature, and % pool. Since then, these relationships were shown to hold true throughout the nation..." Simplifications such as this completely overlook trophic considerations, water quality, and other important environmental features. Hopefully, PNAMP is not starting with this assumption.

There was insufficient specificity in the proposal to draw clear relationships between the PNAMP effort and relevant parts of the Fish and Wildlife Program, the BiOp, and other regional plans, even though it would have been possible to do this for the particular tasks for which the proposal requests funding (i.e., fish monitoring protocols and a training manual).

The Relationships to Other Projects section of the proposal began with a table that appeared to be pasted in from another document, and including a table heading would have been very helpful. Some of the projects in the table were not relevant to the objectives of this particular proposal, but instead described work that is ongoing in the greater PNAMP effort. As well, some of the linkages between the other projects and PNAMP were not explained. After the table, the proposal included a series of outcomes that seemed out of place in this section. This material was largely derived from the 2005 Strategy paper that was included as a separate file (which made for difficult reviewing). There were very few explicit links to other projects, and some of the material was out of order, e.g., Outcome D preceded Outcome C. Additionally the bullets under Outcome C (page 8) did not match this outcome at all.

It was difficult to match the specific tasks in the form of the five bulleted objectives on page 10-11 with the specific tasks identified on the following three pages. Once again it appeared that the stated objectives were general PNAMP goals, while this proposal seeks to fund a small subset of the goals. The proposal was not clear on this point throughout the submission, and adding the 2005 Strategy paper as a separate attachment instead of bring the relevant parts directly into the project narrative didn't help. Surprisingly, two of the tasks: the fish population monitoring protocols with gap analysis, and the field method training manual, are both scheduled for

completion before funding for this project would have been decided, and even the third task of developing standardized tagging methods is scheduled for completion in September 2006. This left open the question of what, exactly, this proposal is for? The objectives would have been a good place to show how the PNAMP products could be applied to a real subbasin such as the Yakima or John Day. However, no examples were given.

There was little description of provisions for monitoring or evaluating success in developing the standardized fish population monitoring protocols that appear to be at the heart of the proposal. If the protocols and training manual are developed, how will we know if they are useful? This proposal would have benefited from a section that describes implementation and feedback.

200735800 - Estimating the detection efficiency of snorkeling for detecting anadromous salmonid parr

Sponsor: US Forest Service (USFS) - Rocky Mt Research Station

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$342,912 FY08: \$294,702 FY09: \$309,731

Short description: Although snorkeling is widely used to monitor anadromous salmonids, the bias and precision of snorkeling has rarely been assessed. The project sponsors propose to develop sampling efficiency models to allow correction of extant and future data with systemwide application.

Recommendation: Fundable

The scientific requirement for accurate and precise estimates of juvenile salmon abundance is well explained. Snorkeling is widely used as a juvenile salmonid census technique, especially in areas with listed species, because it does not involve handling individuals. However, in many cases there is no basis for estimating the degree to which snorkeling underestimates the actual number of fish present (it will likely always be an underestimate). This proposal outlines a study that will facilitate statistical models that allow snorkeling estimates to be corrected to provide more precise and accurate population censuses. The approach to resolving the uncertainty of the estimates appears sound. The ability to more accurately census juvenile salmonid populations is critical to status and trend monitoring, as well as estimating restoration effectiveness. This project has the potential to significantly improve monitoring accuracy by providing tools to correct snorkel estimates.

Table 1 provides a very nice summary of the uses of juvenile abundance data in management. The proposal describes its general relevance to other projects that involve snorkel estimates (there are apparently 17) and also the major monitoring efforts such as CSMEP, the NOAA Fisheries Pilot projects, and INPMEP.

Methods were thoroughly explained, especially the techniques used to construct the statistical models. This project will use ten-fold cross validation to evaluate model accuracy. It was nice to read a proposal that provided an adequate description of product quality. The sampling plan and analysis was excellent. The sequence of decision-making on the statistical analysis is the

appropriate way to proceed in these circumstances. The presentation of the sampling, analysis, and decision-making is the best among other comparable systemwide proposals.

With regard to the effects of water clarity on snorkel enumeration, why not just use a turbidimeter instead of the secchi-disk method? It might be a bit less subjective.

Many of the habitat measurements described on pages 10-11 were not related explicitly to the goals of the proposal. How will this information factor into model development?

Fish Passage Monitoring Data Analysis and Dissemination

199105100 - M&E Statistical Support For Life-Cycle Studies

Sponsor: University of Washington

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$473,086 FY08: \$485,492 FY09: \$498,267

Short description: Develop statistical methods for monitoring and evaluating salmonid recovery plans. Provide added-value analyses and statistical support on regional fisheries issues. Provide smolt migration timing predictions on the internet.

Recommendation: Fundable

This is a high priority project deserving support. The proposal provides an extensive background and justification of the technical and scientific background. The Fish and Wildlife Program (FWP) calls for status and trends monitoring for the hydrosystem, tributaries, estuary, and harvest. This project addresses these issues by providing in-season and post-season evaluation of smolt outmigration success, adult return information, stream escapement, habitat mitigation activities, and harvest.

There appears to be collaboration with a number of other projects (six BPA projects indicated), but linkage is only generally described.

The history is extremely well documented indicating significant benefits and accomplishments. Nevertheless the following comments from the most recent ISRP review still apply: “The main elements of the project are to provide real-time analyses of PIT-tag data and smolt passage indices to predict outmigration timing and to provide value-added analyses of historical tagging data by testing hypotheses, estimating parameters, and investigating interrelationships. An additional element is to provide statistical assistance to the BPA and the NW fisheries community on an as-needed basis. The response provides information on clients and contributions. The project provides a valuable service. The ISRP suggests that in the future a summary of the following be provided in support of proposals: 1) data on the amount and nature of use of electronic data and analyses posted on the web, 2) responses to satisfaction surveys by internet users, 3) number of requests for analyses and the time taken to respond to those requests.”

These comments are still applicable including the request for information concerning use and satisfaction by users. Only a response to (3)(the number of project requests and the number of hours spent in responding to those requests) was included in this proposal. It would still be useful to include recommendations # (1)&(2). The ISRP notes that such activities would also provide feedback for quality improvement of this ongoing project.

199601900 - Technical Management Team (TMT)

Sponsor: University of Washington

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$597,642 FY08: \$552,925 FY09: \$578,067

Short description: The project provides single-point, internet-based access to a subset of information to guide and support BPA's independent decisions pertaining to its responsibilities under the Power Act and Endangered Species Act, as well as tools for data analysis.

Recommendation: Fundable (Qualified)

This is an exemplary proposal among the database projects, for a project that appears to provide products of widespread use and value. The project title should be probably be changed, however, to reflect the fact that this is DART enhanced with additional analytical functions. The primary significance to regional programs is to the Power Act sections requiring improved passage survival and flows. The proposal includes excellent M&E.

The proposal presents a brief but clear background on the utility of the second-tier database provided by this project, although the ultimate value of this data to fish management is not explicitly described. A clear rationale is provided for the need for the integrated environmental data and fish passage data and analysis provided by DART. Detailed lists of the analyses provided by DART are included, as well as a number of analyses for which data and analytical assistance was provided.

The project's history is described in an excellent interpretive narrative on actions tied to their accomplishments, the process of their evolution and the reasons why. It discusses the types of internal monitoring performed through post-season analysis of passage predictions. A figure of monthly usage from 1998-2005 is provided, as well as a list of entities using DART between 2004-2005, and the number of hosts served by season. Less clear, however, is how useful this information has been to all the regional entities that tapped it. Also, how is this information accessed? Are the raw data they capture and make available checked for accuracy? Are DART analyses peer-reviewed? Have their second-tier databases been used effectively for adaptive management?

A new element includes absorbing some of the routine analysis function of the Fish Passage Center. Part of the proposal is to continue the Fish Passage Consortium, a group of PNW university faculty with expertise in fish passage issues. The Council and Bonneville will need to specifically distinguish which work elements should be funded to fulfill the tasks of the FPC, if the FPC is not funded. There always has been some overlap with FPC, DART and NOAA, but the ISRP has considered this a value added to the program rather than redundant.

A long list of measurable objectives relate to the reporting and analysis functions of DART as well as newly added functions. These relate to provision of information to managers to analyze proposed hydro operations on fish (pre-season), tracking fish passage (in-season), and measuring the effect of the hydrosystem on fish (post-season). Fourteen objectives are listed. Methods are presented in detail with an explanatory background section.

M&E is built into this project throughout. In the last review the ISRP recommended that the next proposal from this sponsor should include an evaluative summary of usage that indicates the distribution of use across different types of users and products, the details of a plan for how DART assesses demand for current and new products, the type of outreach that is done to assess demand, and methods used to inform and expand the user base. The sponsors have responded to this recommendation in their project operations, the results of which are reported in this proposal. The amount, distribution, and type of use are monitored quarterly for potential improvement in services. Post-season evaluations of pre-season predictions are conducted on a routine basis. Services are reviewed at the end of the year in a series of regional meetings to identify areas of needed modification. The project has excellent provisions for information transfer of data, analysis, support services, and for adaptive modification of information transfer practices on the basis of feedback.

200728700 - Delivering Reliable Fish Passage Information for Hydrosystem Management

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$537,283 FY08: \$497,028 FY09: \$507,119

Short description: Provide a unified interface and oversight for the functions previously performed by the Fish Passage Center (FPC) and create a peer review process for detailed technical analysis.

Recommendation: Response requested

This proposal addresses a high priority regional need and generally is justified as “fundable.” However, the ISRP requests a response to address the following issues.

As indicated in the background section of the proposal, the sponsors intend to create a rigorous and transparent review process for technical analyses and reviews at the request of agencies, tribes, and the public. However, there is a lack of specific details and references to justify the need for this process. With such a long history, since 1982, there should be voluminous information to construct a more detailed background. A response is requested to better document the need for a regional review process and describe how it will serve the Fish and Wildlife Program.

A response is also requested for clarification of the peer review function of this proposal described in Work Element B of Objective 2. If funded, the peer review component of the proposal should be closely coordinated with the ISAB and the ISRP because there is potential for

overlap. The Council, NMFS, and the Columbia River Tribes purposefully established the ISAB as a central body to provide independent review of scientific issues facing the Columbia River Basin. The ISRP emphasizes that there should be a direct line of communication to the ISAB and ISRP to avoid overlapping purposes and assignments. The ISRP understands some initial discussions on coordination between Battelle, Council staff, and the ISAB/ISRP coordinator have occurred. If this project continues to be funded, this coordination should be formalized and include the ISAB and ISRP Executive Committees. An example of a potential review that would directly overlap the ISRP function of reviewing a proposal for a study is discussed in comments on the methods below. There appears to be some routine in-house-type peer review of draft reports that is distinct from ISRP and ISAB tasks and is wholly appropriate.

Other comments:

Rationale and significance to subbasin plans and regional programs: The Council's Mainstem Amendments (2003) are cited as including a Fish Passage Center/function as a required element of the Fish and Wildlife Program.

Relationships to other projects: The sponsors made no attempt to describe links to other projects in the basin, although there likely are many that could be described.

Objectives: The objectives and work elements are well thought out, clearly stated, and appear well justified.

Tasks (work elements) and methods: There is a lack of details regarding Work Element A of Objective 1. The figure is helpful but adequate details of the management, analysis, and reporting functions are lacking.

In Work Element B of Objective 2, the methods are described in adequate detail, but there appears to be a potential overlap in the review function described in the proposal with review functions of the ISRP and ISAB. The following two selected sections from the proposal describe some of the potentially overlapping review protocols:

"When a proposal, analysis, or result is presented for review, it will be sent to two qualified technical experts for review (Figure 2), along with relevant background info compiled by the fish passage data management system on fish passage as it relates to the product submitted for review. Depending upon the product submitted for review, the reviewers would evaluate the methodology selected, the sampling design, the feasibility of obtaining samples, and any other aspects that are critical to the results. If those reviewers agree the work is technically acceptable, the product will be released for use."

"For example, if an entity wishes to conduct a study of summer spill at McNary Dam, they could submit their study design for review. Relevant background information would be provided on operations at McNary, including sampling effort, historical collection counts, etc. Independent reviewers would then be asked to evaluate whether the design was technically sufficient to

accomplish its stated objectives. If those reviewers agreed that the design was sufficient, then a memo would be provided attesting to that finding. If the design were found to be lacking, it would be rejected unless revisions were made to address important shortcomings."

The example in paragraph two, of how a proposed study would be reviewed, sounds almost exactly like the function of the ISAB or ISRP and may be a duplicative review process, which seems illogical to have in the same Fish and Wildlife Program.

200730000 - Fish Passage Technical Services Project

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,555,069 FY08: \$1,602,717 FY09: \$1,651,390

Short description: Staff central analytical group to provide technical support to state and federal fishery managers.

Recommendation: Response requested

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. The ISRP found this proposal lacking sufficient technical detail for an adequate technical review and requests a response.

This project is very similar in organization, language, objectives, and methodology to project proposals # 200732100 and # 200732600. In general, these three proposals recommend a return to the same organization and staff of the present FPC, which may be dissolved in November 2006. The ISRP recommends close coordination among these four proposals' proponents (CRITFC, ODFW, CBFWA, and WDFW) to develop one well-organized proposal with sufficient technical detail to address ISRP comments/recommendations.

A response should address the comments and suggestions made within each of the following sections of the proposal:

Technical and scientific background: Only general statements are given describing the need for the technical support that this project has provided to the state, tribal, and federal fishery managers: "The project addresses the problem of the continuation needed technical support for the fishery managers which has been recognized in the Northwest Power and Conservation Council Fish and Wildlife Program and a central structure that the agencies and tribes have built upon over the years. The core staff structure, data, analysis and technical services continue the cost effectiveness and efficiency established and operational to date. The central function provides a foundation for ongoing and future collaborative efforts of the states, tribes and federal fishery managers. Specifically those in the Biological Opinion appendices related to long term system wide monitoring and Evaluation."

This section does not indicate the kinds of technical services to be provided (i.e. daily juvenile and adult fish passage data, passage timing, duration, survival, etc.), their importance, or do

anything to help justify this project. The Abstract preceding this background section does a better job of this.

Rationale and significance to subbasin plans and regional programs: The Council's Mainstem Amendments (2003) and the BiOp are cited as requiring this project to provide technical support to the state, tribal, and federal fishery managers. The specific objectives of this project in relation to these regional programs/plans are not described.

Relationships to other projects: On the administrative form, three BPA Projects are listed as having a close relationship to this one, and a brief relationship of this project to each is described. The narrative of the proposal doesn't do this, but describes an organizational structure and gives a description of oversight and governance structure, which doesn't seem to belong in this section.

The function of the Hatfield School of Government (at PSU) is not clearly explained other than "Specifically, the Hatfield School will help clarify performance guidelines necessary to avoid advocacy-based technical services and ensure objectivity and transparency. The Hatfield School will review the oversight process and a sampling of technical service products on a semi-annual basis to assess performance relative to established guidelines." Detailed descriptions should be added to determine how the school will "clarify the performance guidelines" and what criteria the school will use to review technical service products.

The section describing Oversight and Governance Structure along with the proposed Memorandum of Agreement and Principles for Fish Migration and River Management Technical Assistance should be included in the background section, not here.

The project history section only consists of a few sentences and is lacking sufficient detail to provide project accomplishments and give adequate justification for continued support. For such a long-running project there have been a number of important accomplishments and completed documents that need to be listed.

Objectives: Objectives are not clearly stated, and it appears that the sub-objectives (a-d) under Objective 1 are the real objectives and most of the main objectives are general statements related to program activities and collaborative activities.

Tasks (work elements) and methods: Too often the reviewer is referred to FPC documents or memos for details that should be included in the proposal. Examples are: pg. 8 "Data auditing procedures will be implemented using procedures outlined in the Fish Passage Center's September 17, 1997 memorandum describing the data auditing tasks"; pg. 9 - "Maintain the web based presentation and distribution of the Smolt Monitoring Program by species in the present daily format with daily automatic updates to the SQL data system concurrently with presentation on the web utilizing the data protocols described in the FPC32 Smolt Monitoring Program Remote Sites Data Entry Program"; pg. 11 - "Consistent with the present FPC work statement, attend and provide technical assistance to the agencies and tribes in the water quality technical

committee, including the annual water quality report for NOAA, the US Army Corps of Engineers and the state water quality agencies."

The methodology for some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) is briefly summarized on about one page. The methods for each of these work elements needs to be clearly detailed.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal only makes several general statements that the project will "develop annual smolt monitoring plan with the Fish Passage Advisory Committee of CBFWA" and as Objective 5 - "Participation in long-term development of Research, Monitoring & Evaluation in coordination with CSMEP and other regional RM&E programs, as requested by managers participating in the Remand processes, and as needed for the SMP."

The proposal needs to provide some detail of how they will develop this annual monitoring plan and give details of how they will coordinate with other regional RM&E programs.

Facilities, equipment, and personnel: Nothing useful is mentioned about facilities and equipment. The project personnel are the current staff of the FPC, who have a long history of association with the FPC and are well qualified.

200732100 - Data Management for System Operations

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,531,414 FY08: \$1,531,414 FY09: \$1,531,414

Short description: Coordinate anadromous and resident fish monitoring and research in response to FCRPS operations and provide reporting and analyses to support regional decision making.

Recommendation: Response requested

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. The ISRP found this proposal lacking sufficient technical detail for an adequate technical review and requests a response.

This project is very similar in organization, language, objectives, and methodology to Project Proposals # 200730000 and # 200732600. In general, these three proposals recommend a return to the same organization and staff of the present FPC which may be dissolved in November 2006. The ISRP recommends close coordination among these four proposals' proponents (CRITFC, ODFW, CBFWA, and WDFW) to develop one well-organized proposal with sufficient technical detail to address ISRP comments/recommendations.

A response should address the comments and suggestions made within each of the following sections of the proposal:

Technical and scientific background: Only general statements are given describing the need for the technical support that this project has provided to the state, tribal, and federal fishery managers. This section does not indicate the kinds of technical services to be provided (i.e. daily juvenile and adult fish passage data, passage timing, duration, survival, etc.), their importance, or do anything to help justify this project.

Rationale and significance to subbasin plans and regional programs: The Council's Mainstem Amendments (2003) are cited as requiring this project to provide technical support to the state, tribal, and federal fishery managers, and key functions of the FPC are listed. The proposal needs to make a better case of how the project will meet those requirements.

The Project History section was stated as not applicable. However, for such a long-running project there have been a number of important accomplishments and completed documents that need to be listed. At least a one-page summary should be included.

Objectives: The seven objectives proposed by CBFWA in the Abstract are not followed through in the Objectives section of the proposal (only four are given). The clarity and organization of the proposal would be improved if the proposal was consistent.

One missing objective is Objective 5 in the Abstract "to gather, organize, analyze, house and make widely available monitoring and research information related to anadromous fish passage (adult and juvenile) and resident fish impacts due to implementation of the water management and passage measures that are part of the Council's Program." This is one function of the FPC that must be included and stated explicitly. Also, some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) are not included in the work element methods.

The function of Objective 4 is to maintain a regionally accepted oversight group and while the concept appears to have merit, the details provided are insufficient to determine how this group would function.

Tasks (work elements) and methods: Too often the reviewer is referred to FPC documents or memos for details that should be included in the proposal. Examples are: pg. 5 - "Project staff will utilize all of the methods and procedures outlined in FPC32 Smolt Monitoring Program Remote Site Data Entry Program protocols"; pg. 7 - "The procedures outlined in the September 17, 1997, memorandum describing the data auditing tasks performed by the FPC will be implemented"; pg. 9 - "This is consistent with the present FPC work statement and consistent with the intent of the report language and the Council's Program tasks providing technical services to the agencies and tribes"; and pg. 10 - "Provide technical services on water quality. Consistent with the present FPC work statement, attend and provide technical assistance to the agencies and tribes in the water quality technical committee, including the annual water quality report for NOAA Fisheries, the COE, and the state water quality agencies."

The methodology for some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) is not included in the work element methods. The methods for each of these work elements needs to be included and clearly detailed.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal includes nothing regarding the broader monitoring aspects such as coordinating or participating with other regional RM&E programs such as CSMEP.

The proposal needs to provide some detail of how they will develop this broader monitoring plan and give details of how they will coordinate and participate with other regional RM&E programs.

Facilities, equipment, and personnel: A good description of facilities and equipment is provided. However, only a list of summarized position descriptions needed for the project is provided. This is inadequate for reviewers to be able determine if the important functions of the project will have a reasonable chance of being accomplished. Either much more detailed position descriptions with necessary qualifications or a list of potential project personnel with resumes needs to be included.

200732600 - Monitoring of juvenile and adult salmonid survival through the Federal Columbia River Power System

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,622,780 FY08: \$1,679,576 FY09: \$1,738,338

Short description: This project will collect, analyze, manage, store, and disseminate data on the survival of juvenile and adult salmonids within the Federal Columbia River Power System.

These were duties formerly provided by the Fish Passage Center.

Recommendation: Response requested

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. The ISRP found this proposal lacking sufficient technical detail for an adequate technical review and requests a response.

This project is similar in organization, language, objectives, and methodology to Project Proposals # 200730000 and # 200732100. In general, these three proposals recommend a return to the same organization and staff of the present FPC, which may be dissolved in November 2006. The ISRP recommends close coordination among the sponsors of these three proposals (CRITFC, ODFW, CBFWA, and WDFW) to develop one well-organized proposal with sufficient technical detail to address ISRP comments/recommendations.

A response should address the comments and suggestions made within each of the following sections of the proposal:

Technical and scientific background: Only a broad summary of fish passage and survival in the hydrosystem is presented, and smolt-monitoring functions are discussed only in very general terms. This section does not indicate the kinds of technical services to be provided (i.e. daily juvenile and adult fish passage data, passage timing, duration, survival, etc.), their importance, or do anything to help justify this project.

Rationale and significance to subbasin plans and regional programs: The proposal does not provide any specific linkage to priority objectives and goals indicated in regional programs or specific subbasin plans. The proposal needs to make a case of how this project will meet those requirements.

Relationships to other projects: The proposal indicates that there are too many projects linked to this one to effectively list all of the connections. There is some truth to this, but several examples of the relationships of this project to projects like the Comparative Survival Study (#199602000) need to be included.

Project history: The proposal indicates that it builds on a body of existing work and the proposal is considered new because the earlier project was terminated. Therefore no history is described. However, for such a long-running project there has been a number of important accomplishments and completed documents and that needs to be listed in this section. At least a one-page summary should be included.

Objectives: Four objectives are listed including reasonable justification for each.

Work Element 3.5 should probably be separated out as a specific objective to analyze and interpret passage and survival data. This is one function of the FPC that must be included and stated explicitly. Also, some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) are not included in the work element methods.

Tasks (work elements) and methods: The methodology for many of the work elements is only briefly described and often the details of how these tasks will be completed are missing. Some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) are not included in the work element methods. The methods for each of these work elements needs to be included and clearly detailed.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal includes nothing regarding the broader monitoring aspects such as coordinating or participating with other regional RM&E programs such as CSMEP.

The proposal needs to provide some detail of how they will develop this broader monitoring plan and give details of how they will coordinate and participate with other regional RM&E programs.

Facilities, equipment, and personnel: The proposal indicates that equipment will be upgraded and consolidation of facilities will be done. However, WDFW also states that no decision has been made as to location, so much uncertainty exists. The WDFW management staff for the project is very well qualified; however, only a list of summarized position descriptions needed for basic project duties is provided. This is inadequate for reviewers to be able determine if the important functions of the project will have a reasonable chance of being accomplished. Either much more detailed position descriptions with necessary qualifications or a list of potential project personnel with resumes needs to be included.

200738800 - Fish Passage Data System (Key Functions Previously Performed by the Fish Passage Center)

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$890,189 FY08: \$925,797 FY09: \$962,828

Short description: BPA issued a solicitation in December 2005 to transfer key functions previously performed by the Fish Passage Center to be transferred to other existing and capable entities in the region with a continuity of the activities. The solicitation included the

Recommendation: Fundable

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. This proposal provides clearly defined objectives and work elements, and the methods for each work element are sufficiently detailed. The ISRP rates this proposal as fundable. The ISRP recommends close coordination with Project Proposal ID# 200728700 (if funded) because that project will have a coordination role of several former fish passage center functions and provide a review process for technical analysis and technical products.

Although not required to respond, we include other comments for the sponsors to consider:

Rationale and significance to subbasin plans and regional programs: The Council's Mainstem Amendments (2003) should be referred to as requiring this project to provide technical support to the state, tribal, and federal fishery managers.

Project history: This section was stated as not applicable. However, for such a long-running project there have been a number of important accomplishments and completed documents that could be listed in this section. At least a one-page summary should be included.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal includes nothing regarding the broader monitoring aspects such as coordinating or participating with other regional RM&E programs such as CSMEP. The proposal needs to provide some detail of how they will develop this broader monitoring plan and give details of how they will coordinate and participate with other regional RM&E programs.

Facilities, equipment, and personnel: A good description of facilities and equipment is provided. An organizational chart with names and positions is included and is helpful. However, resumes for personnel on the chart are not provided and should be, so reviewers can determine if personnel have necessary qualifications for accomplishing the project.

Regional Databases

198810804 - StreamNet (CIS/NED)

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,901,154 FY08: \$3,040,961 FY09: \$3,198,011

Short description: StreamNet is a data development & dissemination project that provides data related services to the FWP and the region's fish and wildlife agencies. It obtains, georeferences, standardizes and disseminates specific fish related data from multiple sources

Recommendation: Response requested

The need to standardize data protocols continues. The central role of BPA in funding data collection in the basin should provide a mechanism to require standardization of data reporting, protocols, and methods. The proposal describes past, present, and future features of StreamNet in a subdued manner. It is not clear what the new tasks will contribute to work in the basin. Nevertheless, the importance of having data development and dissemination activities in the basin is clear.

The base program is fundable and serves an important role in the Basin. We strongly support expanding the tasks and objectives of StreamNet to provide the most utility to the basin. Unfortunately, adequate information is not presented in the proposal to provide scientific review and fully evaluate the methods, budget, personnel, and infrastructure necessary to accomplish the listed tasks. The sub-proposals are all in preliminary form and do not provide evidence that their proposed activities are well developed.

A brief and general project history is presented. The focus is on administrative changes rather than accomplishments. Documentation of results providing information about benefits as a result of StreamNet would strengthen the proposal.

It is hard to get a good sense from the proposal whether this many personnel are really necessary to do the information project. The program needs to develop measures of effectiveness and assess its impact in terms of those measures. Use of the services should be documented, and more focus should be placed on outputs rather than inputs. The proposal does not report on user interface. A response is needed to justify ongoing activities and new work elements. In addition, strategies for quality control should be strengthened. A systematic way of evaluating effectiveness is needed. Who are the users? Were these users satisfied? Is tracking software used (e.g., Web Trends)? The sponsors should provide some evaluative performance

information to address these questions. The project should have in place a system for monitoring and evaluating its performance. Almost no performance metrics are provided.

The ISRP recommends that the project receive an independent project review on the quality of its service delivery.

200725400 - StreamNet Support and Services for Conservation and Recovery Data Needs

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$155,818 FY08: \$163,609 FY09: \$171,789

Short description: StreamNet will collaborate with CSMEP, aka CBFWA Monitor/Eval Program, (Project# 2003-036-00) to provide data management and application development needed to support fish population monitoring efforts by CSMEP.

Recommendation: Response requested

This proposal is to fund a pilot project collaboration between StreamNet and CSMEP to develop data standards, data acquisition tools, and data dissemination for the region. A primary goal of CSMEP is to document, integrate, and make available existing monitoring data on species of concern. This proposal may complement the CSMEP proposal (although this proposal is not referenced in the CSMEP proposal) by providing the data management expertise.

The overall idea may have merit but the proposal does not provide enough detail to evaluate the benefits of the project or the likelihood of success. A response should describe the type of data that will be collected and managed and relate these to fish and wildlife populations. How will protocols be established and enforced. How will quality assurance for the data be conducted? What evidence is available to show how useful the data will be to others? What is the value added to the data from this project? How will the project be monitored to determine its success?

200731300 - Expanded Acquisition and Display of Fish (Initially Anadromous Salmonids) Harvest Data in the StreamNet Database

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$148,844 FY08: \$156,287 FY09: \$164,201

Short description: Locate data sources for marine and freshwater sport and commercial harvests, including hatchery contribution rates to fisheries and percentages of hatchery fish straying onto natural spawning grounds. Build a comprehensive database schema to store data.

Recommendation: Not fundable

This minimalist proposal does not clearly identify the incremental benefits to fish and wildlife that would derive from the expanded acquisition and display of data. The idea may be good but the proposal is confusing to read and leaves out essential information about the data and its application. The proposal lacks a logical progression in the presentation.

This proposal doesn't tell a coherent story. The proposal is too cursory and general to justify the proposed actions. It is not clear that the content of existing databases has been considered. The CWT data system already collects much of these data. What is the relationship of this project to the CWT data system? PSMFC is the home of PACFIN and RACFIN data, but there is not evidence of strong coordination with this proposal. Not enough information is provided to evaluate the adequacy of facilities or to determine if the proportion of personnel time to be devoted to the project is appropriate.

200731400 - Regional Consolidation of Habitat Restoration Project Information From Multiple Funding Sources with Dissemination Through the StreamNet Website

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$238,514 FY08: \$250,440 FY09: \$262,964

Short description: Detailed information on habitat restoration projects is maintained by the multiple sources of project funding, but there is currently no way to review consolidated information in a common format. This will obtain data across agencies and disseminate.

Recommendation: Not fundable

The proposal is sparse in details so justification for the benefits of the proposed work is difficult to assess. It would seem that this could be useful, but it is unclear how much the consolidated web site would be used and what provisions there are for quality control. Although we recommended this type of an effort as needed in the systemwide/province review, this proposal doesn't adequately describe the problem or how the project would address the problem. The proposal does not adequately describe how this project would relate to the other monitoring programs. It is not clear whether this project would depend on others for developing standard protocols or whether this project would develop and require standardization.

The overall objective is to obtain data across agencies and disseminate them. It is not clear what the timeline will be. Work elements are described in very general form. Needed is more detail on what type of data, a framework for data capture, or specifics on how "cooperators will compile, standardize and exchange data." What is their incentive to collaborate and standardize? How well documented are the existing data, enough to allow standardization? There is reference to what agency cooperators will do but not a clear distinction between what will be done within agencies and what will be done by this project.

Not enough information is provided to evaluate the adequacy of facilities, equipment, and personnel, so it is not possible to discern if personnel have the appropriate expertise to conduct this project. The proposal states that new personnel will be hired for these tasks, but justification is lacking. Percent of time by project management personnel is not identified.

200732700 - Compilation of Location-Specific Hatchery Release Data in Consistent Format Across Agencies by StreamNet

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$192,720 FY08: \$202,356 FY09: \$212,474

Short description: Detailed fish liberation data for anadromous and resident fish species will be developed from multiple agencies. The data will show detailed release location information (not "rolled up") and posted through the StreamNet online database query system.

Recommendation: Response requested

This proposal describes database improvements that are very likely to be useful to the Basin. The ISRP noted the need for this type of information in the previous review process (systemwide/provincial). All anadromous and resident fish would likely benefit from an improved information base. However, not enough detail is presented in the proposal about how this will be done. The sponsors should provide additional detail to better describe exactly what is planned.

The sponsors propose to increase the quantity and consistency of hatchery release data by capturing more detailed release data than is currently done and expanding data coverage to all water bodies and species of fish. The proposal provides a good description of the data issues and the utility of taking a more comprehensive approach. Some efforts along these lines are documented in the proposal, but it notes that without further resources progress will remain slow. This raises the question: what cost and time savings are expected to result from this project?

The proposal makes reference to some potential problems in getting the level of cooperation that is necessary from various agencies. It would be helpful to know the nature of the potential constraints and how the sponsors intend to address them. Is there continuing resistance among states to standardizing data? Are the tribal agencies part of this project?

The project would seem to have clear rationale. The significance of this project is summarized as a bulleted list. These seem reasonable, but it would be useful to have more explanation under each bullet. There is no citation of how this work has been prioritized by the Fish and Wildlife Program, the BiOp, or other planning documents. The proposal is clearly tied to the core StreamNet effort. It would be helpful to demonstrate how the data provided by this project will assist or tie in with other projects in the Basin. The methods seem reasonable but are not presented in great detail. As an example, for automated data exchange, the statement is made that "we are not certain how much progress is possible at this time." It would be helpful to identify the likely constraints and the approach to removing them. Similarly, "acquire data" deserves more detailed explanation of approach than is provided.

It is not clear how to determine the success of the project because no description of monitoring and evaluation is provided. Surely quality assurance / quality control (QA/QC) monitoring would be relevant here as would be setting performance targets and assessing the extent to which they are being met?

Information transfer is through data dissemination. Data compiled by this project will be incorporated into the StreamNet database and made available via the StreamNet on-line query system. There is the potential in a project like this to also learn about the process and challenges of data coordination. The sponsors should identify strategies to summarize lessons learned for the benefit of other efforts.

200307200 - Habitat and Biodiversity Information System For Columbia River Basin

Sponsor: Northwest Habitat Institute

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$997,107 FY08: \$1,068,287 FY09: \$1,030,199

Short description: A principal habitat and biodiversity informational source for ecoprovinces and subbasins within the Columbia River Basin, within the region it is considered a "Key Informational Source", "Best Available Science", and as "Best Practices".

Recommendation: Fundable

This is a detailed and thorough proposal for a big project. Among the database proposals, this is among the best justified. It includes an excellent recounting of the history of this effort, but little is said about how results have guided work in the Columbia River Basin, or how they solicit and utilize regular feedback on their products. Are all the users happy with the way habitats are quantified and displayed? As an example consider the following comment from the ISRP's review of the Flathead and Kootenai Subbasin Plans: "Planners used a biome approach informed by IBIS to assess wildlife. Specifically, they developed the Terrestrial Biome Assessment (TBA) tool to get to a finer level of analysis than that provided by IBIS, which is limited to qualitative measurements. The Terrestrial Biome Assessment includes both quantitative and qualitative data fields." www.nwcouncil.org/library/isrp/isrp2004-7.pdf. IBIS has likely progressed and can get to finer scales.

The rationale and significance to subbasin plans and regional programs is clearly and exhaustively described. Data developed by this proposal relate to the Fish and Wildlife Program, BiOp, and the ISRP retrospective report. This project provides data to, or works directly with, a wide range of projects. The proposal provides a good description of connections to many projects, BPA funded and otherwise.

The objectives and work elements are clearly described. The sponsors propose new decision support tools using data from the RME process: ELVIS (to provide guidance on wetland vegetation planning and monitoring protocols). Project effectiveness monitoring is proposed, as are quality control checks and data refinements.

Information transfer includes a website to disseminate habitat and biodiversity information and performance tools to support decision making, presentations at meetings, professional material development, peer reviewed publications, and an education outreach effort in a habitat assessment course offered at PSU.

200704700 - Hydrography Spatial Data Enhancement Project - WDFW & WDNR
Operational Data Updates and Integration to the PNW Hydrography Clearinghouse
for the WA Columbia Basin

Sponsor: Interagency Committee (IAC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$606,879 FY08: \$477,786 FY09: \$261,511

Short description: Synchronize Washington State's regulatory data improvements with the regions hydrography data. WDFW and WDNR, data additions and updates from their stream typing and fish habitat databases will be identified and assessed for inclusion.

Recommendation: Not fundable

The authors propose to enhance the collection and organization of spatial hydrography data for Washington, Oregon, and Northern California, and make it readily and freely available on the web. The value of well-integrated natural resource databases for a variety of users can be imagined. However, the proposal provides no references to establish the need for these databases or how extensively they are (would be) used. URLs that point the reviewer to the existing databases are found at the end of the narrative, but the proposal gives no sense of how the integration of these databases could have fish and wildlife benefits in the Columbia River Basin.

The Fish and Wildlife Program, BiOp's, or other such plans or programs are not mentioned. Other, Washington-state datasets are discussed in a general way, but no specifics or references/URLs are provided. The proponents made very little attempt to link this effort with other Fish and Wildlife Program supported projects. It is not clear how this activity would be linked to all the other databases in the Columbia River Basin, if at all. This effort began as regional partnership for development of data sharing system. How does this relate to StreamNet? Do we have duplication? There are a lot of other systems doing similar things, but the issue of duplication is not addressed. They should describe how this system would work in relation to all other database efforts in the Fish and Wildlife Program.

The proposal provides a very detailed presentation of objectives and specific tasks, with detailed timelines (even meetings are scheduled). This is a good, systematic plan for accomplishing the tasks, starting with setting up rules for incorporating and integrating data. After that data rules are established, WRIA 25 would be implemented as a test case. After appropriate adjustments, including feedback from the agencies, they would proceed to implement the other WRIs. The only thing missing is a tie to particular Columbia River Basin objectives.

This project might have many benefits to focal and non-focal species, but the specific value of this effort/datasets was not addressed in the proposal. No qualifications statements/resumes for the participants are provided.

200720000 - Idaho Subbasin Planning and Comprehensive Wildlife Conservation Strategy (CWCS) Data Distribution System

Sponsor: Idaho Department of Fish & Game

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$139,489 FY08: \$146,464 FY09: \$153,787

Short description: Provide Idaho's subbasin planning data and Comprehensive Wildlife Conservation Strategy data over the web. It will provide fish, wildlife, rare plant and habitat data and information in a variety of formats through a database driven, interactive website.

Recommendation: Fundable

The ISRP judged this proposal to be fundable, but of low priority. The ISRP found nothing wrong with the basic idea developed in the proposal, but did not find a significant improvement in information or information transfer for the purposes described. The project apparently would mostly make an existing document available over the web, not provide new information.

The proposal adequately presents a plan to put the CWCS system on the internet, but does not provide details about how this database could be used to support, enhance, or implement the Council's Wildlife Program activities in the subbasins. For instance, the CWCS database seems focused on mapping of cover types and potential distribution of selected species, without any sampling of numbers of species at these sites. The assumption seems to be that change in distribution will be an adequate way to measure progress towards objectives, but this assumption is not supported with technical and scientific background in the proposal. Perhaps the project is envisioned as providing more than is clearly articulated in the proposal, but, as presented, the proposed electronic database does not significantly advance information quality, availability, or application to meet the goals of the Wildlife Program.

Public Information Resources

199800401 - Columbia Basin Bulletin

Sponsor: Intermountain Communications

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: Delivers by e-mail (and posted on the web) to policymakers, Basin stakeholders, and general public a weekly electronic newsletter containing objective, timely, summary information about Columbia Basin fish and wildlife mitigation and ESA recovery issues.

Recommendation: Fundable (Qualified)

This proposal is to continue support for the Columbia Basin Bulletin (CBB). The proposal clearly and concisely describes the need for trusted, neutral, and timely information on Columbia Basin fish and wildlife issues and references earlier Council support for its work. In the eight years of its operation, the CBB has become a widely used and proven source of timely and

reliable information. Dissemination of information to stakeholders and agencies in the Columbia River Basin is critical. The CBB seems to be a cost-effective mechanism for disseminating technical and policy information about fish and wildlife in the Columbia Basin.

The proposal stresses the CBB's role as a coordinator of information in the Columbia Basin. It makes the point that trustworthy information is the basis for collaboration on the complex and contentious issues of the Columbia Basin. The proposal makes a convincing argument for the CBB's communication value beyond the fish and wildlife interests to the broader group of river interests and for the benefit of having a neutral provider of information.

The proposal has a single objective to provide summary information related to fish and wildlife to the Basin in order to assist policymaking and help achieve restoration goals. Methods are briefly but adequately described as the routine tasks of information gathering and newsletter production. It is not clear how the CBB staff decide which scientific papers they will profile. One suggestion, if they are not already doing this, would be for staff to scan the American Fishery Society publication website which cites "most downloaded (or read)" papers. If particular papers deal with Columbia River Basin issues, they might be worth mentioning in the CBB.

The proposal history is a short summary of the evolution of the CBB from a web-based product in 1998 to the current email delivery product with a subscriber list of 5000. Summary usage information is provided. Thorough monitoring of outreach and information provision would require a specific analysis to see if the CBB is increasing stakeholder/agency knowledge about Columbia Basin fish and wildlife issues relative to other web sites, and print/visual media. However the increasing number of hits and story reads indicates the CBB is increasing its popularity as an information source. Earlier ISRP review comments had requested that information regarding quality control mechanisms be included in the proposal, and this information should continue to be provided.

200728000 - Columbia River Basin Journal

Sponsor: Intermountain Communications

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$105,000 FY08: \$100,000 FY09: \$100,000

Short description: The Columbia River Basin Journal will be an on-line journal devoted to the timely dissemination of current research information related to Columbia River Basin fish and wildlife mitigation and recovery.

Recommendation: Fundable (Qualified)

This is a well-written proposal that addresses a need identified by the ISRP and the Council for a Columbia River Basin Journal (CRBJ) to enable communication, peer-review and timely publication of research results and research-related information. The CRBJ would provide an excellent venue for publishing results of Columbia Basin projects that are normally limited to agency reports or reports to funding entities. Peer-reviewed journal publication offers the potential to increase both the dissemination of research results and the quality of those results.

Another benefit of this journal is that it will be open access, so it will reach a broader audience than a fee-based subscription journal. The proposal clearly describes the need for this journal.

In addition to ISRP and Council recommendations, the proposal also relates the rationale for the CRBJ to enhancing the integration and scientific credibility of Columbia Basin restoration approaches and information, as identified by the Fish and Wildlife Program and by federal agencies in various forms. The proposal also makes the reasonable case that coordinated presentation of scientific information by a neutral broker will contribute to the learning process that is the basis for adaptive management. The electronic form will allow much more access by people throughout the region to scientific literature, information, and discussions.

The CRBJ will complement other projects by serving as a clearinghouse for information and a communication link among projects. It will also be linked to the Columbia Basin Bulletin (CBB) through joint publishing. The connection to the CBB is a strength of this proposal, because the CBB has a proven track record in building information infrastructure in the Basin, maintaining a network of extensive contacts, and knowledge of Columbia Basin issues. However the proposal would be enhanced by a brief description of other scientific journals and environmental media in the Pacific Northwest and the extent to which they could fill the role of the proposed CRBJ.

The objective for this project is to create an on-line journal devoted to the timely dissemination of current research related to Columbia River Basin fish and wildlife preservation and restoration. The metrics for this objective would be quality and quantity of papers published, readership, and citation by other scientists. Methods pertain to the four functions of the journal: peer-reviewed papers, research updates and reports, research news summaries, and moderated discussions. A thorough discussion is presented of each of these functions. The discussion covers the essential elements of each, providing a clear indication that the sponsors are aware of the key issues regarding neutrality, timeliness, and scientific integrity, and have developed procedures to address them.

While acknowledging the thorough consideration of journal functions given in the proposal, the ISRP recommends that the sponsors give more thought to the review process. One issue to consider is that the timing of reviews as stated in the proposal is atypically fast. Turnaround time for reviews is typically slow because a limited number of experienced peer reviewers face an increasing number of review requests and typically conduct reviews during free time. One mechanism some journals use to shorten turnaround time is to provide an honorarium to reviewers. Volunteer reviews are slower, and simply having on-line review processes doesn't necessarily make the peer review process faster. A second review issue is the use of a double blind peer review. The CRBJ might want to have open identity of the reviewers, or optional identity (depending on potential conflicts). This should help keep the review comments and process constructive.

Evaluation of the success of the scientific part of the CRBJ could be done by a journal impact analysis, which is now a routine part of bibliographic search engines such as ISI (ex Current Contents). The proponent should consider this monitoring procedure.

A final issue for the sponsors to consider is whether the budget is adequate to provide an effective product. They might discuss budget issues with Alaska Department of Fish and Game and others who have on-line journals to compare cost estimates.

Regional Coordination

198906201 - Annual Work Plan CBFWA

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,253,787 FY08: \$2,253,787 FY09: \$2,253,787

Short description: Coordinate fish and wildlife manager participation in regional mitigation activities for implementation of the NPCC's Program including RM&E, project and program review, subbasin plan implementation, program amendment recommendations, etc.

Recommendation: Response requested

This proposal seeks funding to coordinate the region's fish and wildlife managers in implementing the Fish and Wildlife Program. The background section describes how the CBFWA was formed in 1987 as a coordinating mechanism after the 1980 passage of the Power Act. Nineteen tribes, state and federal organizations are members. Its purpose is to coordinate Fish and Wildlife efforts among members, provide a forum for information exchange, ensure effective implementation of the Fish and Wildlife Program, improve quality of decisionmaking and influence other regional decision makers. Member organizations are listed. A table describes the organizational structure and function of the sub-entities. The proposal does a good of explaining the complexity of the stakeholder groups and agencies and in demonstrating that there is a logical need for a coordinating body for fish and wildlife managers in the Columbia Basin. A response is requested on the issues identified below.

A brief rationale describes the coordination of the Fish and Wildlife Program funded work of the fish and wildlife managers, liaison with PNAMP, and the Fish Screening Oversight Committee. However, the sponsors should give greater emphasis to the CBFWA's impact and effectiveness. What would happen if CBFWA weren't funded? What benefits would go away? How does the region depend or benefit from CBFWA's existence? Why have the Kalispel and Spokane Tribes left the CBFWA, and how is CBFWA effectiveness affected by a loss of some participation? None of this information is provided, but should be.

The history of the project is enumerated in a table that lists summary "core functions" for each year of CBFWA's existence. The proposal describes actions taken by CBFWA to monitor project implementation or policy development, but the proposal does not describe how CBFWA effectiveness is monitored. Apparently, CBFWA's effectiveness has not been monitored. No metrics are presented to assess performance, but without them, how does CBFWA determine if it is being effective? For such an important function with a large budget, effectiveness monitoring should be ongoing. Performance metrics should be developed. Specifically, it is difficult to

determine how effective the coordination process has been without feedback from the stakeholders and agencies. An analysis would be needed to determine aspects such as project overlaps and redundancy. The narrative suggests that there have been few of these types of problems.

The project has ten objectives that represent various coordination functions. Useful background information is provided for each. Tasks are listed under each objective and seem reasonable, but many are described generally as "assist", "collaborate", "support", "facilitate", "track and assess" etc. and are difficult to understand more specifically. Maybe, given the breadth of coordination across all entities and issues, this is the only way the coordination tasks can be described. However, without more specific descriptions it is unclear what budget lines actually represent. For example, over \$900,000 is budgeted to do an annual report. What is the final product? And what are the steps along the way to produce the final product? More detail should be provided as to what specifically the tasks mean in practice and what the outcomes are.

200710800 - Regional Coordination for Upper Columbia United Tribes

Sponsor: Upper Columbia United Tribes

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$69,594 FY08: \$73,346 FY09: \$80,053

Short description: Facilitate and coordinate five UCUT member Tribes' participation in regional activities involving implementation of the FWP, annual project and funding recommendations, rolling provincial review, subbasin planning, program amendment recommendations, etc.

Recommendation: Admin (see comments)

This proposal describes coordination and information provision for the Upper Columbia United Tribes (UCUT) that seems quite useful and productive. A brief but clear section describes the role of the UCUT in coordinating its five member tribes with the Fish and Wildlife Program and with CBFWA. It describes meetings coordinated and information provided to its members, as well as its function in communicating UCUT member positions within the Basin decision arenas.

The proposal provides specific examples of UCUT's role in enabling coordination, communication and participation of its members in regional processes. It makes a good case for the relation of UCUT coordination support to the participation of the upriver tribes in fish and wildlife activities. It describes decreasing levels of UCUT funding from the Bureau of Indian Affairs (BIA), relates the funding declines to a decline in coordination activities, and states that project funding is necessary to maintain UCUT central office functions.

The proposal would be strengthened by including more detail on the benefits to fish and wildlife of enhanced coordination activities. For example, what specific projects or resources are threatened if funding is not provided? How will conservation and management be affected if the funding is not provided?

The proposal has five objectives describing various aspects of coordination, participation, and long-term planning. Work elements are listed for each objective; all are activities that facilitate member tribes' participation in the Fish and Wildlife Program. Work elements are specific and relate well to the objectives. One set of work elements relates to the informing of and involvement in national legislation and international agreements that affect the tribes with regard to salmon and habitat issues and treaty storage water. This seems quite useful and forward-looking.

To strengthen the justification for the proposal, the sponsors should provide specific information on the basis for the following statement made in the proposal: "The upriver Tribes have been innovative leaders in proposing strategies for watershed-based Program management, equitable allocation of fish and wildlife funding, and multiple-purpose river operations."

In addition, because the objective of this project is coordination, the sponsors need to provide some measures by which the effectiveness of this coordination can be monitored and evaluated.

200710600 - Spokane Tribe Fish and Wildlife Planning and Coordination

Sponsor: Spokane Tribe

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$93,100 FY08: \$93,100 FY09: \$93,100

Short description: To ensure adequate Spokane Tribal representation at regional meetings. This project would secure funding for Spokane Tribal Fish and Wildlife Managers to attend regional and provincial meeting to assist in development of work plans within Columbia River.

Recommendation: Admin (see comments)

This is an inadequately written proposal to perform coordination and meeting participation. The proposal provides little explanation of how the requested FTE support and other funds will be spent. Budget figures are rounded and seem excessive (e.g. .7 FTE for coordination; \$10,000 to attend regional meetings). The proposal does not justify why the efforts described in this proposal, which would seem to be routine and to require minimal effort, are not a component of the four ongoing Spokane projects, or how conservation and management will be affected if the funding is not provided.

This proposal and a twin proposal submitted by the Kalispel Tribe would seem to be covered under the more comprehensive (and less expensive) UCUT coordination proposal, which includes the Spokane and Kalispel.

The justification for the proposal is based in the need for regional cooperation, the MOU between BPA and the Upper Columbia United Tribes regarding consultation, coordination and participation, and the withdrawal of the Spokane Tribe from CBFWA. The proposal does not provide specific explanation of the Tribe's withdrawal from CBFWA.

The proposal has a single objective of regional coordination, explained as being necessary for Spokane implementation of the Fish and Wildlife Program. Four work elements are generally

explained as participation in meetings, exchanging information, providing Spokane information to regional reporting, and providing information to regional entities on Spokane policies, programs, and projects. Coordination is not specifically tied to improvements of fish and wildlife conservation and restoration on Spokane lands.

200716200 - Kalispel Tribe Fish and Wildlife Coordination

Sponsor: Kalispel Tribe

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$90,000 FY08: \$93,100 FY09: \$96,200

Short description: Participate in regional mitigation activities in implementation of the Fish and Wildlife Program and BPA's role in funding the Fish and Wildlife Program.

Recommendation: Admin (see comments)

This is an inadequately written proposal to perform coordination and meeting participation. The proposal provides little explanation of how the requested FTE support and other funds will be spent. Budget figures are rounded and seem excessive (e.g. .7 FTE for coordination; \$10,000 to attend regional meetings). The proposal does not justify why the efforts described in this proposal, which would seem to be routine and to require minimal effort, are not a component of the eight funded Kalispel projects, or how conservation and management will be affected if the funding is not provided.

This proposal and a twin proposal submitted by the Spokane Tribe would seem to be covered under the more comprehensive (and less expensive) UCUT coordination proposal, which includes the Spokane and Kalispel.

The justification for the proposal is based in the need for regional cooperation, the MOU between BPA and the Upper Columbia United Tribes regarding consultation, coordination and participation, and the withdrawal of the Kalispel Tribe from CBFWA. The proposal does not provide specific explanation of the Tribe's withdrawal from CBFWA.

The proposal has a single objective of coordinating the Kalispel tribe fish and wildlife projects with the region. Four work elements are generally explained as participation in meetings, exchanging information, providing Kalispel information to regional reporting, and providing information to regional entities on Kalispel policies, programs and projects. Coordination is not specifically tied to improvements of fish and wildlife conservation and restoration on Kalispel lands.

199803100 - Implement Wy-Kan-Ush-Mi Wa-Kish-Wit

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$234,205 FY08: \$234,205 FY09: \$234,205

Short description: This project will provide effective and efficient watershed restoration through coordination and support of tribal restoration planning and project implementation consistent with Wy-Kan-Ush-Mi Wa-Kish-Wit and the NWPPC Fish and Wildlife Program.

Recommendation: Response requested

The proposal is to implement the fish and wildlife programs of the Columbia River Treaty Tribes as coordinated through CRITFC. It provides a clear description of the role of the treaty tribes and the need for coordination among them. Without coordination there might be overlap and discontinuity of activities within and between the Tribal F&W departments. Extensive rationale is provided relating this proposal with the objectives of the Fish and Wildlife Program, BiOp, US v. Oregon, CBFWA, Pacific Salmon Treaty, PCSRF, PNAMP, and NOAA Fisheries Recovery planning. The proposal does a good job of specifically identifying CRITFC's role in relation to each of these. Interactions between the CRITFC watershed group and PCSRF, PSC, PNAMP and individual projects are clearly described.

A project history enumerates a long list of accomplishments related to coordination, watershed assessments, proposal assistance, cost sharing, M&E guidelines, Salmon Corps, and Outreach. Reflecting earlier ISRP comments, there are clearly many good coordination activities being conducted through this project, but the proposal, and especially the project history, lacks evaluative content. How were decisions made as to where to focus efforts? What activities are the most effective? What challenges face these coordination efforts? How are they addressed? The proposal would be strengthened by this type of evaluation of the effectiveness of previous actions.

The project has a number of objectives related to implementation of the fish and wildlife program: coordination, outreach and education, technical review, database management, and report writing. Methods described for each objective seem reasonable; however, some are too generally written to understand what is entailed. For example:

- "Watershed Department staff participates in the development of a Framework for Performance Measures/Indicators for the PCSRF projects" - What methods were used to develop this framework and is it working?
- "So far under the PCSRF for FY 2000-2003, some of the progresses the tribes have made include: 442 stream miles restored, 1977 acres acquired and protected, 34 fish passage barriers removed, and 178 miles of riparian plantings" - Under guidance from CRITFC, are the Tribes using a quantitative method to forecast improvements in fish survival?
- "Methods under this proposal will be adapted as the NWPPC, CBFWA, and 13 Tribes processes evolve." - Can this statement be made more specific?

M&E is a big missing component of this proposal. Methods for assessing successful coordination as it translates to benefits to fish and wildlife need to be developed and used. Earlier ISRP comments recommended that the project would be improved by taking a more targeted approach to implementation. This would involve developing priorities. It also recommended a plan to monitor project effectiveness. How else will the project determine if it is being effective or if there are areas of possible improvement?

The narrative states under Objective 1 "Maintenance of cooperative relationships between the CRITFC tribes and the co-managers of natural resources in the Columbia Basin will be evidenced by, among other things, development and implementation of collaborative proposals, productive interaction between the parties and continued improvement in communication and information exchange." These may be suitable metrics to assess coordination success, but the proposal should present a definitive provision to actually monitor them. The proponents could also gather biological data (e.g., escapements, productivity, abundance) from the various Tribes and synthesize them annually as a contribution toward monitoring the streams under their purview.

Effectiveness of a coordinating entity such as CRITFC is sometimes difficult to assess quantitatively. Adaptive management and review of past activities may be one way of moving ahead. As suggested in the last ISRP review, CRITFC should develop evaluation methods or perform a literature review to find out what similar agencies do to assess effectiveness of their coordination activities. Measures of effectiveness might include observations on themes such as reduction in overlap, number of collaborative projects with Tribal fishery biologists resulting in peer reviewed papers, and biological improvements such as increases in smolt-to-adult survival rates (SARs) for salmonids returning to streams managed by the Tribes.

Despite the good narrative descriptions contained in the proposal, more specific details are needed. More could be done to present examples of CRITFC coordination by adding information from the attachment "CRITFC Success under the Pacific Coastal Salmon Recovery Fund" to the proposal narrative.

In addition, sponsors are requested to provide more detailed information addressing the areas listed below:

- Tabulation of the numerous collaborative projects done under the auspices of CRITFC. This table could include a column of the technical reports or data resulting from the work.
- Methods used to prioritize coordination activities.
- Methods used to evaluate the effectiveness of coordination.
- Information on effectiveness monitoring; how the evaluation procedure could be improved.
- The relation of funded projects to benefits for fish and wildlife.
- Potential for information transfer among CRITFC members to be enhanced by electronic means, such as an electronic newsletter to provide more timely information and coordination.

200400200 - PNAMP Funding

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$50,000 FY08: \$50,000 FY09: \$50,000

Short description: PNAMP requires a Coordinator to serve as lead staff, liaison, point of contact, and support efforts to coordinate state, federal, and tribal monitoring efforts in the region. This proposal requests funding for a portion of total cost of Coordination only.

Recommendation: Fundable

This is a well-written proposal to fund a coordinator for PNAMP. It appears to be a very cost-effective project performing a necessary and valuable function for PNAMP. The largest PNAMP costs are covered in-kind by six partner agencies, but a coordinator is needed. Twenty entities are signatories to the PNAMP charter. The background section makes a convincing case for why a coordinator is needed and how it will contribute to PNAMP objectives.

The PNAMP aquatic monitoring efforts are tied to the Fish and Wildlife Program, BiOps, recovery plans and subbasin plans. The proposal extensively documents relationships to ongoing and proposed projects. A figure illustrates 14 monitoring programs being coordinated. Two detailed tables provide excellent comparisons and differentiations among three large monitoring programs (PNAMP, CSMEP, and FRMEP) and among regional data projects (PNAMP, NED, CSMAP, PNW RGIC, StreamNet, PNWQDX).

PNAMP was formed in 2004. A project history focuses on accomplishments in the ensuing two years. PNAMP appears to be making good contributions to the region's monitoring coordination, having facilitated numerous meetings and information exchanges about monitoring protocols. To assess the effectiveness of this facilitation an audit or poll of participating agencies should be conducted within 2 years. Adaptive management and course corrections within the PNAMP framework could be realized if direct feedback from the participating agencies were obtained. The proposal would be improved by documentation of this feedback as well as by a better description of whether a particular model of coordination is being used.

Biological objectives are brief but appropriate. Two are quite qualitative ("help advance" and "provide guidance") and would be improved by greater specificity. The project would be improved by giving more thought about how it would establish performance metrics for itself; for example, what method would be used to measure facilitation success?

The PNAMP facilitator has a daunting task, and it is not clear from the proposal if objectives are being reached. The proposal would be improved by a more detailed description of key coordination protocols and incentives, such as the role of the coordinator in peer review of PNAMP products and the consequences for a signatory to PNAMP of not adhering to Charter principles (e.g. what are the incentives for compliance?)

The proposal would also be improved by more background on the events, problems and crises that stimulated the creation of PNAMP. Was there evidence of decreasing quality or quantity of RME in the Columbia Basin? A table of acronyms would also be helpful.

Ocean and Estuary

199801400 - Ocean Survival Of Salmonids

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,499,879 FY08: \$2,578,533 FY09: \$2,655,894

Short description: Assess the role of the Columbia River plume and California Current on growth and survival of juvenile salmon from the Columbia River basin. Develop ocean condition indicators that can be used to forecast salmon returns and assess climate change impact.

Recommendation: Fundable (Qualified)

This is an innovative project that has yielded new and critically needed information on how conditions in the ocean and plume affect salmon survival. A unique aspect of this work is the ecosystem approach that is taken to understand salmon survival. This approach is highly consistent with science principles in the Fish and Wildlife Program.

Proposals for the project have expanded to encompass new objectives well beyond the scope of those previously reviewed by the ISRP ("research in the Columbia River plume to investigate juvenile salmon growth and survival, and modeling studies to investigate management of Columbia River flows to improve habitat opportunity in the plume").

Therefore, the ISRP qualifies this "fundable" recommendation with a number of questions to be considered (although the ISRP is not requesting a response):

Could the proponents provide a strategic overview that prioritizes their proposed objectives, tasks, and subtasks, including specific information for each task on the PIs and staff, FTEs committed to that task, critical assumptions, experimental design, justification for degrees of freedom (number of years)/statistical significance, specific timelines, and costs supported by BPA? Could proponents provide an effectiveness analysis of the various results sooner than 2009, as well as a specific plan for involvement of hydro managers?

Technical and Scientific Background: The proponents have provided an excellent summary of the technical and scientific background, and the logical need to address the problem to benefit salmon is clearly defined.

Rationale and Significance to Subbasin Plans and Regional Programs: The proposal addresses objectives in the 2000 Fish and Wildlife Program Plan.

Could the proponents relate the proposal to the 2005 research plan and provide some explicit descriptions of how the research will help with Biological Opinions? The sponsors do not indicate whether the proposed work is called for in the Estuary Subbasin Plan.

Relationships to other project: There is evidence in this proposal of good integration within the large group of proponents (n=26 scientists). The modeling work is integrated with only one of the proposed or ongoing estuary projects (20030100). The proponents also relate their research to US Army Corps of Engineers and National Science Foundation funded projects. Some of the proposed work seems to be dependent upon the continuation of projects funded primarily by these other sources, which could be a problem. Will Peterson's Newport time series be funded by this proposal or from some other source? Only passing reference is made to other related and similar projects such as "Acoustic Tracking for Survival" (200311400) and the "inner estuary" (20030100) researchers. Given that the proposed ocean array studies are focused on the plume area, could the proponents enable coordination between these two projects?

At present, one of the PIs plans to participate in the 2006-2009 research vessel cruises of project #200300900 (Canada-USA Shelf Salmon Survival Study). There is duplication between these two projects on some of the proposed research, e.g., bioenergetics modeling. The proponents also plan to work closely with project #200723600 ("Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change"), that is, use remote sensing products and habitat metrics. An integrated approach is required to move the products of research in all key habitats to management agencies. Can proponents demonstrate links to specific BPA-funded restoration or salmon management projects that might be potential users of their proposed ecological indicator/run forecast products?

Project history: This innovative project has contributed significantly to understanding how plume and near shore ocean conditions influence salmon survival. Excellent background and history material are provided. The proponents have demonstrated good monitoring for results, a strong publication record, and all data are archived and/or made available for others to use.

Objectives: A more strategic approach is required to select the most important topics to improve understanding of ocean survival. Can the proponents provide a discussion of what they see as the most important subprojects?

The desired outcome of this project (last 2 paragraphs, section F, p. 30) is that products (ecological indicators; forecasts of the effect of climate and ocean conditions on salmon survival) provided each year by the proponents will help BPA managers evaluate the success or failure of various mitigation programs. For example, if return rates of adult salmon from a particular mitigation program are lower than expected, then changes in ocean conditions "would provide a least one reason why." At the end of the next funding cycle (2007-2009), the proponents promise to provide and "in-depth analysis of the efficacy" of their monitoring and to design a smaller-scale, longer-term, cost-effective monitoring program that will provide these products for as long as managers find them useful. Could the proponents conduct this "in-depth" analysis each year? If "in-depth" analysis is postponed until the end of the next funding cycle, the proponents might

discover that they have insufficient samples sizes, variables, etc., to produce the desired outcome (run forecasting products). Key to this is whether or not they have sufficient stock-specific data on Columbia River Chinook and coho salmon ESUs.

Tasks (work elements): The comprehensive ecosystem/mechanistic approach is the major strength of this proposal. Most of the scientific methods are based on sound scientific principles. Cutting edge techniques will be used to accomplish many of the objectives. On the other hand, methods for specific tasks (work elements) are often not of sufficient detail to evaluate by the narrative alone. The experimental design is very complex with multiple variables. Throughout the proposal, there is seldom if any explanation of experimental or field sampling design, how sample sizes were determined, or whether sample sizes are sufficient for the proposed statistical tests. Critical assumptions or consideration of alternative methods for specific tasks are usually not presented or discussed. There is some coordination with other projects conducting similar research. However, are the times and areas of proposed surveys complementary or redundant with other projects? The proponents are counting on models to do the integration of results; however, plans for verifying the models are not specified. Mathematical algorithms for computer models are seldom if ever described in sufficient detail to permit evaluation by reviewers from the narrative alone. The benefits of the proposed computer simulation modeling (other than to generate new hypotheses) is questionable given the lack of sufficient time series of field data from objective 1 to validate results. Methods for bringing results to managers are not well described.

Questions and comments by the reviewers on specific tasks are as follows:

Task 1.1a: The proponents imply that individual fish can be identified to stock of origin or ESU of origin. Can the proponents provide details on genetic baselines and data analysis methods?

Task 1.1b: Ocean growth and bioenergetic tasks, as well as most other tasks in this proposal, would be improved if they were genetic stock or ESU specific. Differences in ocean growth and bioenergetics between hatchery and wild fish might be significant, e.g., hatchery fish might start their ocean life with a larger reserve of lipids than wild fish, but did the proponents consider these factors?

Task 1.1c: Can the proponents describe potential problems with otolith techniques? It is not clear if catch location vs. residence time in the Columbia River plume can be resolved by this technique. Sulfur is mentioned as an isotope to be measured. Is this in addition to carbon and nitrogen? It should be.

Task 1.2a: How useful are the avian predator data without direct feeding studies?

Task 1.2b: Pathogen studies would be more useful if they were stock or ESU specific. How were sample sizes established?

Task 1.2C: Would the results be more useful if they were stock-specific?

Task 2.1a: Chinook smolts and fry likely continue to trickle out of the estuary into the autumn as per six life history types described so far. The planned sampling scheme might miss them. Will salmon in the catch be identified to stock or ESU? Will results from purse seine sampling be comparable to trawl sampling used for other tasks? Can the proponents provide detailed descriptions of sampling gear/methods, fishing stations, statistical or analytical procedures?

Task 2.1c: Fine scale studies of salmon and prey in relation to the plume are to be completed in one year (2007); does this assume that data on interannual variation at this fine scale are not necessary? This task is contingent on availability of a large NOAA vessel, as well as analyses performed as a part of studies funded by other grants (NSF, etc.). Can the proponents provide information on the experimental design, sample size/statistical power, etc., to evaluate whether the results would be statistically valid?

Task 2.1d: Can the proponents provide information on permits, methods, analytical details, etc.?

Task 3.1: This seems to be a very complex series of models - as per comments above, have they been chosen strategically?

Task 3.1a: This physical circulation model has already been developed. Can the proponents provide information as to algorithms used, how the model was validated, or how it is integrated with other models?

Task 3.1b: Can the proponents provide details on how the existing model of plankton and nutrient dynamics will be adapted for use in the Columbia River estuary and plume and coupled with the physical circulation model? The proposed computer simulations will be used to fill data gaps, but it is not clear how these will be validated.

Task 3.1c: Can the models be developed so they are stock/ESU specific and related to timing of ocean entry? The SBMs (spatially explicit) would focus on horizontal and vertical variation in salmon prey densities with respect to oceanographic features in and near the Columbia R. plume. Temporal variation is likely to be important but the proposed seasonal scale is likely too broad to capture the critical ocean entry period. The GOA/GLOBEC bioenergetic studies (Beauchamp, UW) mentioned focus on Prince William Sound pink salmon, which have a very different ocean life history than Columbia River coho and Chinook salmon. How would close coordination with this project be beneficial?

Task 3.1d: IBM models of salmon growth and migration might be more useful if they were stock/ESU specific. No mathematical algorithms are provided for modeling movements. Are existing data of fine enough scale to develop a model that can be validated?

Task 3.1e: Can the proponents provide examples of how Ecopath with ecosystem models have proven to be useful for salmon forecasting and management? Salmon are a very minor part of the

California Current ecosystem. Could potential problems with this broad-scale snapshot approach be provided?

Task 3.2: A number of predictors (or forecasters? Note: the terms seem to be used interchangeably but in reality are very different, they should use forecasters) are rejected here because they need more degrees of freedom (df). How do the proponents know that the predictors they have chosen have enough degrees of freedom? Forecasts of return rates are dependent on individual genetic assignments, and it is not clear when these will be available. The proponents have some promising ecological indices but need more degrees of freedom. GAMs will be used to estimate return rates. Can methodological details be provided? A key question is whether or not stock/ESU-specific data series and sample sizes are sufficient.

Task 3.3: How do the proponents plan to engage managers? It is not clear how the managers can directly use the products provided. Can the proponents demonstrate direct coordination and input from BPA managers, as well as state and tribal fishery managers?

Monitoring and evaluation: Monitoring and evaluation of results is an integral part of the whole program, and data are used in scientific publications.

Can plans for long term M&E assessment of ocean survival, or conditions that affect ocean survival of Columbia River Basin salmonids be provided? Ultimately, the success or failure of this project will be measured by the utility of the products (ecological indices, run forecasts) to BPA managers. One concern that would benefit from further discussion in the proposal is whether the spatial, temporal, and biological scales/sample sizes are sufficient to provide useful products. In the face of increasing climate variation, it's not likely that remote sensing or computer modeling will ever be a useful substitute for direct sampling and monitoring of juvenile salmon in the Columbia R. plume. An annual "in-depth" evaluation of the efficacy of monitoring would be useful, rather than delaying this to the end of the next funding cycle.

Facilities, equipment, and personnel are better than adequate. Vessels are a key facility for the program and seem to be available. Staff proposed for the work have very good scientific credentials and are exceptionally well qualified. Can information on FTEs/hours of time commitment by the 16 PIs and 10 Associate Investigators, as well as information on which PIs and AIs who will carry out specific tasks be provided?

Information Transfer: Data will be made available in the scientific literature through peer reviewed papers and reports and through talks at scientific meetings and coastal forums. Can the proponents provide a strategy to provide for better transfer of information to people concerned with management of the river (e.g., USCE, hydro groups) since flow dynamics clearly affect the oceanography?

Benefit to focal and non-focal species: Increased knowledge of how oceanographic factors affect salmon survival will provide significant benefits to anadromous salmonids.

It should lead directly to measures that can be undertaken to improve salmon survival in the ocean and forecast return rates of salmon. This ongoing project has demonstrated significant benefits that are likely to persist over the long-term.

There are ample benefits to non-focal species such as non-salmonids and forage species through increased understanding of oceanographic processes. The proposed fieldwork may affect non-focal species, however, in general "reasonable" precautions seem to have been taken. Can information on the catch and bycatch of all non-focal species during trawl and purse seine fishing operations be provided?

200300900 - Canada-USA Shelf Salmon Survival Study

Sponsor: Canada Department Of Fisheries & Oceans

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$604,400 FY08: \$598,900 FY09: \$604,400

Short description: The primary objective of this research is to determine how the ocean environment and climate affect the production of Columbia River salmon by sampling juvenile salmon and oceanographic data in an area of critical importance to Columbia River salmon.

Recommendation: Fundable in part

This is an excellent proposal and evaluation of our understanding of the problems of juvenile salmon migration, marine survival and growth and their interannual linkages to the ocean environment, with a focus on spring/summer Columbia River Chinook and coho off British Columbia. The benefits of improved knowledge of when and where critical periods of juvenile salmon growth and survival occur in the ocean are significant. This project could be funded in part depending upon available funding. At a minimum, funding for ship time (21 days) and sample processing should be continued (Work Element 1, p. 32). The ISRP recommends deletion of the insulin-like growth factor I (IGF-I) analysis and the metabolic rate study from this proposal (see explanations in items 3 and 7 below).

The proposal would have been improved by a strategic plan that prioritized the various elements of the proposed field and laboratory research in the event that only partial funding is available for this project. Information on how project effectiveness is being monitored and evaluated would also have been useful. Further justification for requested BPA funding for 100% FTEs for three Canadian Department of Fisheries and Oceans (DFO) personnel, travel, and a proposed workshop(s) might be necessary before final approval for funding (see item 10 below). Further explanation and justification for the proposed workshop, and the high annual travel costs (\$10,000) for the proponents to attend conferences and workshops might be necessary. It is not clear if this proposal includes funds to support the proposed annual workshops.

Additional ISRP comments and questions are provided to the proponent, but do not require a written response to the ISRP:

1. Review of Project History (section E, p. 26-28). The proponent's reference list suggests that most of their peer-review publications have not specifically addressed Columbia River salmon

(see Appendix J, p. 65-66). Although reporting of monitoring results in processed reports and non peer-reviewed publications has improved in recent years (since 2004), the ISRP encourages the proponents to develop a specific work plan for timely publication of the results in the scientific literature. The project history would have been improved if it had included an analysis of catch data of salmon and associated species, as well as abundance estimates of Columbia River stocks in the research vessel catches.

2. Work Element I (p. 32-33). Are the cruise dates in the spring, when Columbia River stocks are leaving the estuary, coordinated with the NOAA plume cruises (#199801400, "Ocean Survival of Salmonids")? There is no mention of trawl gear selectivity. The proposal does not address the potential harmful effects of repetitive (lethal) research trawl sampling of juvenile salmon in their resident ocean feeding areas, or whether there are potential harmful effects on Ecologically Significant Units (ESUs) of salmon and steelhead listed under the US Endangered Species Act (ESA). What are the expected species, stocks or ESUs, and sample sizes of Columbia River fish expected in the catches? Why aren't steelhead included in the study? Do surface trawl catches include older immature or maturing Columbia River salmon, and will DNA and other samples also be collected from these older fish? Will preferential sampling of only those salmon with preferred body area scales bias the results of growth and other analyses?

3. Work Element II (p. 33-34). What specific stocks and/or ESUs of Columbia River chinook and coho salmon will be identified by the DNA analysis? Will DNA analysis also be performed on chum salmon?

The sample sizes in the genetic analysis (pooled over 7 years; Figs. 5 and 6, p. 9) suggest that catches of coho and Chinook salmon during the research vessel surveys are low. The ISRP is concerned that samples are not/will not be sufficient to carry out the stock-specific analyses proposed. What are the sample sizes for each part of this work element, and whether they will provide adequate statistical power? Because of the large mixture of salmon stocks in the region to be surveyed, it is not clear whether results will be directly applicable to Columbia River fish.

Will the analysis of IGF-1 be stock specific, i.e., use the same samples of fish that are identified by DNA analysis? Have the proponents considered using scale growth increments to estimate growth rates rather than published values of size and date of ocean entry?

The ISRP recommends deletion of the insulin-like growth factor I (IGF-I) analysis from this proposal. The proposed collaboration on IGF research with Brian Beckman is excellent, because IGF-I provides good data on growth that can be related to Beckman's work in the Columbia River plume. Beckman is funded by NOAA. Why is \$40,000 needed by DFO for IGF-I work, when the proposal states that Beckman will analyze the DFO samples, p. 40? The Council and BPA should consider whether DFO should fund their part of this collaboration directly?

What prey species would be used in the cesium (Cs) analyses to estimate food consumption (Work Element II, p. 34-35)? Juvenile chinook and coho salmon do not feed on copepods. The

analyses need to be specific to the prey that the fish eat. Will the prey used in the analyses be caught in zooplankton (bongo net) samples?

Will lipid analyses account for likely differences between stocks, ESUs, or hatchery vs. wild origin of fish?

4. Work Element III (p. 36-37). What specific data sets (locations, years, sample sizes) will be used in the nutrient limitation analyses?

5. Work Element IV (p. 37). Will sample sizes in the mixture be sufficient to identify 250 different populations? How will stock identification results be validated?

6. Work Element V (p. 37-38). Will IGF-1 analyses be carried out by DFO or NMFS? It is not clear how regression models developed by the proponents to predict marine survival would actually be used to manage harvest strategies. How will changes in horizontal and vertical distribution of immature salmon during winter affect analyses to determine overwinter mortality?

7. Work Element VI (p. 39). It is not clear what methods will be used for the proposed spatially-explicit bioenergetic models. From the results of their past work, the proponents hypothesize that poor feeding conditions for salmon off the west coast of Vancouver Island may act as a "bottleneck" to Columbia River salmon survival, and that further work (controlled laboratory experiments) is required to refine Chinook and coho salmon bioenergetic models. The proposal would have been improved if the proponents had provided examples from other programs of the successful use of bioenergetics models to forecast or predict survival of salmon or other marine fish species.

Salmon in the natural ocean environment are likely to self-regulate physical forcing effects (temperature, salinity, current) on metabolic rates (oxygen consumption) by changing their vertical distribution. Will maps of growth potential have both a horizontal and vertical component?

The ISRP recommends deletion of the metabolic rate laboratory study from this proposal. The proposed laboratory study on metabolic rates is peripheral to the primary objectives of this project. Perhaps this is good basic physiological research. However, could the results of metabolic research already published in the scientific literature (e.g., Brett) be used as a basis for computer modeling? If more data on metabolic rates are needed, the BPA and the Council should examine if DFO should fund this laboratory research directly. NOAA is funded by BPA to do similar bioenergetic modeling work (#199801400, "Ocean Survival of Salmonids). If both NOAA and DFO are funded by BPA to do bioenergetic modeling, then how will the two studies be coordinated?

8. Work Element VIII (p. 39-40). The proposed survival estimates from BPA-funded acoustic tracking study (#200311400, "Acoustic Tracking for Survival") would pertain to only two stocks of Columbia Basin hatchery spring chinook (Columbia River mainstem and Snake River). How

would these results be applied to identify regions of poor survival for other species, stocks, or ESUs of Columbia Basin salmon?

9. Work Element IX: The ISRP encourages the proponents to collaborate in their research in Southeast Alaska with NMFS/Alaska Fisheries Science Center scientists who are also conducting ocean work on juvenile salmon in this region.

10. Personnel are highly qualified to accomplish the proposed work elements. However, it is not clear as to why 100% of the salaries of three DFO personnel (including the PI) are requested to be funded by the BPA. It seems highly unlikely that these personnel will not have other duties and responsibilities to perform for DFO over the 3-year period of this proposed BPA-funded project. It is not clear from the proposal what work some of the listed DFO personnel (Hinch, Mackas, and Whitney) will do on this project. BPA and the Council should consider whether DFO should provide support for these DFO personnel.

11. Non-focal species. What were the annual bycatches of all non-focal species during all past years of the BPA-funded trawl surveys? What precautions are taken to minimize bycatch of non-focal species? Some discussion of potential adverse effects related to trawl bycatch would be appropriate.

12. Information transfer. More information on the "High Seas Salmon database" maintained at the Pacific Biological Station would have been useful. Are meta-data summarizing the database contents, formats, etc., and information on how to request the database available online? What are the plans for long-term storage of the "High Seas Salmon database", and how accessible is the database to non-Canadian government researchers?

200311400 - Acoustic Tracking For Survival

Sponsor: Kintama Research

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,499,816 FY08: \$1,499,816 FY09: \$1,499,816

Short description: A large-scale array is being constructed that will allow establishing ocean movements and survival of Columbia River salmon directly for the first time. This proposal describes the application of this technology to several key resource management issues.

Recommendation: Response requested

The ISRP reiterates its recent (February 2006; ISRP 2006-3, www.nwcouncil.org/library/isrp/isrp2006-3.htm) review that this is an important ongoing project that should be funded in part at a reduced level of funding and deployment of the proposed acoustic tracking arrays. The ISRP also reiterates its previous suggestion that a reasonable process for this specific project would be to discuss the final acoustic array design with the proponents and to develop an incremental budget over the next few years. Coordination of the final design with other projects in the Columbia River Basin and Plume is essential to this process, and was not adequately addressed in this proposal. The ISRP also reiterates its previous comment that the proposed acoustic tag is suitable only for large (> 14 cm) juvenile salmon and

steelhead, and technical and scientific problems with this approach are not adequately addressed in the proposal. The ISRP understands that because of timing, the sponsor did not have the benefit of the ISRP's final response (February 2006) to the FY06 proposal when submitting this FY07-09 proposal (January 10, 2006).

However, there have been significant improvements to this proposal since the previously submitted FY06 proposal and January 4, 2006 response to the ISRP review. In particular the proponents now plan to focus BPA-funded work to the north and south of the Columbia River plume. The proponents continue to incorporate the latest (VEMCO) technology. The proponents have provided a good discussion of expected statistical power based on the number of tags deployed.

The ISRP's primary concern is that results to date indicate effectiveness of detecting tagged juvenile salmon along open coast arrays is not always high. As the proponents state, this may be explained by the lack of data from acoustic receivers along the outer edge of the shelf off Cape Elizabeth and Brooks Peninsula -- due to malfunction of acoustic releases and the harsh environments at these sites. This result supports the ISRP's view that on the open coast this project is still in the development or "proof of concept" phase. The ISRP does not consider results in the sheltered and enclosed inlets of British Columbia or for other species (e.g., green sturgeon) or other populations of salmon and steelhead along the open coast to be indicative of the effectiveness of these sites in detecting tagged populations of Columbia River salmonids. In the open ocean, survival rates can be estimated only if all juvenile salmon movements are confined within the area of the continental shelf where acoustic listening arrays are located and detection efficiencies are close to 100%.

Until the proponent's results can demonstrate "proof of concept" of the effectiveness of the open coast sites to detect tagged Columbia River salmon, the ISRP continues to recommend the funding of only four arrays along the open coast (two arrays to the north of the Columbia River plume and two arrays to the south of the Columbia River plume), which will provide sufficient coverage to test the effectiveness of this system for Columbia River fish. The ISRP also recommends funding of one or two arrays in the Columbia River estuary because this will help to resolve the issue of whether mortality occurred in the lower river/estuary vs. the ocean. The ISRP does not recommend funding the proposed inriver acoustic arrays above Bonneville Dam without further justification from the proponents as to why the same data cannot be obtained at a lower cost by PIT tags alone.

The ISRP has several questions or reservations that require a response from the proponents (see list below).

1. Deployment of arrays: Which lines in Table 2 of the proposal narrative are proposed to be funded by BPA in FY 2007-2009? The proposal does not clearly explain which listening lines have been funded by BPA and installed, which lines have been funded by BPA but are not installed, which lines have been funded by other agencies and installed, and which lines have been funded or are to be funded by other agencies but are not installed. Many open coast lines

to the south of the Columbia River mouth have limited relevance to Columbia River Basin stocks. Open coast lines off Cape Elizabeth, Brooks Peninsula, and Southeast Alaska were already deployed and at least partially functioning in 2005. The 2006 proposal indicated that new lines off Tillamook (Oregon) and Willapa Bay (Washington) would be established. There were substantial changes in the FY 2007-2009 proposal for deployment of arrays than as proposed for FY 2006. With respect to outer shelf lines, changes in FY 2006 include interchanges in the line length and number of nodes on the Icy Strait and Baranof, Alaska lines (is BPA funding these lines?), deletion of the Brooks Peninsula line, and postponing deployment of the Tillamook line until FY 2007. Eight lines in the Columbia River (above Bonneville) and Snake River have been added to the FY 2006 list. Does this mean that these freshwater locations are proposed to become part of the permanent "ocean" array?

As stated above, the ISRP advises that four listening lines from Oregon to Vancouver Island (two lines to the north of the mouth of the Columbia River and two lines to the south) should provide sufficient coverage to test the effectiveness of the open ocean array for Columbia River fish. These four ocean arrays are what the ISRP recommends for funding in this proposal.

The receiver array planned for the lower Columbia River estuary (FW9) is an important addition and also should be funded. It will enable partitioning survival rates between in-river plus estuary and ocean. Will the same mooring system be used in the estuary as in the ocean? Will efforts be made to prevent loss of receivers by strong tidal current, dredging operations, and ship traffic (consult with CORIE on locations)? How can Task 5c (establish residence time in the estuary) be accomplished with only one acoustic array located in the estuary? The ISRP considers funding of one or two arrays below Bonneville Dam to be more important than up river sites. These would help to assess movement and mortality through the upper and lower estuary, where bird predation can be intense and where we have little data except from the PIT-trawl surveys. Are the proponents coordinating their work with other acoustic/PIT tag programs in the estuary?

The response from the proponents should include a prioritized table listing each BPA-funded array that is proposed for the 2007-2009 funding cycle, including information on the proposed date of deployment, location, total length, maximum depth, number of receivers, equipment costs, and annual maintenance costs for each BPA-funded listening line. This list should also include the line(s) that have already been funded by BPA with estimates of the proposed costs in FY07-FY09 for equipment replacement, maintenance, and repair.

2. Long-term perspective: The applicability of this technology to major hydrosystem issues in the Columbia River Basin is missing. How would the fully-implemented ocean array and long-term monitoring data on seasonal and interannual variations in survival rates or migration rates among years or stocks actually be used by managers of the Columbia River Basin hydrosystem?

3. Collaboration with other projects: The subject of relating ocean conditions to distribution and survival is important but was not well documented in the proposal. The proponent's success in confirming their hypothesis that the ocean distributions of the two selected stocks are different seems likely, given that other lines of evidence not discussed in the proposal (e.g., coded wire tag

recovery data (Pacific States Marine Fishery Commission, RMIS database) and genetic stock identification data from Canadian studies (T. Beacham, DFO/PBS) already support this hypothesis. Perhaps a more important issue for the Council and BPA is whether passage over dams or transport around dams causes delayed mortality of salmon in the ocean. Because the causes of ocean mortality cannot be determined from acoustic tagging, how will the proposed study resolve this issue? Scientifically, the proposed project is closely related to the DFO “Canada-USA Salmon Shelf Survival” project (#200300900) and the NOAA/NMFS “Ocean Survival of Salmonids” project (#199801400). Both of these projects are collecting data on the distribution, migrations, stock structure, and ocean conditions relevant to ocean survival of salmonids. Are the proponents relying on these other studies to provide data needed on ocean conditions (including zooplankton, competitors, predators and physical factors) that might affect survival? The proponents have apparently had little contact with researchers who are working in the estuary, and apparently little time to talk to the NOAA/NMFS “plume group”. However, they propose to evaluate estuary residency. It would be beneficial if these three groups (estuary group, plume group, Kintama) were working with each other. What specific efforts are underway by the proponents to collaborate with these and other BPA-funded estuary, plume, and ocean studies on salmon survival?

4. Estimates of survival and migration rates. Survival rates will be calculated as a combination of mortality, non-detection, and tag shedding. Can the proponents distinguish between detections of tags in live salmon, tags in dead salmon that are drifting with the current, and tags in live predators that ate tagged salmon? The problem with equating non-detection and mortality is that survivors might be swept directly offshore in the Columbia River plume or they might migrate northward or southward in waters beyond the 200-m depth contour, where there are no array lines or nodes to detect them. If the smolts (which is the life stage when mortality is highest) are not detected on the shelf, but the returning adults (which is the life stage of relatively low mortality) are detected on the shelf or in the river, then there is a possibility that the smolts reared offshore beyond the 200-m depth of the continental shelf. Therefore estimates of survival and migration rates and interpretations of results made using “on shelf” tag detections and ecological conditions for smolts may be wrong. Hence the “geographic correlation” that is the main thesis of the proposed work is diluted. How will the proponents address this issue?

How will the highly variable effects of water currents be accounted for in the proposed estimates of rates of movement in the estuary and ocean?

5. Tagging methods, fish size, hatchery stocks: Tagging methods and fish size are still a concern, as the proponents are targeting hatchery fish >14 cm because of large tag size. These hatchery fish will be larger than wild Snake River Chinook (except reservoir type Chinook), and will not be representative of the ESU. How comparable is the ocean distribution of tagged Snake River hatchery fish to wild Snake River Chinook? Is there a size difference? If so, how much will this influence their results and interpretation?

The proponent's response to the previous ISRP review did not adequately address the ISRP's concerns about the weight of the tag and its effects on swimming performance and ocean survival. The proponent's response should address this issue.

Which specific hatcheries will be involved in the tagging work? Are the hatchery stocks selected for tagging representative of the ESUs? More discussion is needed in the proposal on the assumption that the ocean distributions, survival rates, and migration rates of tagged hatchery fish are the same as those of wild fish.

Does the proposed work involve voluntary labor by hatchery employees or does the budget include funding for their work? The ISRP requests that the proponents provide more detailed methods, timelines, smolt release schedules, and evidence of coordination and cooperation with hatchery managers.

6. Permits. The proponents note that permits will be obtained to deploy the permanent array on the ocean floor. Which agency(s) issue the permits? What are the permit requirements? What are the timelines for completion of applications, agency approval, and issue of permits? The proponent's response should demonstrate coordination/cooperation with the fishing communities along the coast of Oregon and Washington, through Washington/Oregon/Alaska Sea Grant, to reduce the loss of receivers in trawling grounds on the shelf. Who are the "appropriate authorities" that the proponents are working with for in-river deployment of equipment, and what specific requirements/timelines need to be met?

7. Lost acoustic receivers. The proponents should expand their discussion of the proposed method for recovering lost acoustic receivers. Previous ISRP reviews raised concerns about detecting lost receivers and the use of expensive ROVs.

8. Information transfer. What is the specific schedule of site visits to download data from each BPA-funded array? What are the specific data/metadata formats and time schedules (including public access to data)? How will the data from other investigators who used VEMCO tags be made available to them and at what cost? How will VEMCO and Kintama facilitate other research programs that want to use the coastal receiver network?

9. Equipment. Justification for expensive equipment described in the narrative was insufficient. What are the specific costs of tags and acoustic nodes? What are the costs of the ROV and additional equipment needed for the ROV, including high-resolution optics, and manipulator, plus surface electronics? What are the projected costs for the single special-purpose vessel that may be required in the future? What are the costs for the wireless (cell, satellite) communications, and other marine electronics? Are these costs shared with other programs funding the POST array? If so, how is BPA's share determined?

10. Personnel. The PI is an outstanding scientist with an excellent international reputation and good publications. Given the PI's other ongoing projects mentioned in the narrative (e.g., Moore

Foundation project, Sloan Foundation project), additional justification is requested for the PI's allocation of 100% FTE to this BPA-funded project.

200709000 - Effects of the marine environment on the growth and survival of Columbia Basin spring Chinook and sockeye salmon stocks

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$70,319 FY08: \$58,694 FY09: \$9,124

Short description: This project will examine the role of marine growth, as measured by scale increment data, in controlling the survival of Columbia Basin spring chinook and sockeye salmon.

Recommendation: Not fundable

The research proposed is to determine the relation between marine growth and survival of Columbia Basin spring Chinook and sockeye salmon, as estimated by scale readings, and the age structure, escapement, and ocean conditions. In general, this is a proposal that might have received a strong recommendation for funding 5 to 10 years ago, but the science has progressed beyond what is proposed. Age and growth data are measurable objectives that tie in well with subbasin and provincial plans, but more detailed information should have been provided on this aspect. In a sense, this proposal, which would look at scales from almost 20 years, is a retrospective monitoring study and would provide data on changes in ages and growth of returning salmon. Decadal and interdecadal trends may be apparent, as they have in survivals of some stocks. The proposed project has the potential to provide significant benefits over the long term; however, the information provided in most sections of the narrative was insufficient for reviewers to adequately evaluate the scientific merits of the proposed research.

This proposal appears to have been hastily prepared with justification missing. The scientific literature review is incomplete, given the numerous papers available on scale analyses as a method for investigating freshwater and marine survival of Pacific salmon (going back to the early 1900s). Many statements are not supported by citations to the scientific literature, e.g., "Ocean entry is easily recognized on scales." The literature on interannual differences in marine distribution of salmon was not covered. The methods proposed would likely not provide robust answers to the proponent's questions because the samples of fish scales collected at Bonneville Dam or in ocean fisheries will include salmon from different stocks with different origins, migration patterns, and ocean entry times. For example, the proponents will only differentiate hatchery from wild fish -- on the basis of adipose clips (but not all hatchery Chinook are clipped) or interpretation of scale growth patterns, which may not be completely reliable. Coded-wire tag recovery data and genetic data have shown that different stocks of Columbia River Chinook salmon can have different migration speeds and ocean residence locations. This may confound analyses of ocean factors with growth or survival unless basin-scale factors affect growth and survival.

The justification for measuring circuli spacing is not adequate, as circuli spacing and number are related to growth of fish. Distances along a common axis from ocean entry to each of the annuli

would seem the best measure of growth for different year classes. The correlative analysis with the PDO data is weakly described and will be difficult to interpret because the distribution of salmon in the ocean has changed from year to year over the time the scales were collected. Therefore, linking water masses and salmon survival based on the scale work will be problematic. As they state, the study might be useful in forecasting spring Chinook and sockeye run sizes. It might be possible with new DNA methods to use original scale samples to identify the stock of origin of individual fish in the Bonneville mixtures, but this method is not proposed. The information gained from scale analysis of freshwater growth in various subbasins would be useful but cannot be considered separately as the proposal is written.

The proposal only briefly describes the work's relationship to other projects, and there is little evidence of integration with other programs, e.g., oceanographic studies. The PIs are highly qualified to perform this study, and both have an excellent record of publications in the field of scale pattern analysis; however, FTE/hours committed by Friedland to this project were not provided. It is not clear from the narrative who will actually measure the scales, and whether sufficient time and funding has been allocated to complete this major task. The costs of the new digitizing equipment and software are not described in the narrative. Good plans for publication of scientific information and posting of data on the StreamNet website were provided.

200301000 - Historic Habitat Opportunities and Food-Web Linkages of Juvenile Salmon in the Columbia River Estuary and Their Implications for Managing River Flows and Restoring Estuarine Habitat

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Columbia Estuary **Subbasin:** Grays

Budgets: FY07: \$769,214 FY08: \$750,067 FY09: \$756,971

Short description: This Phase II estuary project will reconstruct historic changes in rearing opportunities and food web linkages of salmon in the Columbia River estuary and evaluate their implications for managing river flows and restoring estuarine habitats.

Recommendation: Fundable (Qualified)

This research proposal has numerous elements that could significantly improve restoration techniques and management of fish habitat in the Columbia River estuary (CRE). The research uses novel techniques to address critical hypotheses. Because processes supporting estuarine food webs in the Columbia River estuary often reflect both oceanic and freshwater habitats, research in this area is complicated and the proponents have put forth excellent ideas about how to unravel some of the ecological relationships. Some of the models proposed are particularly valuable. The multidisciplinary team is very capable – this is an excellent group of experienced estuarine researchers. The project has collaborative linkages with several other Columbia River estuary projects such as the monitoring program sponsored by the US Army Corps of Engineers. The investigation of power peaking on elevations and habitat availability is very worthwhile and could tie into other projects upriver, e.g., chum spawning channel projects.

The project has made substantial progress toward understanding historical and current habitat change in the estuary, improving physical models to simulate habitat change, and developing promising new techniques for understanding food webs and feeding habits of salmon in the estuary. Past results are well communicated via peer reviewed articles and reports. Technology transfer to habitat managers has been adequate but communication with hydrosystem managers could be improved.

However, this complex proposal would be enhanced by further information and clarification to help reviewers understand the integration of the various proposed tasks as well as responses to specific questions:

1. A brief discussion of how this research relates to the problem of estimating survival of juvenile salmonids in the estuary and the increments in survival that could be accruing from restoration would be helpful. This discussion could be put in the context of the results on restoration by some of the researchers (Bottom et al 2005) in the Salmon River, Oregon estuary.
2. The proposal would be improved by a flow chart showing the relationships between the numerous objectives and tasks. As presented the proposal describes two separate themes - the CORIE and modeling and historic reconstructions of physical factors, and the biology of the present populations and how they relate to two different habitat types. How are these two themes related?
3. The work in the Grays River estuary is well conceived and is linked with freshwater sampling which greatly improves understanding estuarine fish ecology. However, the proposal would be clarified by an explanation of how results from the smaller Grays River estuary (GRE) would be scaled up to the larger Columbia River estuary. On the other hand if the purpose of studying two estuaries is strictly for comparative purposes then it would be helpful to provide comments on the value of that particular approach. Is there a precedent for using a tributary estuary as a reference for a main stem river estuary?
4. The proposal would be clarified by explanation of the ecological models, specifically

The proponents have developed a model that apparently enables “prediction” of optimum fish habitat based on temperature, salinity, and depth (Bottom et al 2005, USACE, 2001). According to the proposal, this model will be a key element in estimating where and how much habitat needs to be restored. However, the model has not been published in a peer-reviewed journal and there are no plans for verification. The proposal would be enhanced by an update of any (anonymous) peer review of this model as well as a discussion of how the model would be verified.

Reviewers would appreciate further explanation of how the FRAGSTATS model would be used for planning/prioritization of estuarine fish habitat restoration. It would be helpful if the proponents explained how the model would work with juvenile salmon. The fish exploit and move between food patches and habitats at various time and spatial scales. Are there sufficient

data on movement to calibrate the model? Does this model relate to the bioenergetic modeling (Task 5d)?

5. The proposal would be improved by a specific explanation of how otoliths and isotopes will be used to assess timing and residence, and an expansion of discussion on how isotopes will be used to distinguish organic matter sources, food webs and diet. An elaboration of findings in Roenger et al. (in press) as well as any update concerning anonymous peer review of their results would be helpful. Will these methods account for the possibility of individual fish moving back and forth between habitat types, confounding results for stable isotopes, parasites, and microchemistry?

6. The proposal would be enhanced by an explanation of which particular focal species/ESU that the project will relate to. Can the proponents reconcile use of hatchery chum in the Grays River estuary residency study with data needs for wild fish? The proponents state that this study and their related proposal on the Columbia River plume (199801400) will provide "spatial continuity for understanding out-of-basin impacts of FCRPS management on salmon populations." This is true as far as the modeling by Dr. Baptista is concerned; however, the ocean study generally targets coho and spring Chinook while the estuarine study targets ocean type Chinook, so there is little actual linkage or tracking of species passing through the estuary and into the ocean. It would be helpful if the proponents would explain connections between ocean and estuary components further.

7. Suggestions for increased information transfer from the project to hydrosystem staff and fishery biologists up river in the Columbia River Basin would be useful. Can linkages be improved between this study and others underway or proposed further upriver (e.g., those on reservoir type Chinook (see ISAB 2006-1; Crims Island restoration evaluation)(200734600)?

Caution is advised to avoid mortalities of non-focal and by-catch species in the trap netting and beach seining.

200702600 - Historic Changes in Organic Nutrient Sources and Productivity Proxies in the Columbia River Estuary in Relation to Juvenile Salmon Habitat Restoration Priorities

Sponsor: Pacific Northwest National Laboratory

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$100,177 FY08: \$95,896 FY09: \$103,205

Short description: The project sponsors propose to establish the historical trends of organic nutrient sources and productivity proxies in existing sediment cores from the Columbia River Estuary to prioritize habitat restoration opportunities for salmon survival.

Recommendation: Not fundable

The ISRP reviewed a somewhat similar proposal previously in the AFEP review in 2004. It was not funded. The emphasis of that proposal was to use cores to investigate historical trends in

contaminants. The present proposal deals with historical trends in levels of organic material, again using cores. Carbon and nitrogen are proposed as surrogates for productivity supporting fish and wildlife. Stable isotopes will be used to separate periods of marine and freshwater sources of productivity as well as human activities (eg dam construction). While this could be an innovative approach there are number of problems with the proposal.

The way the proposal is written seriously detracts from its value and makes a fair evaluation of its merits very difficult. Better explanations of the work are required. The proposal is fraught with specialized jargon.

The investigators need to provide more detail about how this work will relate directly to estuary restoration. The key question would be whether measurements of sediment attributes provide the appropriate indicators of habitat or aquatic community health. How would the link be made between variables of interest to paleoecologists and current indicators of ecosystem health? The proposal needs much more detail as to how it would apply the core sample data to answer current restoration questions, and how it would tie in with other projects that also are looking at historical conditions and their relation to the present (e.g., 200301000). Historically there was a mosaic of habitats in the estuary (including marshes, mudflats, riparian, and others) at different elevations. It is difficult to see how the core information from a limited number of sites would help plan the restoration of these complexes.

Additionally, to accurately document historical changes requires that the cores be taken from sites that are neither depositional nor erosional. How will the investigators ensure that sample sites meet this criterion?

Collaborative work is mainly internal, i.e., with USGS and other agencies interested in the sediment record. It would be more effective if other key agencies directly involved in restoration planning and fish and wildlife research and management were involved in the project instead of merely being "informed" about the work.

199306000 - Select Area Fisheries Enhancement Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$1,804,868 FY08: \$1,779,000 FY09: \$1,827,028

Short description: This project produces known stock anadromous salmonids for commercial and recreational harvest in Select Area and other regional fisheries.

Recommendation: Response requested

This is essentially an ocean ranching plan, where hatchery fish are stocked directly into coastal areas of the Columbia estuary and harvested there on return. The technique is a unique and relevant mitigation for lost Columbia fisheries due to dams. Catch rates and benefit:cost ratios appear among the highest of artificial production projects in the basin. The proposal reviewed provided evidence of success, was well prepared, and indicated that the sponsors were receptive to previous ISRP reviews and suggestions, and responded quite well to these. Furthermore, there

were positive examples of adaptive management, where some releases were discontinued based on straying rates evident from coded-wire tag (CWT) information.

While there was evidence of monitoring and adaptive management, improved monitoring and evaluation is suggested. The underlying assumption of this project is that one can continually release hatchery smolts directly into the ocean without limitation, or at least without density-dependent impact on wild stocks. This remains to be tested. No plan is presented here, and it would be difficult to develop a testable design. Nevertheless, the question on ocean limitations remains, and an attempt should be made to develop the experiment(s).

M&E might be further improved with better catch records and less reliance on coded-wire tags. Other, perhaps more reliable forms of catch reporting should be explored. Research on straying or habitat use could be possible by collaboration with other tagging studies. Fishing effort is designed to focus on areas of hatchery fish release. Nonetheless, a review of possible mixed-stock fisheries impacts may also be required, where some of the capture fisheries intercept other stocks.

A larger research issue requires investigation, in relation to ecosystem impact (perhaps involving EcoPath with EcoSim), locally and high seas. We suggest the sponsors partner with researchers to explore the impact to the coastal ecosystem and critical areas of the continental shelf where ecosystem changes may result from massive releases of hatchery fish.

Non-focal species impacts from this work may be substantial in certain areas. Impact assessment should be thoroughly conducted.

200301100 - Columbia R/Estuary Habitat

Sponsor: Lower Columbia River Estuary Partnership (LCREP)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$1,532,265 FY08: \$2,077,056 FY09: \$2,028,879

Short description: The Lower Columbia River Estuary Partnership seeks to continue its on-the-ground restoration for salmonid species through a continuation of an ecosystem-based effort to identify/implement restoration actions that will assist in species recovery.

Recommendation: Response requested

This proposal identifies a number of important impediments to effective restoration in the Columbia River estuary (CRE) and directly addresses some of them. The sponsors propose to 1. continue restoration efforts in the estuary, 2. develop an adaptive management program, and 3. select sites as part of a monitoring program. The scientific background and need for the proposed work are clearly explained. The project involves numerous activities, some of which are strictly administrative. For example LCREP is a "pass-through" organization that presents awards to proposing agencies, but they should be able to document results and effectiveness of these efforts.

The most important aspect of the project is therefore the adaptive management goal under Objective 2. This objective is currently justified and "fundable." However, the ISRP needs a response on Objectives 1 and 3 before making a final recommendation on the proposal. Regarding Objective 2, there is clearly a need to evaluate the major restoration projects that have already been completed. Tools to evaluate the restoration projects are key as well as consideration of long term maintenance needs. The workshop they propose should also be useful in coordination and evaluation of recent work but the proponents should also consider direct interviews with stakeholders and people who have actually done the restoration. The project has collaborated with and provides funding in support of a number of BPA-funded estuary restoration projects.

The proposal would be improved by clarification of a number of issues under Objectives 1 and 3.

Objective 1 "Continue the success of the habitat restoration program for the lower Columbia River and estuary (Bonneville Dam to mouth of River)

The objectives of this part of the proposal are all excellent: to increase shallow water side-channels, to protect spawning and rearing habitats, and to restore connectivity. All of these actions would benefit fish and wildlife in the lower Columbia River estuary. However few details are given on the how these issues will be addressed other than in general terms. A number of restoration projects have been funded since the inception of the project but their success is not well documented in the proposal. Where have the restoration activities been performed? What groups or agencies were funded to do the work? The sponsors need to indicate whether monitoring is occurring for the projects they funded and provide empirical evidence of whether the projects are progressing toward their objectives (e.g., juvenile salmon are using areas where dikes have been removed, removal of culverts and tidegates has actually improved habitat opportunity

A. Most of the tasks listed under this objective seem to be plans to develop plans (ie for soliciting specific restoration projects) although a number of major restoration projects are poised to begin or past work supplemented. A perspective on how the restoration projects are going to be maintained would be helpful. Some restoration projects in the lower Columbia have been affected by invasive species such as reed canary grass. Has the type of problem been anticipated?

B. Further details on the work of the Science Team and the Science Work group on this objective would be useful. Who are the personnel in the two groups and what are their qualifications?

C. How will the Restoration Prioritization Strategy be used in project selection, specifically in relation to Tasks 1a and b? The sponsors need to provide a better description of the Conceptual Model. For the effectiveness monitoring approach, what kinds of data and methodology will be used to make the past-present comparisons? What is the current M&E requirement for funded programs and have reports been written on results (none are cited)? Will the proposed project monitoring approach substitute for on-the-ground M&E? How will on-the-ground M&E be

integrated with the proposed present-past comparison approach? This information on experiment design or prioritization of habitats for restoration or protection would enhance the proposal.

D. Reviewers would appreciate further explanation of how the FRAGSTATS model would be used for planning/prioritization of estuarine fish habitat restoration. It would be helpful if the proponents explained how the model would work with juvenile salmon. The fish exploit and move between food patches and habitats at various time and spatial scales. Are there sufficient data on movement to calibrate the model?

Objective 3 “Identify and Characterize Reference Sites for Action Effectiveness Research and Status/Trends Monitoring in the Lower Columbia River”

A. Further information would be helpful on the rationale for using vegetation communities and their ecological requirements as the primary metrics to assessment “success” of habitat restoration for F&W in the estuary and lower river. Can these metrics been linked with focal species?

B. Further specifics are required on how the proponents will identify the “32 sites, 4 in each of the 8 reaches of the estuary characterized in recent university research” proposed as reference sites. If this is a reference to Project 200300700, elaboration on the degree of collaboration between the projects would be appreciated. If the EMAP methodology proposed in 200300700 does not withstand peer review do the proponents have an alternate method? Are the proponents convinced the reference sites have not been disrupted in the past?

200738100 - Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program

Sponsor: Lower Columbia Fish Enhancement Group

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: The Lower Columbia Fish Enhancement Group seeks program-level support to expand its community-based salmon and steelhead habitat restoration program and activities directly linked to implementation of Sub-Basin and Recovery Plan Priorities.

Recommendation: Not fundable

The sponsors have not defined the purpose of their organization very well. Their stated mission is to restore salmon through habitat restoration, education and outreach, and developing partnership. In the proposal, they emphasize only the habitat restoration part of the mission. The proposal has no objectives related to education and outreach and partnership development, nor do they discuss accomplishments in these areas.

The group apparently acts much like Oregon's Watershed Enhancement Board in providing funds to watershed councils. But watershed councils or groups are not mentioned in the proposal. The proponents do not perform the research or restoration actions themselves. The sponsors indicate that their program is directly tied to a number of Lower Columbia Subbasin Plans by

implementing habitat projects called for in the Plans. Subbasin plans often indicate only the areas of a watershed that require restoration efforts or the general kinds of restoration activities that are needed for specific areas. The plans often do not identify specific habitat projects such as culverts that need to be replaced, roads that need to be decommissioned or maintained, and specific stream reaches that require riparian restoration. Ten of the subbasins in Washington are listed. There is no rationale for whether these are integrated components of a set of studies and no time sequencing is explained and documented. The sponsors needed to provide more detail about how they go about the project implementation process going from the subbasin plans to actual on-the-ground activities.

The objective listed by the sponsors are all laudable and would likely have benefits to fish and wildlife, but no details or metrics are given on how to measure the success of any actions, and no references are provided. For example, "reduce water temperature" is an objective, but no documentation is given where the proposed actions have resulted in significant reductions in temperature. These objectives and methods do not address a primary intent of the proposal, which is to request funds to hire three new managers for their group. There are no objectives/explanations of the specific duties and responsibilities of these individuals.

The need for this organization is unclear. Why can't implementation of habitat projects and coordination be done by management agencies and tribes, as is the case throughout most of the Columbia Basin? What role do agencies and the public play in implementation of the sponsor's projects? How do agency personnel work with the sponsors in planning and implementation? What process do the sponsors use when developing a project from the subbasin plan? Reviewers are directed to websites and a list of other plans and reports for most of the technical and scientific background information. The sponsors did not discuss their accomplishments and activities related to outreach and partnership development.

There are no specific projects or experimental designs proposed. Evaluation of whether or not the proposed methods are scientifically sound is difficult or impossible without detailed site-specific information. Little is given on the science supporting the actions proposed or methods to determine effectiveness of actions. Many of the proposed work elements involve an "engineering approach" with addition of rock structures, gravel, large wood; bank stabilization; increasing off channel habitat; addition of carcasses; replacement of culverts. Where have such actions proven more effective in enhancing stream productivity than passive restoration? These actions are predicated on the assumption that they are critical factors in the life cycle of salmonids, and that either upstream or downstream problems are less important. A watershed or landscape perspective and analysis would be more convincing method to ascertain critical habitats and problems.

The sponsors propose to use local cost-share funds to support all facilities and equipment for staff hired with BPA program funds, but there are no specific descriptions of facilities and equipment. Based on past work it would seem that the sponsor's are experienced in developing engineering solutions to habitat problems. The names of key personnel were listed, but no

resumes were provided in the narrative. The narrative does not include explicit plans for information transfer. A monitoring and evaluation program for their projects is not described.

It difficult to determine whether this proposal will be beneficial to focal species because its intent is to seek funding for managerial positions. The implementation of habitat restoration projects by the sponsors might have benefits to the focal species (lower Columbia River Chinook, coho and steelhead) that would persist; however, this is not specifically addressed in the proposal narrative. Habitat restoration projects for salmon might have either adverse or beneficial effects for non-focal species, but these are not discussed.

If the sponsor's decide to resubmit their proposal for the next round of funding, they should document their long-term strategic approach, methods for prioritizing projects within and among watersheds, the science background for proposed actions, and the effectiveness of previously supported work.

200300600 - Effectiveness Monitoring of Estuary Restoration in the Grays River and Chinook River Watersheds

Sponsor: Columbia River Estuary Study Taskforce (CREST)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$163,946 FY08: \$163,946 FY09: \$163,946

Short description: This project will evaluate the effectiveness of a suite of estuary restoration projects in the Grays River and Chinook River watersheds.

Recommendation: Response requested

Although there is solid justification for this work, the proposal requires improvement in several areas. In particular, the sponsors need to provide a better explanation of past accomplishments, organized by objective in the original proposal, and a far better explanation of objectives and methods. The proponents need to provide further information on study sample sites relative to the restoration projects shown in Table 1 and how the sample sites were chosen, status of the tide gate restoration initiative (slated for removal in 2006), and evidence that annual reports are being made available.

The technical background is adequate and the rationale for the project is clearly defined. The project seeks to continue monitoring the effectiveness of restoration projects in the Chinook River and to begin monitoring in the Grays River.

Rationale and significance to subbasin plans and regional programs: The proposal clearly addresses elements of the lower Columbia estuary subbasins plans and the Plan for Research, Monitoring, and Evaluation of Salmon in the Columbia River Estuary. It also is related to a number of RPA's in the 2000 Biological Opinion. The Grays River and Chinook River estuary complex is important in that it is potentially available to all juvenile salmonids rearing in or moving through the lower Columbia River estuary.

Relationships to other projects: The sponsors will continue to collaborate with University of Washington researchers working in the estuary complex at the Grays River mouth (project #20030100). The two projects seem to be well integrated, and the current proposal almost provides a service function to #20030100. The project appears to have excellent collaborative relationships with CREST and a number of federal and state agencies and private entities. The collaboration includes data sharing, consistency of methods, and joint participation in projects.

Project history: A good set of baseline data has been obtained on juvenile salmon ecology but the information has not been published and is still considered preliminary by the proponents. The sponsors need to summarize results by objective in the original proposal to enable evaluation of how well each objective was accomplished. The sponsors also need to explain the results presented in the Tables and Figures. What is the data telling us? What conclusions can be drawn at this point? Do the tables and figures provide all data collected to date? What has been learned about pre-restoration baseline conditions?

One problem with the original design of the work is that a specific tide gate has not been modified to increase flooding in the Chinook River estuary. The proposal states one out of three gates will be engineered in April 2006. The proposal does not state if this will provide sufficient water exchange to satisfy the original goal.

Objectives: The sponsors need to provide a much better explanation of objectives. Obtaining baseline data on juvenile salmon ecology (residency, feeding, apparent growth) is a measurable objective. Benefits to salmon from restoration activities are more difficult to quantify and were not mentioned in the proposal.

Will any of the work from the original proposal be continued such as the monitoring work in the Chinook? If so, what are the objectives and methods? What is the rationale for selecting the Grays River sites? What were the pre-restoration baseline conditions? When were restoration actions taken and what were they? Have any data been obtained so far at these sites? A better explanation of the reference sites and why they were chosen is needed.

Tasks (work elements) and methods: Most of the methods appear adequate for accomplishing the objectives. Several questions, however, need to be addressed. More detail is required on sampling locations and rationale for their choice. How frequently will sampling occur? How will the sponsor decide which type of tagging to employ? The trapping methods are adequate.

The sponsors state that the scale samples will be analyzed, if possible. The sponsors need to assure that the scales will be analyzed. The scales will provide critical information on age and life history and will be important in assessing life history diversity.

How will the data be analyzed? After several years of data collection, the sponsor should be able to adequately address the question of data analysis.

The request to continue sampling until 2013 when an apparent dynamic equilibrium is established is not supported by any scientific rationale -only a quote from "some researchers".

The proponents should explain what they mean by a "dynamic equilibrium" and how it will be evidenced.

Monitoring and evaluation: The purpose of the proposal is effectiveness monitoring. However, there are so many uncertainties related to project objectives and past accomplishments that it is difficult to determine whether the project will be a viable M&E.

The proponents state that an additional seven years of monitoring is required. A rationale for this time frame is required.

Facilities, equipment, and personnel: Facilities and equipment are adequate. The supervisory personnel do not have extensive experience in reporting.

Information transfer: To date, the information from the project has not been widely disseminated, presumably because the proponents view the data as preliminary. Some data sharing has occurred with University of Washington researchers. The proposal states that annual reports are prepared but they are not cited. A database is being maintained by CREST.

Benefits to focal species: An evaluation of the restoration projects in the lower Columbia River estuary will benefit focal species especially fall chinook and chum. The benefits will be sustained in the long term, but periodic monitoring will be required for the engineered restoration projects (e.g., will the tide gate continue to allow access by fish?)

Benefits to non-focal species: Habitat restoration should benefit non-focal species. It is not clear if endangered biota besides salmon will be affected by the flooding of restored areas. Trapping in the river could affect non-focal fish species and mammals if precautions are not taken.

200300700 - Lower Columbia River and Estuary Ecosystem Monitoring

Sponsor: Lower Columbia River Estuary Partnership (LCREP)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$1,557,223 FY08: \$2,277,718 FY09: \$1,734,127

Short description: This project creates a consistent approach to protocol development and status and trends monitoring of estuarine habitats. The goal is to develop an ecosystem based monitoring program focused on increasing the survival of juvenile salmonids.

Recommendation: Response requested

The proposal is well-developed and the proposed work fills an important need for estuary restoration. The sponsors have addressed the major concerns raised by the ISRP in its last review of this project. The sponsors, however, need to address several other concerns. The overall design of the project is dependent on a positive relationship between habitat quality/habitat quantity and survival of juvenile salmonids in the estuary. There is, however, no work proposed that will define that relationship. The measurements of fish health/condition do not address survival at the population level. The proposal would be improved by the presentation of options, or at least discussion ideas, on how to move forward in addressing habitat-survival relationships.

Such a discussion would also help put estimates of estuarine survival into the context of freshwater and ocean survival - researchers in those habitats often do work toward survival estimates. There are a number of other methodological questions that need to be addressed, most notably those related to determination of growth.

Technical and scientific background: The proposal directly addresses the critical question of estuarine ecosystem health and seeks to continue the monitoring program begun in 2003 with BPA funding. There is clearly an identified need for a thorough monitoring program in the Lower Columbia River estuary. The work is well justified and could be very important for understanding salmon growth and survival in the estuary.

The technical background, for the most part, is thoroughly explained. The sponsors provide good background on past studies. Of particular importance is a proposed assessment of toxic substance and their uptake by salmon, an area of work that has received little attention in the estuary. Detailed functional characteristics of estuarine habitat will be determined.

The habitat characterization using catenas is an innovative approach to classification but it is not put in the context of existing systems such as USFWS's Cowardin system or vegetation-based systems that may be used by USFS.

To assess the effects of contaminants in food webs on juvenile salmon integrated laboratory studies should be done in simulated lower Columbia River estuary conditions, e.g., turbidity. Extrapolation from lab studies done under other conditions is not appropriate. This project is a complex and expensive project requiring significant coordination, and there may be overlaps with other studies and agencies. For example, are there similar contaminant projects underway by EPA?

One concern is that the sponsors make general statements about the importance of primary and secondary productivity in assessing estuarine ecosystem health. The sponsors need to explain how, specifically, this information will be used to assess health (what is a "healthy" food web and what isn't) and its relevance to restoration decisions.

Rationale and significance to subbasin plans and regional programs: The work relates closely with the Lower Columbia Subbasin plan and addresses many of the critical issues raised in the Plan. The proposal also addresses actions in the 2000 Biological Opinion, the RME plan, and other plans related to estuarine health.

Relationships to other projects: The sponsors have thoroughly discussed the project's relationship to subbasin plans and other projects. The proposed work complements other estuarine projects and is closely coordinated with several of them. The linkages with the oceanographers in project #199801400 and assistance with modeling is evidence of this coordination.

Project history: Past accomplishments of the project should be organized according to the objectives of the original proposal to permit assessment of whether the project has met its objectives. Currently these results are spread throughout the proposal rather than consolidated in this section. The discussion should be clear about how these accomplishments logically lead to the currently proposed work. The sponsors should state what actually was accomplished not just what kinds of data were collected and what kind of sampling was done. What are the results as they currently stand? What work from the original proposal has yet to be completed? The explanation of the relationship of the current work (and objectives) to the proposed work needs to be expanded.

The sponsors need to clearly explain the current status of the monitoring program. Is it in place? Have sites been selected? Is data being collected and analyzed? If so, how? How will the current work improve the program? Results of the past physical monitoring have been reported mostly in the gray literature but the contaminant work is in scientific journals. Past work has clearly advanced our knowledge of Columbia River estuary.

Objectives: Most objectives are well defined with carefully thought out time horizons and goals. There are some exceptions, for example objectives for sturgeon and lamprey are mentioned in the proposal but not in the narrative. In the abstract, the sponsors justify the continuation of the monitoring (actually mainly research observations) "aimed at increasing the survival of juvenile salmonids by assessing habitats." However, the proposal lacks information on how survival will be determined.

Tasks (work elements) and methods: This is a complex proposal with many specialized work elements. Methods are documented in sufficient detail. Most are appropriate, but they do not address survival at the population (or even "subpopulation") level.

A number of questions need to be addressed. Are three samples sufficient to monitor species (phytoplankton, etc) with high turnovers? Why will sampling occur only during high productivity periods? Chlorophyll a, ADFM, and biomass are not measures of productivity (total tissue elaboration/time by the population) but rather are measures of standing stock. What are the risk models for salmon? How will stomach volume be estimated? Remote sensing (Task 1 d) is a method for assessing primary productivity that may be oversold.

The sponsors need to explain how primary and secondary production data will be related to capacity, opportunity, and function (e.g., growth, survival). Methods for assessment of growth need to be better explained and justified. It seems that growth will be assessed by differences in sizes of fish caught near Bonneville and those caught further downriver. One assumption behind this method is that all fish near Bonneville will be the same size. This is highly unlikely. Hatchery and wild stocks, fish from different tributaries, and fish that have spent different amounts of time growing upriver likely will contribute to size variation near Bonneville which will confound growth estimates. In addition, fish caught in the estuary may have originated below Bonneville. Growth estimates from otoliths, although having their own problems, would be preferable.

Monitoring and evaluation: The proposal is totally focused on developing a monitoring and evaluation program for the Columbia River estuary. Such a program is critically needed and responds to subbasin plans and the 2000 Biological Opinion.

Facilities, equipment, and personnel: Facilities are definitely adequate. Personnel could be augmented by a statistician to help with the EMAP work. Most of the team are biologists or physical scientists.

Information transfer: Raw data and meta-data will be archived at research agencies and universities and as well made available on web sites. There are excellent plans in place for technology transfer via peer-reviewed papers. Several workshops will be convened to disseminate information and involve stakeholders.

Benefits to focal species and non-focal species: Development of methods for status and trends monitoring of physical habitat, productivity, and contaminants will benefit anadromous salmonids and indicators species such as sturgeon. There is no evidence that the work will harm endemic biota. In fact, the project likely will benefit non-focal species by leading to improved habitat. There could be demonstrated benefits to non-salmonid fish as well as wildlife.

200716600 - Lower Columbia River Coastal Cutthroat Trout Population Response to Habitat Restoration

Sponsor: Columbia River Fisheries Program Office

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$413,500 FY08: \$383,000 FY09: \$408,500

Short description: Determine if habitat restoration efforts in the lower Columbia River and estuary are achieving the recovery goals for coastal cutthroat trout, an indicator species, of reversing declining abundance trends and maintaining life history diversity.

Recommendation: Response requested

Data on cutthroat trout in the Columbia River estuary and tributaries off the lower Columbia River are required to complement the work being done on the more numerous salmonid species, and this would help round out an ecosystem approach. There is scope for preliminary studies on tagging and migration on cutthroat but because the species is not abundant it may not be suitable as an indicator. The proposed work is related to the Fish and Wildlife Program and numerous parts of several lower Columbia subbasin plans. The proponents describe close collaboration with seven other agencies and organizations. There may be opportunities to focus the study in particular areas where restoration activities have targeted on habitat that is of particular value to this species.

The proposed work should provide much needed information on the Columbia River estuary and tributary cutthroat trout populations but there are a number of methodological issues that need to be addressed:

1. More details on the proposed tagging work are required to understand the proposal:
 - a. Given the apparent low or declining abundance of cutthroat trout, will the proposed sample size (1000 fish) for pit tagging in each tributary be achievable? Will tag retention/mortality related to pit tagging be assessed?
 - b. What are the assumptions of the mark-recapture methodology (“Mark”) and will they be satisfied by the proposed approach? The proposal would be improved by an explanation of the sample size chosen for the mark-recapture work. Can the proponents defend the number of degrees of freedom? How will mark-recapture abundance be estimated given the possibility of multiple life histories, straying and possibly spawning in different stream in different years? What is the actual “population” whose abundance will be estimated? Is it all fish within a given stream at a given time? If so, how will movement into and out of the stream be accounted for in the estimate?
 - c. What animal care protocols will be used to ensure the health of tagged fish? Electrofishing and trapping may harm focal (e.g., coho) or non-focal species in the streams – what precautions will be taken to avoid this?
2. What were the selection criteria used to select the four sites (lower estuary, middle estuary, upper estuary, mainstem) chosen? How do they relate to restoration sites?
3. How will it be known that fish initially captured and tagged in a stream actually spawned in that stream? How will capture efficiencies and survival rates, rates of straying, etc. be calculated (e.g., give equations or cite and briefly summarize published methods)?
4. The life history component of the study needs further development and justification. The quest for an index of cutthroat life history strategy using stable isotope analysis (SIA) is poorly described and the proposal would be improved if the proponents expanded on this aspect. Specifically, the proposal would be improved if the proponents could expand on why they chose stable isotopes of carbon and nitrogen to determine anadromy. Other workers have used strontium or other elements associated with seawater, and this could be a more effective method. There is only reference to the use of stable isotope analysis to separate anadromous and non-anadromous populations of trout and char but there are several papers and approaches on this problem in the literature.

Have the proponents considered the use of tissue samples for genetic analysis to see if the populations and possibly even life history types are distinguishable? Genetic work would couple nicely with the work on straying.
5. The sponsors need to justify the reliability of using scales for aging cutthroat. What are the detailed scale and tissue sampling methods/aging methods to be used?

6. The proposal would be improved if more details on the proposed "robust sampling design" and alternative sampling approaches (multiple pass depletion, single pass mark/recapture, multiple pass mark/recapture and mark/resight) for population estimates were provided. How will these approaches be evaluated for effectiveness and efficiency?

7. The proposal would be improved if more detailed information were provided on information transfer, publication of results, plans for data and meta-data storage were described.

200734600 - Crims Island Habitat Restoration

Sponsor: US Geological Survey (USGS) - Cook

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$209,080 FY08: \$209,080 FY09: \$209,080

Short description: The goal of this project is to describe the response of juvenile salmonids and biological productivity to tidal marsh restoration at Crims Island in the Columbia River Estuary.

Recommendation: Fundable (Qualified)

The Crims Island restoration project in the lower Columbia River (LCR) is a major program, and monitoring and evaluation is clearly justified. In addition, little evaluation on habitat action effectiveness for restored tidal marshes in the Columbia is available and so the results of the evaluation will add valuable data to the Regional information base. A possible reference area is nearby on the same island and monitoring data were collected at the site prior to the onset of restoration actions. Both the reference and pre-restoration information can be compared to post-restoration information to assess effectiveness. The proposed work is consistent with Fish and Wildlife Program's subbasin plans and elements of the Biological Opinion. The work will directly address monitoring requirements called for in the BiOp. The objectives relating to use of Crims Island by migratory salmonids, feeding, benthic community status and elevation analyses have clearly defined and measurable end points, which match objectives in the subbasin plans.

However, the ISRP qualifies this "fundable" recommendation because further details on methods and design of the work would enhance the proposal:

1. The proposal would benefit by more details on how the Crims Island project is coordinated with the other restoration and evaluation projects in the lower Columbia River or Columbia River estuary (CRE) such as those being conducted by the Lower Columbia River Estuary Partnership (200300700) or by the USFS at the Sandy River delta (199902500). Has there been direct discussion between the various researchers to try and standard methods (e.g., fish marking techniques, vegetation analyses)?

2. More details on the suitability of Gull Island as a reference site and the rationale for sampling the main stem river would be helpful. Does the name "Gull Island" indicate there are large numbers of potential predators on the island relative to the restored site? Gull Island does not appear to have natural tidal channels which would provide the best "control" as an undisturbed habitat site. Is that why fyke net sampling is not proposed there?

3. The proposal would be clarified by an expansion of the concept that increasing detrital flow from Crims Island will lead to an increase in salmon survival. Is there empirical evidence for this linkage at the LCR or elsewhere? Will the results give data on incremental increase in detrital flow from Crims Island relative to other projects in the LCR or CRE?

4. Expansion or further detail on the following methods would be useful:

a. Detrital sampling - Is it possible that benthic algal production from the tidal channels or imported from the main stem river is also important to support invertebrates? It would be helpful if the proponents explained why algae were not considered.

b. Sediment organics – The proposal would be enhanced if the researchers explained what they mean by “productive capacity” (PC). It is not clear how organic carbon in sediments will provide an assessment of productive capacity. Has this methodology been used elsewhere?

c. Invertebrate sampling - A power analysis to clarify within site variation for core (n=10) and drift (n=3) sampling would be useful. The proponents should clarify how they are going to measure invertebrate productivity since the methods described only measure biomass. The methods used to sample benthic invertebrates (cores) will only partially provide data on fish food availability - the cores will work for Corophium but will not sample drift and surface organisms. Chinook feed from a variety of sites in the water column. The proposal would be improved by an explanation of why more specific methods such as emergent traps for chironomids were not considered.

d. Fish abundance, growth, and residency – The proposal would be improved by better justification of attempts to relate habitat variables at the capture sites to fish abundance. Fish likely will be present at a capture sites for reasons other than just the characteristics at that site. The fish don't have many choices as to where they enter the area and what routes they take once they have entered. Fish may be captured at a site simply because it is the only route of movement.

The sponsors indicate that their measurements would only represent “growth in a relative sense.” It would be helpful if the proponents clarified this statement. The methods proposed to measure “growth” are only appropriate for measuring sizes of incoming and outgoing fish. Incoming fish may not necessarily be fish that egressed on the last tide and their residence time and growth attributable to marsh residence would not be known. Also, as the sponsors indicate, the sizes of incoming fish may change over the sampling season. The only reliable way to measure growth would be to mark fish. Even then, if fish move out of the area with the tide and spend time rearing in the mainstem, the increment of growth attributable to tidal marsh residence would be extremely difficult to determine. Will the fish used in the tagging study be those captured in the restored and reference areas? Have the proponents considered the use of scales to measure growth increments, which are correlated with seasonal growth rates? For example, see Fisher, Joseph P., and William G. Pearcy, 2005 Seasonal changes in growth of coho salmon

(*Oncorhynchus kisutch*) off Oregon and Washington and concurrent changes in the spacing of scale circuli. Fisheries Bulletin 103:34-51.

5. The proposal would be improved by further explanation of other personnel/experts involved in the laboratory analyses of water and soil samples and identification of invertebrates, and detritus for this project.

6. The proposal would be enhanced by a discussion of animal care protocols and provisions for live release by catch in seines and fyke nets. The proposal would be improved if a subsample of marked and unmarked fish were held throughout the period of the study (through July) To assess delayed mortality effects due to handling and marking with Calcein have the proponents considered holding a subsample of marked and unmarked fish (to July)?

7. Embayments off mainstem rivers sometimes silt in after a few years. Could this happen with the tidal channels at Crims Island? If silting occurs will this study have to be repeated in the future to evaluate long term benefits to fish?

8. The proposal would be improved by better justification for studying killifish. The existence of diet overlap of salmon and killifish, while it is useful information, does not necessarily indicate that competition is occurring. To demonstrate competition, the sponsors would need to show that killifish actually reduce the density of salmon food organisms and that this reduction results in decreased growth.

200734300 - Expand Current Juvenile Salmonid Monitoring in the Columbia Estuary Province

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Estuary **Subbasin:** Elochoman

Budgets: FY07: \$292,300 FY08: \$156,604 FY09: \$162,463

Short description: This proposal addresses the in-depth juvenile monitoring gaps identified from the LCFRB (2004) plan at the Level 3 or least intensive level, and builds on the existing juvenile salmonid monitoring program in Washington's Lower Columbia River domain.

Recommendation: Not fundable

This proposal is similar to proposal #200727400 submitted by the same sponsor. The proposal is limited in scope and has many of the same deficiencies as #200727400. The project will be of limited value for the following major reasons. The method used to estimate abundance does not appear to be sufficiently accurate to assess population status and trends. There is apparently no companion monitoring of habitat, which could be useful in explaining population changes. Adult returns apparently will not be assessed and so critical freshwater production parameters such as smolt to spawner cannot be determined. The proposal would be improved if the work was explicitly linked to restoration evaluations. Further explanations about the limitations of the periodic/rotating design for monitoring also would be helpful. Additionally, the methods are dispersed throughout the proposal and therefore difficult to evaluate.

Technical and scientific background: The problem is sufficiently identified and satisfies the need for monitoring found in Washington's Lower Columbia subbasin plan. This proposal addresses the juvenile monitoring gaps identified from the Lower Columbia Fish Recovery Board (2004) plan at the Level 3, or least intensive level, and builds on the existing juvenile salmonid monitoring program in Washington's Lower Columbia River domain.

The sponsors need to discuss what is known about the biological and physical characteristics of the two rivers that will be monitored. Are they representative of other rivers so that results can be reasonably extrapolated? Material in the Technical Background section would be more appropriate in the Methods section.

Are habitat and other physical characteristics being monitored so that the sponsors can determine whether changes in abundance can be related to habitat changes? The proposal would be improved if the rationale for juvenile population assessment was explained more fully. Given the variation in ocean survival, do fishery managers actually use juvenile abundance in forecasting SARs?

Rationale and significance to subbasin plans and regional programs: The proposal satisfies needs identified in the Lower Columbia Fish Recovery Board (2004) recovery plan. Is this project related to any Council Subbasin Plans? Juvenile abundance data would be more meaningful if they were used in close collaboration with other projects especially habitat restoration and freshwater productivity studies. How do the redd and population expansions relate to the work on the (presumably) already established network of index streams? Most of the material in this section is not relevant in addressing the relationship to subbasin plans and more properly belongs in the Methods section.

Relationships to other projects: The proposed work is part of a larger monitoring effort of lower Columbia River tributaries. The rivers were identified as primary populations by the Technical Recovery Team. Although the project is put in the context of other salmon assessment projects in the subbasin, it is not well integrated with similar projects in the lower watershed (Chinook River) (see project #200300600). Integrated stream and estuary approaches are needed to move ahead with an ecosystem approach to restoration.

The sponsors propose a monitoring program design for juveniles that, they state, is not as accurate as the one proposed in the subbasin plan. The sponsors are forthright in stating that their sampling design will allow detection of only large changes (e.g., doubling or quadrupling) in smolt abundance. The sponsors state that the cost of the more accurate method is prohibitive but they do not give cost figures to support this claim.

Objectives: The objective states that production and productivity will be determined, but there is no explanation of how this will be done. Will smolt-to-adult return rates or smolts per spawner be determined? If so, how will it be done? The proposal would be improved if the objective of population estimation (wording in narrative) were related to the objective of juvenile salmonid outmigration abundance (wording in the proposal).

Tasks (work elements) and methods: The methods are standard and adequate but are scattered throughout the proposal instead of being consolidated in the Methods section. There is no indication of whether adult returns will be monitored so that smolts per spawner can be estimated?

Monitoring and evaluation: The project would add data to long-term regional databases, which could contribute to monitoring of stream productivity and possibly survival between life stages. However, the proponents note that periodic or rotating monitoring programs will only detect large changes in juvenile abundance. It is not clear if this degree of detection is satisfactory for status and trends monitoring.

Facilities, equipment, and personnel: Facilities seem adequate. The sponsors appear to have experience with smolt trapping but reports and publications are limited. Personnel may be over-committed as they are principal investigators on several other WDFW projects in this Province and others.

Information transfer: The information will be transferred primarily through reports and data will be included in StreamNet other specific databases. Apparently inclusion in a regional database is dependent on a BPA program. The proponents should press those concerned to implement this regional database. This activity could have been part of the present proposal.

Benefits to focal and non-focal species: The data are thought to be very important for fisheries management but their value to focal species would be higher and have more lasting value if the project was tied into habitat work, integrated with estuary studies, and linked to adult studies so smolt-to-adult returns could be determined.

There is no discussion of non-focal species. It would seem that adverse effects on non-focal would be limited. However, effects of trapping on non-focal species such as cottids and mammals should be considered. Data obtained for other salmonids such as sea run cutthroat will be valuable.

200715000 - Expand Salmonid Monitoring in Grays River to Meet Monitoring Needs Identified in the Lower Columbia Salmon Recovery and Subbasin Plan and maintain an at risk Chum Salmon Pop. through Supplementation

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Estuary **Subbasin:** Grays

Budgets: FY07: \$305,800 FY08: \$191,100 FY09: \$200,400

Short description: Supplementation of chum salmon through artificial propagation and associated monitoring.

Recommendation: Response requested

This is a proposal to obtain juvenile and adult salmonid population estimates for a small river in the lower Columbia River subbasin, and to begin a chum salmon supplementation project in that river.

The technical explanation for the methods for estimating juvenile and adult salmonids is adequate. The justification for the supplementation is not clear, but they are proposing to conduct a rapid Three-Step Review (all three steps at once) in the fall of 2006, so the rationale could become clear in that process.

The rationale for population estimates from the Grays River are not sufficiently demonstrated. Page 6 identifies the Grays River as an intensively monitored watershed by the Lower Columbia River Salmon Recovery Plan. However, the Washington Salmon Recovery Funding Board's report on Intensively Monitored Watersheds (IMWs) identifies the nearby Abernathy, Mill, and Germany creeks as intensively monitored watershed sites, not the Grays River. No reference to the identification of the Grays River as being an important site for population estimation is attributed to the Council's subbasin plan. Sponsors note that the Grays River is classified by the Lower Columbia River Salmon Recovery Plan as an intensively monitored watershed (LCFRB 2004b). But how this plans relates to the Council's subbasin plan or other regional recovery plans or obligations is not clear.

A response is requested that clarifies the need to monitor these species in this watershed. What is needed here is the number and location of sites that are identified by Washington, Oregon, and NOAA as needed to assess the Lower Columbia River ESUs. It may be that this is an essential location for monitoring but it is not clear from the proposal.

A response is requested on the supplementation portion of the proposal that lays out the assessments conducted by the sponsors to clearly establish the need for and benefits of any supplementation efforts.

200301300 - Grays River Watershed Restoration

Sponsor: Columbia River Estuary Study Taskforce (CREST)

Province: Columbia Estuary **Subbasin:** Grays

Budgets: FY07: \$589,092 FY08: \$537,621 FY09: \$175,054

Short description: Project restores habitat-forming processes important to enhance chum salmon as well as other declining populations in the Grays River following recommendations being developed during the ongoing BPA-sponsored Grays River Watershed Assessment.

Recommendation: Fundable

The proposal contains a comprehensive technical background and good description of watershed conditions. The history of perturbations in this watershed is very well documented, including the specific problems regarding chum and Chinook salmon spawning habitat. The proposal gives a clear depiction of limiting factors affecting chum salmon as identified in the literature and in the subbasin plan. Excellent rationales are given for large woody debris (LWD) and riparian restoration. Use of photos, charts and graphics is helpful. Excellent literature citation is

provided. Good descriptions of the restoration monitoring needed are included throughout the work element and methods sections.

A brief but sufficient history of the predecessor project, the watershed assessment, is provided in the project history section of the proposal. Further detailed history (with project results) is presented in the significance to regional programs section of the proposal. All tasks were completed as scheduled: 1) completion of a geomorphic assessment of watershed condition, 2) field substrate, bedform, and hyporheic temperature data collection, 3) development, and verification of two models.

However, Figure 3 badly misrepresents the central process of fluvial geomorphology. Stream geomorphology depends on both land-use and water and riparian land cover, as well as geology and soils, and climate. It critically influences the hydrologic regime and sediment transport, and dictates instream habitat and biological integrity. This basic misunderstanding of the central role of fluvial geomorphology is evident in a great many of the proposals.

Lower Columbia

Mainstem and Tributaries

200105300 - Reintroduction of Chum Salmon into Duncan Creek

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$326,113 FY08: \$350,266 FY09: \$375,029

Short description: Monitor and evaluate the reintroduction of chum salmon to Duncan Creek. Three different reintroduction strategies are being evaluated: recolonization via straying, direct adult supplementation to spawning channels and hatchery reared fed-fry releases.

Recommendation: Fundable

This project meets the ISRP review criteria. This project would benefit by being framed in the context of providing information beyond the project itself. This project has a reasonable likelihood of success. However, benefits are unknown at this time. Whether chum will use the reconstructed Duncan creek is not yet clear. If the reconstructed creek is not suitable this will benefit management for the species by reducing uncertainty about one restoration strategy. It might also indicate some major changes with the ecosystem have resulted in reduced habitat quality for chum.

The proposal provides a good history of spending and results, highlighting major accomplishments, which is appreciated. To date, the success with returning hatchery fish looks poor. The population estimates in table 5 and table 6 have some numbers that need to be

reconciled. Returns to the Duncan creek trap (2) is not encouraging. Equally of concern is the lack of any recovered adults from releases of hatchery juveniles.

This project is justified in terms of its duration for about 12 years. A mid-term results review, however, will be needed to justify ongoing funding.

200301200 - Shillapoo Wildlife Area

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$262,023 FY08: \$291,239 FY09: \$280,776

Short description: The Shillapoo Wildlife Area's principal purpose is to provide high quality habitat for migrating and wintering sandhill cranes, waterfowl and several other key species as mitigation for losses associated with Bonneville, John Day and The Dalles dams.

Recommendation: Fundable

Actions related to the project date back to 1992, including ISRP review in 2002 as part of the provincial review process. The SWA is located in the Vancouver Lowlands, and is intended to provide riparian, wetland, and oak woodland habitat across a former lakebed that was drained and developed as agricultural land. A goal of the WDFW acquisition program is to acquire the entire former lakebed and restore it to its former species diversity and wetland functions for wintering waterfowl, while keeping a portion of it in a semi-agricultural state that supports sandhill crane and geese populations. The proposed project should benefit focal wildlife species. It is not clear that the benefits will persist over the long-term because of the great potential for urban pressure on the site.

The proposal clearly identifies the specific objectives in the Lower Columbia River Subbasin Plan and specific parts of the Fish and Wildlife Program. The proposal identifies other similar work but does not identify collaborative efforts. The ISRP encourages collaborative efforts.

The rationale for this project and significance to regional programs is clear. Specifically, the problem of habitat degradation imposing limiting factors on wildlife species is clearly explained. This appears to be a worthwhile project that will benefit wetland-dependent species in the Vancouver Lowlands. Areas targeted for restoration and specific restoration actions are clearly identified.

The objectives are very clearly defined and relate to specific tasks and related to the subbasin plan. The proposal clearly identifies tasks that are related to the objectives. The measurable benefits to wildlife are stated in terms of amount of habitat restored. It appears that reasonable, pragmatic approaches are proposed. An extensive monitoring and evaluation component includes five types of surveys. Monitoring of habitat and of wildlife response to changes in habitat will be done. Evaluation in terms of amount of habitat restored is clearly explained, but identification in terms of wildlife response is not as clearly specified. Identification of specific, measurable benefit to wildlife is recommended.

Information transfer is mentioned but more specific information should be presented. It is not clear that the information obtained will be readily available in a usable format.

The proposal should clearly identify the effect of the habitat restoration activities and resulting wildlife response on fish. Previous ISRP reviews noted the possibility of the potential for negative impacts on fish; the current proposal makes no mention of negative impacts. Indeed, little is mentioned about interactions with the larger lower Columbia River aquatic ecosystem. The ISRP encourages inclusion of a discussion of the effects of the overall actions on fish and aquatic species in the Lower Columbia River ecosystem as part of project reporting.

200703100 - Identifying prioritized action plans from subbasin strategies using a scenario-based decision support system

Sponsor: Northwest Fisheries Science Center

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$226,116 FY08: \$296,840 FY09: \$234,464

Short description: Improving, testing, and applying a transparent method for developing an efficient habitat action list using multiple models. The proposed project builds on a decision support system that has successfully been applied in the Lewis River basin.

Recommendation: Fundable (Qualified)

The proposed decision support system (DSS) has potential to be useful for assisting with prioritization and decision-making related to habitat restoration. The sponsors are understandably enthusiastic about their approach. They seem to have, however, an overly confident attitude toward modeling very complex physical and biological functions that raises concerns about how objectively the DSS will be conveyed to managers. The kinds of models that comprise the DSS and the assumptions and shortcomings of the models (e.g., data inadequacies) should be better explained. It is difficult to grasp exactly what the DSS is and how it is supposed to be used. Contributing to this problem is inadequate explanation of Figures 1 and 2 and how the results displayed in these figures could support management decisions.

The sponsors need to explain what new insights these modeling exercises could add to what we already know. What are examples of some new insights or testable hypotheses that could be added or developed? The sponsors also need to address several methodological issues.

Technical and scientific background: The proposal is very well presented. The technical background and justification were understandable and logical. Sponsors claim that habitat response can be modeled with greater certainty than biological response with clear links to multiple populations. This seems an overly optimistic claim and needs to be justified.

Rationale and significance to subbasin plans and regional programs: The proposal was clearly linked to the subbasin plan for the Lower Columbia, as well as the efforts of the Lower Columbia Fish Recovery Board (LCFRB) and the Lower Columbia-Willamette Technical Recovery Team

(TRT). The work addresses a high priority need to rank habitat recovery actions in terms of effectiveness, cost, and certainty of outcome.

Relationships to other projects: The proposal clearly identifies the context of work and discusses how it fits with other major habitat projects in the region. Other projects include federal (NOAA-Fisheries, USFS), state (WDFW), and private industry (PacifiCorp) efforts.

Objectives: Specific outcomes and timelines are clearly stated and reasonable. Objectives are linked to subbasin plan needs and Fish and Wildlife Program objectives. If the project is successful, the decision support tool should be transportable to other subbasins and provinces.

The sponsors propose to improve the DSS they have developed and applied in the Lewis River watershed, ground-truth the model, and extend application to other watersheds. These are reasonable extensions of the approach. The sponsors need to explain why they are developing their own water temperature models when these models are already available (e.g., Matt Boyd's model, Oregon DEQ)? What is the purpose of the ground testing and what will be ground-tested? How will the ground testing relate to future landscape scenarios? The sponsors also should explain why they consider their approach to be successful in the Lewis River.

Tasks (work elements) and methods: In general, methods are clearly articulated. The modeling exercises will be complex, and bringing them together (Figure 3) will be a difficult undertaking; however, the sponsors have assembled a very capable team with a proven track record. A successful result would be both innovative and widely applicable.

The sponsors need to provide greater detail about the models that are part of the DSS and the shortcomings and major assumptions of the models. A crucial need is a better explanation of the specific outcomes or products of the DSS and how managers could use them. This comment relates specifically to Figures 1 and 2, which are poorly explained. Specifically, what do the percentages in Figure 1b refer to? How were the targeted watersheds selected? What do the maps in 1c-f illustrate and what do the numbers beside the bars mean? Exactly how would a manager use this information to make decisions and how does this information lead to prioritization? Similar concerns pertain to Figure 2. What are the y-axis values and what does the x-axis represent? How would a manager use this information to aid in decision-making?

The sponsors do not point out any shortcomings of the models that are part of the DSS and the DSS itself. For example, the data demands of some of the popular models used in the basin (e.g., EDT) are great. The lack of appropriate data and the quality of much of the available data has long been a concern of the ISRP and ISAB.

Will the DSS be amenable to use and modification by managers to enable them to incorporate new information or alter scenarios? Usability is a central criterion for any basinwide approach.

Given output from several models that may or may not agree, will there be direction provided to managers as to how to weigh the positive and negative aspects of each of the models? Will the

assumptions of each be made known? A major problem pointed out in the subbasin planning exercise was the inaccessibility (proprietary) of EDT to modification. Will this still be the case? By what criteria has the DSS framework been judged to be “successful” in the Lewis River?

Monitoring and evaluation: Fortunately, the proposal includes tasks that involve verification and ground-testing of model predictions, allowing for adjustment in model parameters as better data become available.

Facilities, equipment, and personnel: The personnel are highly qualified and experienced, and the facilities are adequate for the work proposed.

Information transfer: An excellent mix of information transfer techniques, including public workshops, on-line reports, and peer-reviewed publications. The decision support system will be made available to managers throughout the basin, but it is unclear how much assistance the managers will be given in using the DSS.

Benefits to focal species: The project is focused on identifying a useful set of models that support decisions on salmon and steelhead habitat. It has the potential to greatly benefit recovery of these species over the long-term if restoration decisions prove effective. The project would be beneficial to salmonids because it would assist managers in making restoration action decisions.

Benefits to non-focal species: Although the proposal is aimed at developing decision support tools for salmonid habitat, non-focal species habitat needs are not directly considered. In all likelihood, however, salmonid habitat improvements will also benefit native non-salmonid fishes.

200001200 - Evaluate Factors Limiting Columbia River Chum Salmon

Sponsor: USFWS-Columbia River Fisheries Program Office

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$304,626 FY08: \$319,879 FY09: \$335,131

Short description: The project sponsors propose to evaluate factors limiting Columbia River gorge chum salmon populations. This is to provide an understanding of factors affecting chum salmon spawning primarily in Hardy Creek and Hamilton Springs.

Recommendation: Fundable

Technical and scientific background: This project has been in existence since 2000 and has provided some very useful information on one of the basin's most overlooked species -- Columbia River chum. This chum population is recognized as a key conservation unit and the proposal does put it in that context. In general, the technical background is adequately presented, although the scientific findings to date could have been more thoroughly presented. There is an excellent description of the problem and explanation of the importance of conserving this chum population. The proposal would benefit from an acknowledgement that estuarine and marine factors could also be limiting.

Reviewers should be given data on temporal trends in chum spawning numbers. Given the length of existence of this project, it would seem to be appropriate for the proponents to provide some historical context describing any trends in abundance of chum salmon and developing some testable hypotheses that might explain the data. Such an analysis might suggest what factors are limiting abundance of chum. For example, although coho are mentioned as possible competitors for entry into the spawning channel, no discussion is presented as to how or whether this might or ought to be dealt with.

Note: The abstract refers to chum salmon "smolts", but the main proposal properly refers to chum salmon fry. The latter is the correct term. Chum salmon fry are silvery and migrate to sea immediately upon hatching, so there is no "smoltification" process per se, although they resemble other salmonid smolts with respect to their silvery appearance.

Rationale and significance to subbasin plans and regional programs: The proposal does a good job of relating the project to the Council's Fish and Wildlife Program and the Lower Columbia subbasin plan. This section does not mention the BiOp, although providing winter flows for chum spawning has been one of the action items in the BiOp. The BiOp, however, is mentioned in the "Relationships to other projects" section.

Relationships to other project: The proposal puts the work in the context of other Fish and Wildlife Program funded projects, as well as USFWS projects. Collaborative efforts in the spawning area are in place. Coordination of sampling protocols with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Monitoring and Evaluation Program (CSMEP) illustrate the collaborative nature of the project. The proposal would benefit from collaboration with researchers working in tributaries downstream (e.g. Grays River- 200301000) and in the estuary, given that chum fry are known estuary users.

Project history: The history of the project is generally well described, including the failure of the Hardy Creek spawning channel in 2001-2002 (but did it function as intended in 2003-2004?). However, it would have been very helpful to have summarized what is currently believed about limiting factors for Columbia River chum. This history section contains a good description of what was done in terms of actions, but it doesn't really address what has been learned in the process. Hopefully the access problems for the spawning channel can be overcome as this technology is usually successful if adequate flow can be provided.

Objectives: Objectives are briefly presented as a series of six tasks that would be repeated for the next three years. Timelines are assumed to be seasonal. Objectives are not explicitly related to subbasin plans or the Fish and Wildlife Program. Most of the objectives are measurable and clearly defined (e.g., escapement, fry outmigration). The assessment of survival rates between life history stages (which are not defined in the proposal) will be more difficult with the present design, unless the proponents are only going to try to estimate egg-to-fry survival.

Tasks (work elements) and methods: Overall, the methods are clearly described by life history stage. For the spawning phase, there is no mention of determining spawning gravel composition -

- in particular, the amount of fine sediment -- and this omission is somewhat surprising. The egg environment work seems to focus mainly on temperature, and the rationale for this is unclear. Likewise there is little discussion of measuring egg scour (not a problem?) or redd stranding (related to Bonneville Dam operations?). This struck the reviewers as a serious oversight, because redds are located in an area highly subject to fluctuations of flow, and an area in which BPA has been cooperating to a degree by maintaining flows at times.

The suite of parameters monitored in the intragravel environment needs better justification.

The area under the curve method for estimating the number of chum salmon redds needs to be better described. It is not clear whether the redd surveys encompass the entire reach or take place only in sample reaches that are accessible. Perhaps some thought might be given to a random sampling design.

It isn't clear whether the juvenile dye marking and recapturing technique had been used with these fish before, or whether a rigorous analysis had been conducted to determine the number of fish marked (200 per week). What is the basis for that number? No information is given on statistical aspects, such as addressing the variance associated with outmigration population estimates. An explanation of de Kroon's (1986) method for determining population growth rate would be useful for reviewers. There may be better/more accurate methods available for determining this key parameter.

Monitoring and evaluation: Monitoring of chum escapements is a key component of the project. The proposal will continue an important time series. The project has a generally good history of evaluating the results and adjusting methods accordingly.

Facilities, equipment, and personnel seem quite adequate. The personnel have had direct experience with Columbia River chum salmon.

Information Transfer: Provisions for information transfer appeared to be adequate, and the project has a generally successful track history in this regard. Annual reports have been faithfully produced and are proposed. Peer-reviewed publications have not been produced although there is potential for some because of the uniqueness of this chum population.

Benefit to focal and non-focal species: This project has a clear, persistent benefit for a species that is at-risk and generally overlooked. Knowledge of chum ecology and habitat requirements from this well-integrated study will benefit chum populations elsewhere in the Columbia River Basin. If the spawning channels can be made useful for chum they may also benefit coho. Coho smolts are known to rear in (successful) chum channels. If the spawning channels can be made useful for chum they may also benefit coho. Coho smolts are known to rear in (successful) channels.

200500100 - Pilot Study for Research, Monitoring, and Evaluation of Subyearling Salmon in Tidal Freshwater of the Columbia River

Sponsor: Pacific Northwest National Laboratory

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$737,298 FY08: \$705,440 FY09: \$735,950

Short description: This study addresses juvenile salmon use of shallow water habitats (0-5 m) and develops acoustic telemetry protocols for action effectiveness research in Columbia R. tidal freshwater between Portland and Bonneville (RM 110-146).

Recommendation: Not fundable

With the exception of a change in sampling design, this proposal is similar to the FY06 proposal for this project that the ISRP recently reviewed; see ISRP 2006-2, www.nwcouncil.org/library/isrp/isrp2006-2.htm. This is understandable because the FY07-09 proposal was submitted by January 10, before the ISRP produced its final review of the revised FY06 proposal on January 26, 2006.

On November 30, 2005, the ISRP reviewed an initial FY06 proposal and found it not fundable. The sponsors submitted a revised proposal, which the ISRP reviewed (January 26, 2006). The ISRP concluded that the sponsors had not addressed the ISRP's previous concerns sufficiently in the revised proposal and again regarded the proposal as not fundable. This proposal contains many of the same deficiencies as the earlier proposals, particularly those related to methods and sampling design.

Research and monitoring in the tidal freshwater estuary is badly needed. The ISRP recommends tendering a competitive Request for Proposals calling for research in the tidal freshwater portion of the estuary. Because this work is crucial, a competitive process will result in selection of the most scientifically rigorous proposal and the most qualified personnel to conduct the research. In lieu of a competitive RFP, work conducted under project # 200300700 may satisfy the need for research and monitoring in the tidal freshwater portion of the Columbia River estuary.

Technical and scientific background: The problem being addressed by this proposal is adequately defined. The proposal does a good job of explaining why data on the ecology of subyearling salmon are required to assist in salmon recovery and river management. The possibility of finding overwintering chinook (possibly reservoir type) is mentioned, indicating the sponsors are thinking about this critical need. However, as per previous ISRP reviews, the rationale for the radio-tagging studies is weak.

The proposal needs further justification for the use of the habitat classification scheme and the major habitat complexes need to be described in more detail. For example, what distinguishes the major types hydrologically and geomorphically? The difference between "river confluence floodplain" and "floodplain" should be explained. How does the classification scheme pertain to salmonid habitats and habitat requirements?

Review of the technical literature is somewhat narrow, and not many papers are cited from the vast literature on the riverine ecology of salmonids. The study reaches proposed are more similar to rivers than to estuaries.

Rationale and significance to subbasin plans and regional programs: The proposal directly responds to a number of plans that call for research and monitoring in the lower Columbia River estuary. These plans include the Fish and Wildlife Program, the Lower Columbia River and Estuary Subbasin Plan, and the 2000 Biological Opinion. There is a strong relation (although not specifically listed as a high priority) between the need for research on salmon in the tidal freshwater portion of the Columbia River and the objectives of the Fish and Wildlife Program and other subbasin plans.

Relationships to other projects: The proposal cites relationships to a number of ongoing projects in the lower Columbia River estuary. A more complete description and evidence of close collaboration with other projects would improve this proposal. The juvenile salmon ecology work is put in context of the several other studies proposed in the lower estuary. The tie in with the Sandy River restoration project is weaker. There are 15 related projects listed in the proposal and, given that this proposal is the first substantial proposal to conduct research in the freshwater tidal part of the estuary, it would be prudent to integrate it with as many other projects as possible.

Project history: A "desk" project was conducted from August 2005 to January 2006 which was primarily a planning study, permits were obtained, etc. The results of the desk project are reasonably well documented in the present proposal

Objectives: The objectives generally address elements of the subbasin plans and the Fish and Wildlife Program. The objectives for understanding fish habitat use have measurable benefits for fish and wildlife; this is the strongest part of the proposal. The benefits from the acoustic telemetry work are harder to define and only generally tied into subbasin plans. Other tagging studies including PIT tagging, POST work etc. may be more relevant and more immediately applicable.

Tasks (work elements) and methods: The methods are the same as those reviewed in the FY06 proposal. There were substantial technical objections raised in the ISRP review of that proposal, ranging from questions about beach seine methods, to tagging technology, to methods for choosing stations (EMAP was recommended, but the sponsors did not build this method into their response to initial ISRP comments).

A number of specific questions about methods exist. Why were only six sampling sites selected? Accurately assessing presence/absence and relative abundance in a large, complex area like the delta could be very difficult with only six sites. The sponsors need to explain how the sampling sites in each major habitat type were chosen and why there are only one or two sites per major habitat. How is the major habitat type termed "shallows" different from shallow water areas that

will be sampled in the other major habitats? Failure to make a clear distinction could confound interpretation of the data.

Large wood tends to accumulate in the deltas of large rivers. Juvenile fish in the delta may congregate around and under aggregations of large wood and, in fact, these kinds of habitats could be some of the most important. How will fish use of large wood aggregations in the delta be determined, if the aggregations are present? It will be nearly impossible to sample the areas adjacent to and under large wood with seines. Systematic snorkeling may be the only means of determining fish presence and abundance in these kinds of habitat.

An assumption in using the Latin-square design is that there is no interaction between the treatment and the row or column blocking factors. That is, the magnitude of differences between sites should be consistent from sampling trip to sampling trip (i.e., months). Also the magnitude of differences between sites should be consistent for each order within the cycle. It is not clear that both of these assumptions are valid because it is likely that differences between sites would change depending on the month, even within the same season.

It is unclear how sampling for the mark-recapture study is related to the habitat use work. Will the sites selected for mark-recapture be among the six habitat-use sampling sites? It would seem that for a months-long study 500 tagged fish would be too few to obtain accurate M-R estimates. The sponsors need to justify why this number of tagged fish is adequate. What kind of precision can be expected? What method will be used produce abundance estimates from the M-R data?

For the diet study, what are the size classes of fish that will be sampled and why will only ten fish be sampled for gut contents? The sponsors indicate that some fish will be euthanized and otoliths will be taken. Is this effort part of another study? If not, more details are needed.

How will the decision be made as to the sites where invertebrate sampling will be conducted? How often will invertebrate sampling be done?

Monitoring and evaluation: The project is intended to be M&E, but numerous concerns about methods make the success of the project uncertain.

Facilities, equipment, and personnel: The facilities are adequate and the personnel appear to form a well-rounded and experienced team with good credentials, publication records, and track records of work in the lower estuary.

Information transfer: The sponsors have identified several ways in which information will be transferred including conferences, participation in work groups, technical reports, and peer reviewed publications. Technology transfer to stakeholders and laypersons are not described.

Benefits to focal and non-focal species: Numerous documents and several ISRP reports have emphasized that studies on the ecology of juvenile salmonids in the tidal freshwater Columbia River will benefit focal species. However, as stated in the ISRP review of the FY06 proposal, a

pilot study of RM&E in the tidal freshwater Columbia River should be more comprehensive and extend beyond the Sandy River delta. This proposal would be improved if proponents could be more specific about significant benefits that will persist over the long-term as a result of this presence/absence monitoring study.

Information on habitats and fish communities in the tidal Columbia River could benefit non-focal species. This project is not likely to have adverse effects on non-focal species, except for possible direct or indirect mortalities associated with fish sampling operations.

200727400 - Expand Current Juvenile Salmonid Monitoring in the Lower Columbia Province

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$260,655 FY08: \$156,602 FY09: \$162,463

Short description: This proposal addresses the in-depth juvenile monitoring gaps identified from the LCFRB (2004) plan at the Level 3 or least intensive level, and builds on the existing juvenile salmonid monitoring program in Washington's Lower Columbia River domain.

Recommendation: Not fundable

This proposal is similar to proposal #200734300 submitted by the same sponsor. This proposal is limited in scope and has many of the same deficiencies as #200734300. Adult returns apparently will not be assessed, so critical freshwater production parameters such as smolt to spawner ratios cannot be determined. Apparently, there is no companion monitoring of habitat which could allow changes in abundance to be related to habitat changes. Further explanations about the limitations of the periodic/rotating design for monitoring would also be helpful. The proposal would be improved if the work was explicitly linked to restoration evaluations. Additionally, the methods are dispersed throughout the proposal and therefore difficult to evaluate.

Technical and scientific background: The problem is sufficiently identified and satisfies the need for monitoring found in Washington's Lower Columbia subbasin plan. This proposal addresses the in-depth juvenile monitoring gaps identified from the Lower Columbia Fish Recovery Board (2004) plan at the Level 3 or least intensive level, and builds on the existing juvenile salmonid monitoring program in Washington's Lower Columbia River domain.

No rationale is given for selection of the subbasins to be monitored. The sponsors need to discuss what is known about the biological and physical characteristics of the rivers. Are they representative of other rivers in the area so that results can be reasonably extrapolated?

Are habitat and other physical characteristics being monitored so that changes in abundance can be related to habitat changes?

Material in the Technical Background section would be more appropriate in the Methods section.

The proposal would be improved if the rationale for juvenile population assessment was explained more fully. Given the variation in ocean survival, do fishery managers actually use juvenile abundance in forecasting SARs?

Rationale and significance to subbasin plans and regional programs: The proposal satisfies needs identified in the Lower Columbia Fish Recovery Board recovery plan. Is this project related to the Council's Subbasin Plans? How do the redd and population count expansions fit into the (presumably) already established network of index streams? Most of the material in this section is not relevant in addressing the relationship to subbasin plans and more properly belongs in the Methods section.

Relationships to other projects: The proposed work is part of a larger monitoring effort of lower Columbia River tributaries. The rivers were identified as primary populations by the NOAA Fisheries' Technical Recovery Team (TRT). Although the project is put in the context of other salmon assessment projects in the subbasin, it is not integrated with similar projects in the lower watershed (Chinook River) (see project #200300600). Integrated stream and estuary approaches are needed to move ahead with an ecosystem approach. Again, material presented in this section is more appropriate for other sections and much of the material is extraneous to the proposed work (e.g. adult monitoring).

Objectives: The objective states that production and productivity will be determined, but there is no explanation of how this will be done. Will SARs or smolts per spawner be determined? If so, how? The proposal would be improved if the objective of population estimates (wording in narrative) were related to the objective of juvenile salmonid outmigration abundance (wording in the proposal).

Tasks (work elements) and methods: The methods are standard and adequate but are scattered throughout the proposal instead of being consolidated in the Methods section. There is no indication of whether adult returns will be monitored so that smolts per spawner can be estimated?

Monitoring and evaluation: The project would add data to long-term regional databases which could monitor stream productivity and possibly survival between life stages. However, the sponsors note that periodic or rotating monitoring programs will only detect relatively large changes in juvenile abundance. It is not clear if this degree of detection is satisfactory.

Facilities, equipment, and personnel: Facilities seem adequate. The sponsors appear to have experience with smolt trapping but reports and publications are limited. Personnel may be overcommitted as they are principal investigators on several other WDFW projects in this Province and others.

Information transfer: The information will be transferred primarily through reports and data will be included in StreamNet other specific databases. Apparently inclusion in a regional database is

dependent on a BPA program. The proponents should press those concerned to implement this regional database. This could have been part of the present proposal.

Benefits to focal and non-focal species: The value of the proposal to focal species would be higher and have more lasting value if the project was tied into habitat work, integrated with estuary studies, and linked to adult studies so smolt to adult returns could be determined. There is no discussion of non-focal species. It would seem that adverse effects on non-focal species would be limited. However, effects of trapping on non-focal species such as cottids and mammals should be considered. Valuable data on other salmonids such as sea run cutthroat could be collected.

200736800 - Adult Coho Salmon Monitoring Proposal for the Lower Columbia Province

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$487,444 FY08: \$456,502 FY09: \$479,337

Short description: This proposal addresses adult coho salmon population status monitoring in the Lower Columbia province to provide complete estimates of abundance, productivity, diversity, and spatial structure for Washington's portion of the Lower Columbia River ESU.

Recommendation: Response requested

This research proposes to assess the abundance, spatial structure and diversity of the recently listed lower Columbia River coho salmon and secondarily to estimate the proportion of hatchery fish spawning in the wild in Washington streams. Coho salmon in the lower Columbia have long been neglected but now are ESA listed. This project is essential in evaluating status and trends of these populations.

They will adjust index counts of coho in streams currently surveyed and add population estimates to other streams not presently monitored in this province. By adopting the EMAP protocols as used in Oregon, data collected will be comparable to those in Oregon and will enable monitoring of the status and trend of naturally produced coho salmon. The proposal will complete assessment of the population status of coho in the Washington side of the lower Columbia River and has clear benefits to the Fish and Wildlife Program's needed to determine recovery. It will enable complete EMAP estimates of population abundances by using methods already used by ODFW in the lower Columbia River. Funding is presently received from NOAA and BPA.

The proposal would be improved by responses to the following questions:

1. The proponents state that these estimates of population structure will continue for 25 years. Since population estimates by WDFW have been completed for many years in some of these streams, it would be informative to see some of the trends, but none were presented. Ongoing projects should show results.

2. It would be informative to find out if these studies are integrated with habitat investigations. Are habitat limitations a concern for these streams?
3. A database of survey results will be updated in near real time and available to managers. Will data be posted on a web site? A regional database is mentioned - has there been progress on its development? The ISRP recommends that the idea be vigorously pursued so that status and trends can be evaluated for the entire Lower Columbia River.
4. It would be helpful to provide more information on the projects that are apparently underway to estimate marine survival. Estuarine and marine survival is important for assessing population trends.
5. The proposal would be enhanced by an explanation of the linkages of this project with other projects concerned with juvenile monitoring. How will these data be used in an assessment of productivity? How many streams are being extrapolated to from the "index streams" (assuming this is how they are going to be used).

200727700 - Hamilton Creek Stabilization and Habitat Rehabilitation

Sponsor: Skamania County

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$969,270 FY08: \$107,925 FY09: \$29,350

Short description: The stabilization and habitat rehabilitation of 5300 feet of Hamilton Creek, North Bonneville, Skamania County, Washington.

Recommendation: Not fundable

The ISRP found this proposal to be not fundable.

The problems in Hamilton Creek regarding the degraded spawning habitat for the primary focal species, chum salmon, are only generally described. Documentation and references are mostly lacking in the background section, other than referring to the Lower Columbia Salmon Recovery Plan and Fish and Wildlife Subbasin Plan (2004) several times. The proposal would be improved if several specific recommendations for habitat restoration of Hamilton Creek were included/cited in the text. The proposal also needs much more specific detail regarding habitat requirements of species to be rehabilitated. Not only for chum salmon but also for the secondary focal species - chinook, coho, and steelhead.

Seven objectives are listed in bullet format, but they are not well defined or justified. Measurable benefits are lacking.

The work elements (taken directly from the subbasin plan) following the objectives are good explanations for the biological rationale for various habitat restoration actions. However, the work element/methods descriptions stop short of providing the details of techniques to be used, locations of engineered logjams and cross vanes to be installed, and only cites the Work Element and objective numbers from the subbasin plan, in bold. The general statement that the Rosgen

Natural Stream Design Methods (NRCS 2005) will be followed and used to locate engineered structures is not adequate. A description of how this standard design protocol will be specifically applied is needed.

200703700 - North Fork Toutle River Fish Passage

Sponsor: Steward and Associates

Province: Lower Columbia **Subbasin:** Cowlitz

Budgets: FY07: \$98,910 FY08: \$89,670 FY09: \$121,270

Short description: The goal of the proposed project is to reconnect and maximize isolated salmonid habitat in the North Fork Toutle River watershed upstream of the Sediment Retention Structure (SRS).

Recommendation: Fundable

The very low escapement for coho and steelhead in the North Fork Toutle River in recent years indicates that the current practice of collecting adult of these species and steelhead at the Fish Collection Facility (FCF) and hauling by truck and releasing up-river above the Sediment Retention System (SRS) may be ineffective for seeding considerable amounts of good spawning habitat up-river.

This project will determine: 1) passage success through the Sediment Retention System spillway and subsequent up-river migration in the North Fork Toutle and 2) collection efficiency of the Fish Collection Facility. This would provide the information needed to either improve the collection facility or alter the spillway (or both) to allow better adult passage.

The ISRP rates this proposal as fundable. The proposal is well done, addresses a very high priority recommendation in the Lower Columbia River Fish Recovery Board Subbasin Plan, and appears to address a critical need for recovery of these two focal species in this subbasin.

Other comments:

This proposal needs to define what is meant by "quantitatively measure the migratory performance of adult coho and steelhead in relation to the FCF and SRS" and describe how passage success would be measured (e.g. percent passed, time to pass, fallbacks, etc.) and potential long-term outcomes of this passage in aiding recovery of these two species.

200708100 - WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Coweeman River

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** Cowlitz

Budgets: FY07: \$161,000 FY08: \$14,000 FY09: \$0

Short description: Conduct assessment of Tier 1 & 2 reaches in Coweeman basin to identify/develop site-specific restoration projects to address limiting factors. Projects will be ranked & prioritized based on geomorphic, biologic, land ownership, and cost factors.

Recommendation: Not fundable

This proposal would conduct a feasibility assessment and prioritization of habitat restoration on the Coweeman River. The proposal is quite generally written and describes activities that would normally have been part of the Subbasin Planning process. The project will produce a feasibility study report but will not conduct habitat restoration.

The technical and scientific background describes the project area and limiting factors as identified in the Subbasin Plan. It notes that the Subbasin Plan identifies the Coweeman Subbasin as having good potential for recovery. Priority habitat and areas for restoration were identified, as well as the most effective measures for restoration. Subsequently, the LCFRM developed a habitat work schedule to prioritize recovery actions. These priorities are general, and this proposal is to conduct a feasibility assessment of their more specific application, identify project locations, establish landowner contacts, design projects and prioritize projects. It is believable that the assessment will allow quick segue into project development and implementation, but it is not clear why much of this assessment is not contained in the Subbasin Plan assessment section, or why research development and design (a normal investment in proposal preparation) should be separately funded.

The proposal notes the strong link between the assessment and the high priority measures identified in the Subbasin Plan, as well as the highly ranked projects identified in the habitat work schedule derived from the Subbasin Plan. Material from Section B, justifying the need for this work, is repeated here. It notes that the assessment won't duplicate other baseline assessment work, but rather will be a "rapid, multidisciplinary assessment of restoration need and specific opportunity/feasibility." The proposed assessment would seem to duplicate the type of assessment and strategy development that was required of the Subbasin Plans. The only relationship to another project is the adoption of methodologies used in the Lower Cowlitz River assessment project.

Six general objectives are taken from the Subbasin Plan. This project would indirectly relate to those objectives by developing project designs and proposals that would address these objectives. The objectives of this project are to conduct assessments to identify feasibility of projects, to prioritize them, and to conduct landowner outreach to develop willing collaborators. Work elements are generally described, and consist of the tasks involved in conducting feasibility assessments, making landowner contacts, and developing budgets and priorities for

projects. No specific measurable elements are included. This is a feasibility study and does not include monitoring and evaluation.

200731900 - WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Kalama River

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** Kalama

Budgets: FY07: \$165,000 FY08: \$20,000 FY09: \$0

Short description: Conduct assessment of Tier 1 & 2 reaches in Kalama basin to identify/develop site-specific restoration projects to address limiting factors. Projects will be ranked & prioritized based on geomorphic, biologic, land ownership, and cost factors.

Recommendation: Not fundable

This proposal would conduct a feasibility assessment and prioritization of habitat restoration on the Kalama River. The proposal is quite generally written and describes activities that would normally have been part of the Subbasin Planning process. The project will produce a feasibility study report but will not conduct habitat restoration.

The technical and scientific background describes the project area and limiting factors as identified in the Subbasin Plan. It notes that the Subbasin Plan identifies the Kalama Subbasin as having good potential for recovery. Priority habitat and areas for restoration were identified, as well as the most effective measures for restoration. Subsequently, the LCFRG developed a habitat work schedule to prioritize recovery actions. These priorities are general, and this proposal is to conduct a feasibility assessment of their more specific application, identify project locations, establish landowner contacts, design projects and prioritize projects. It is believable that the assessment will allow quick segue into project development and implementation, but it is not clear why much of this assessment is not contained in the Subbasin Plan assessment section, or why research development and design (a normal investment in proposal preparation) should be separately funded.

The proposal notes the strong link between the assessment and the high priority measures identified in the Subbasin Plan, as well as the highly ranked projects identified in the habitat work schedule derived from the Subbasin Plan. Material from Section B, justifying the need for this work, is repeated here. It notes that the assessment won't duplicate other baseline assessment work, but rather will be a "rapid, multidisciplinary assessment of restoration need and specific opportunity/feasibility." The proposed assessment would seem to duplicate the type of assessment and strategy development that was required of the Subbasin Plans. The only relationship to another project is the adoption of methodologies used in the Lower Cowlitz River assessment project.

Four general objectives are taken from the Subbasin Plan. This project would indirectly relate to those objectives by developing project designs and proposals that would address these objectives. The objectives of this project are to conduct assessments to identify feasibility of projects, then to prioritize them. It also includes landowner outreach to develop willing

collaborators. Work elements are generally described, and consist of the tasks involved in conducting feasibility assessments, making landowner contacts, and developing budgets and priorities for projects. No specific measurable elements are included. This is a feasibility study and does not include monitoring and evaluation.

200001400 - Evaluate Population Dynamics And Habitat Use Of Lampreys In Cedar Creek (Lewis River Subbasin), Washington

Sponsor: USFWS-Columbia River Fisheries Program Office

Province: Lower Columbia **Subbasin:** Lewis

Budgets: FY07: \$295,350 FY08: \$254,000 FY09: \$268,400

Short description: The distribution, abundance and status of lamprey in the Columbia River Basin is largely unknown. The project sponsors propose to investigate these characteristics as well as the methods used to assess these characteristics for lamprey in Cedar Creek.

Recommendation: Response requested

The Project History needs to include a clearer presentation of results and accomplishments, organized by the objectives in the original proposal, not by year. A synthesis of results from the past six years work -- a bottom line -- also is needed. The M&E part of the proposal needs to be expanded. Currently, the M&E aspects of the proposal read like a plan to develop an M&E plan. The sponsors need to indicate whether ongoing monitoring work will continue and, if so, provide objectives for this work. The Quantitative Assessment Sampling Program needs further explanation.

Technical and scientific background: The proposal provides an excellent explanation of lamprey ecology and a comprehensive literature review, including an acknowledgement of the possible importance of the marine environment. The proposal, however, does not explain the specific situation in Cedar Creek very well. There is no map of the watershed and so the location of the sampling sites, barriers etc. cannot be determined. The year-to-year narrative could be summarized in a few tables. There is a lot of qualitative description (mean values without variances, some of the sample sizes seem very small).

Rationale and significance to subbasin plans and regional programs: The proposal clearly outlines relationships to three subbasin plans. The proposed work appears to address critical uncertainties identified by the Columbia River Basin Lamprey Technical Workgroup.

Relationships to other projects: The sponsors identify relationships with three lamprey projects, and the sponsors are active in the Lamprey Technical Working Group. They state that the related projects are attempting to use similar sampling protocols. Otherwise there does not seem to be any direct collaboration among projects.

Project history: Quite a bit of work appears to have been done since 2000, but the way in which the results are presented and, in some cases, the unnecessary level of detail makes assessment of the project's progress extremely difficult. The results should be organized by objectives in the original proposal so that progress toward accomplishing the objectives can be assessed. A map of

the basin is needed for reference. Data and results of analyses are given in the text, but tables or graphs could provide better way of displaying the results and especially trends through the years. The results should be synthesized and major conclusions should be stated. Major knowledge gaps should be identified. The project history should provide a clear justification for future work.

Objectives: The sponsors make a reasonable case that improvements in sampling methodology are needed to more accurately estimate lamprey abundance. The objectives, however, are broad and often only generally relate to the actual tasks. For example, Objective 1 is "Provide information to assess the distribution and habitat associations as well as abundance and status of Pacific lamprey ammocoetes (larvae)" but the actual objective is to estimate capture probability and gear efficiency. The tasks are well focused and quantitative, and relate to habitat as well as population dynamics and behavior. The schedule for research results is well laid out.

The proposed work is largely experimental and directed at improving sampling methods. Does this mean that the adult and larval assessments that were ongoing for six years will be discontinued?

A better explanation and justification for the proposed Quantitative Assessment Sampling Program is needed. What is this program and how is this approach different from what is currently being done? Why is it needed? Has this Program been coordinated with other lamprey projects and the Lamprey Technical Working Group?

Has there been any concern that lamprey might react to pesticides that reach the water due to agricultural application? Lipid sampling might provide an avenue for detection.

Tasks (work elements) and methods: With some exceptions, the proposal pays good attention to sampling details, efficiency, and statistical aspects of population enumeration. Methods are clearly explained. The development of "predictive models of capture efficiency" is not well explained. However the model (whatever it is) will be verified by ground-truthing larvae abundance.

Monitoring and evaluation: Monitoring programs for the research are explained but the sponsors do not plan on implementing "proven" M&E methods until 2012. "Routine assessments" would be needed after that, but there is no mention of who would do them. The proposal to develop a probabilistic sampling protocol to estimate total abundance is good.

Facilities, equipment, and personnel are adequate.

Information transfer: Results will be disseminated via quarterly and annual reports, peer-reviewed publications, and presentations at professional meetings. The sponsors have a good track record of peer reviewed papers, reports, and public presentations. Data are archived and available to the public. The plan for immediate sharing of results is excellent, but discussion of long-term storage of appropriate data and meta-data is not provided.

Benefits to focal and non-focal species: Focal species likely will benefit from the work. The proposed research will yield new information on all species of lampreys in the basin. The sponsors should consider effects of trapping and electrofishing on focal salmonids, non-salmonids, and mammals. The sponsors do not discuss precautions that would be taken to reduce effects on non-target species such as salmonids.

200734400 - Lower Columbia River Wild Coho DNA Stock Identification Proposal

Sponsor: Fish Friendly Inc.

Province: Lower Columbia **Subbasin:** None Selected

Budgets: FY07: \$111,625 FY08: \$105,625 FY09: \$182,182

Short description: Fish Friendly Incorporated (FFI) in cooperation with the Washington Department of Fish and Wildlife (WDFW) proposes to develop a DNA baseline for naturally produced coho salmon in the Lower Columbia River tributaries.

Recommendation: Not fundable

Although additional information on coho genetics is worthwhile, the proposal provides little or no discussion of current status of coho DNA collections and analyses of existing data and other ongoing efforts. The proposal indicates that WDFW is a cooperator, but no indication is given that they are interested in doing the work or are on board. No use or demand for this data is explicitly identified in the proposal. Integration with existing genetics efforts is not articulated.

200704300 - Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** None Selected

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: The Lower Columbia Fish Enhancement Group seeks program-level support to continue community-based salmon and steelhead habitat restoration program and activities directly linked to implementation of Sub-Basin and Recovery Plan Priorities.

Recommendation: Not fundable

This proposal would fund three LCFEG program managers to promote and develop an unspecified number of habitat restoration projects in the lower Columbia River subbasins. The specific subbasins are unspecified.

The proposal raises a number of concerns which are summarized by proposal section.

Technical and scientific background: This proposal is to expand the organizational capacity in the lower Columbia River to take on habitat restoration projects in the Cowlitz, Elocoman, Grays and Estuary Subbasins. Ten limiting factors that cross subbasins are the focus of activities to restore habitat for four listed species (the focal species). The group will be working from several habitat assessments already performed. Building on these assessments, they now want to

develop, fund, permit, construct and monitor habitat restoration projects. Other than the general intent to address habitat issues, the section provides very little detail regarding what the LCFEG will actually do.

The subbasin plans give general guidance on limiting factors, and link habitat condition with fish population, but there is no process to justify exactly how what should be done where at the reach scale. The examples provided suggest that river engineering has directed what should be done where. This may possibly be justified where streams have been scoured to bedrock. But the cause may dictate differing designs; causes include splash-dams, channel simplification and/or straightening, headward incision or positive feedback between successive flood flow and bed/bank erosion resulting from disconnection between channel and floodplain. Even if the problem is well defined, its solution may yet depend on further analysis to determine the reach dynamics. The dominant morphological processes must be understood if restoration money is to be invested wisely.

Rationale and significance to subbasin plans and regional programs: The focus of this section is on the LCFEG's capabilities and interest in expanding their area of habitat restoration in the lower Columbia River. They present a rationale for their work based on their identification as a habitat project sponsor in the recovery plans and subbasin plans. Emphasis is placed on how they are increasing their organizational capacity in order to increase their presence in additional WRIs (Water Resource Inventory Areas). They note their success in leveraging project funds. They receive funding from WDFW and WRF, and seek BPA funding to hire additional project managers to increase organizational capacity. These are general statements about the LCFEG's capacity rather than a rationale for a proposed project.

The section lists a number of plans that provide a strategic framework for LCFEG. However, none of these addresses the issue of upland sediment source management, which is taken as an important issue earlier in the proposal.

Relationships to other projects: This section does not develop a narrative explanation of this proposal in the context of other regional projects, but rather includes a list of Salmon Recovery Funding Board funded projects in which they are involved in. The section demonstrates minimal linkage to other projects.

Objectives: This section includes five biological objectives that derive from the collection of Lower Columbia River Subbasin Plans. Objectives not specific to any particular subbasin but instead are general descriptions of various habitat restoration protocols. Timelines are not specific.

Tasks (work elements) and methods: The work elements and methods include a lot of very active engineering approaches to restoration (bank stabilization, gravel reintroduction, introduction of large woody debris, engineered structures, etc.) rather than being based in sound science reflecting the context of watershed dynamics. Methods are described quite generally and consist

of basic methodologies used in habitat restoration, rather than anything specific to be done in this project. No time lines or specific measurable outcomes are included.

Monitoring and evaluation: No provisions are made for monitoring and evaluation of results, which is notable given the degree of active intervention proposed to fix specific problems.

Facilities, equipment, and personnel: No explanation is provided other than an indication that cost-share with other funding will apply to facilities and personnel. Early sections of the proposal describe the location of personnel.

Information transfer: Information transfer will be done by LCFEG through partners: landowners, agencies, businesses, academic and political entities, watershed councils, SWCDs, community stakeholders, and through the lead entity (the LCFERB). No specific information is provided as to how information will be distributed and used.

Benefits to focal and non-focal species: The benefits to focal species are indeterminate. It is unclear how the active restoration projects described will affect non-focal species.

200713500 - Lower Columbia Salmon Recovery Planning: Habitat Restoration Project List Development and Modeling

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** None Selected

Budgets: FY07: \$323,994 FY08: \$289,031 FY09: \$309,730

Short description: Develop a prioritized habitat recovery project list for chinook, coho, chum, and steelhead in all Lower Columbia sub-basins. Estimate whether these actions will result in populations reaching recovery targets.

Recommendation: Fundable (Qualified)

This proposal seeks to calibrate the EDT model in relation to the uncertainty that it brings with its assessments, rather than continue to have it treated as providing an absolute answer to habitat/limiting factor questions. One of the major shortcomings of the subbasin plans was the failure of most of them to prioritize habitat restoration actions within and between subbasins. This proposal makes a good case that it will be able to do that in a systematic way. The proposal is for WDFW to work with the Lower Columbia Fish Recovery Board (LCFRB) to develop prioritized lists of habitat restoration projects based on EDT assessments done for the subbasin plans. It describes the EDT work that was conducted and methodology developed by WDFW to estimate confidence intervals around EDT performance estimates and the geographic prioritization of restoration.

The rationale is sound in linking this project to LCFERB recovery plan and Lower Columbia Subbasin Plan. The idea is to provide a more complete assessment of strategies used to recover lower Columbia River salmon and steelhead, for which threats persist, so that priorities can be developed. The value of this project will be extremely high if it produces a ranked list of restoration priorities, so limited funds for recovery actions can be applied to those projects that

will have the greatest impact for recovering ESA-listed populations. It should be noted, however, that EDT does not have a dynamic geomorphic analysis capability. It would be a grave mistake to assume that appropriate choice of stream habitat restoration involving modification of the longitudinal profile or cross-section of a stream could rely solely on EDT results.

The proposal mentions some possible overlap with proposal 200703100 which will develop a decision support system to list optimal watershed management strategies. The overlap does not seem to be too much, and if they coordinate well each project could help the other. The project has a single objective: to assess the effectiveness of salmon recovery actions developed in the LCFRB plan. Methods are described in great detail, and are scientifically sound and innovative. The project will have a strong evaluation component.

199902500 - Sandy River Delta Habitat Restoration

Sponsor: US Forest Service (USFS) - Hood River

Province: Lower Columbia **Subbasin:** Sandy

Budgets: FY07: \$188,350 FY08: \$133,950 FY09: \$2,091,250

Short description: Restoration of riparian bottomland forest, wetlands and restoration of the original Sandy River channel.

Recommendation: Response requested

The project is clearly justified and could provide substantial benefits to both fish and wildlife. The sponsors have developed techniques that not only will be useful for this project but also will benefit other large-scale floodplain vegetation restoration projects. The major drawback of the project at this time appears to be the lack of a comprehensive, scientifically sound monitoring program (including effectiveness monitoring) that would quantitatively assess progress toward achieving the goal. Such a program is badly needed and should be instituted at this early stage of restoration. The program should be comprehensive in that it should provide for long-term monitoring of vegetation, wildlife, and fish. The documentation of long-term change in the vegetation and animal communities, like the restoration techniques, would be of great benefit to the region and to other projects.

More details are requested on results to date of the monitoring of vegetation and wildlife. The sponsors should give a perspective on needs for monitoring of fish use of the restored habitat. This project is a good example of a restoration project that requires long-term maintenance to ensure long-term benefits to fish and wildlife. Dike removal, which has apparently been delayed by BPA's needs to access their power lines, should proceed.

Technical and scientific background: The project is directed at restoring diverse floodplain and river channel habitat that, if accomplished, could benefit both important terrestrial species and fish. The need for such restoration projects is clear, given the scarcity of large floodplain areas in the Portland area. The problem is adequately defined. This section of the proposal would be improved by the addition and brief summary of relevant scientific and technical references.

Rationale and significance to subbasin plans and regional programs: The proposal addresses specific objectives and strategies found in the Lower Columbia River and Sandy River subbasin plans. These objectives call for habitat restoration for terrestrial indicator species as well as endangered salmon. There is no mention of Biological Opinion issues related to Snake River chinook.

Relationships to other projects: The sponsors do not identify collaborative relationships with other projects, except to indicate that two other projects were consolidated into this proposal. The only linkage described in this section is internal (merging of their previous project numbers). The proposal would be improved if a strong collaborative effort with other (ongoing and proposed) related projects were described.

Objectives: The objectives are straight-forward and directly related to the restoration goal. However, the measurable benefits to fish and wildlife are not well described. It is unclear how the sponsors will measure progress toward accomplishing objectives related to fish and wildlife.

Tasks (work elements) and methods: Methods for vegetation restoration are well described and the sponsors are clearly competent in methods for vegetation restoration. The methods are clear and primarily describe the techniques employed for restoration. The sponsors have been refining the methods for vegetation restoration since the inception of the project. The sponsors seem to be successfully combating invasive species, deer, and soil quality.

In a previous review, the ISRP advised that future funding should be contingent on dike removal. The proponents note that alternatives for dike breaching and complete dike removal will be evaluated. The proponents need to provide more detail methods on this critical objective.

Monitoring and evaluation: The sponsors note that funding for monitoring and evaluation is not requested because that activity is conducted by the Forest Service. The proposal would be improved if more detailed methods of Forest Service monitoring and evaluation were provided so that reviewers could determine if these methods are adequate. In addition, coordination of this project with other monitoring and evaluation projects in the lower Columbia River is essential. The sponsors have not proposed a monitoring program for wetland restoration, an important, new part of the proposed project.

The results of M&E of the vegetation restoration are described generally and need to be expanded. Data on bird use of the restored area are being monitored but results are not given in the proposal or any of the cited documents. M&E of fish use does not seem to be in place and is not highlighted as a need in the proposal.

Facilities, equipment, and personnel: The facilities appear adequate. The personnel appear to have expertise in the appropriate disciplines for conduct of the project. The proposal would be improved by the addition of a salmonid expert, as salmon are the primary focal species that is supposed to benefit from this work.

Information transfer: This section of the proposal would be strengthened if the sponsors provided more information about information transfer. The databases resulting from this project appear to be maintained by USFS staff but plans for release and long-term storage are not described. If the USFS has such plans they are not evident in the proposal. The sponsors apparently do not publish scientific papers or gray literature. The proposal would be improved if results were published so that others involved in similar restoration projects could benefit from the information on successes and failures.

Benefits to focal species: The project could be very beneficial to both terrestrial and aquatic species. The project could contribute to a key general priority, restoration of fish and wildlife habitat, and it could provide some key riparian functions such as food provision. These functions have been compromised by urbanization in the lower Columbia River. If the dike is removed, there are likely to be long-term significant benefits. The utility of the project will be limited unless adequate monitoring is in place to quantitatively document changes in vegetation and animal communities as restoration proceeds.

Benefits to non-focal species: The project proposes to restore, on a relatively large scale, both terrestrial and aquatic habitats which, unquestionably, could benefit many non-focal species. The impact of proposed dike breaching will have to be carefully reviewed and presumably will be in the EIS. Invasive species such as purple loosestrife might take over disturbed habitat. Non-salmonid native fish could benefit from increased detritus and food supply.

200731500 - Camas Slough/Lower Washougal River Realignment

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** Washougal

Budgets: FY07: \$160,000 FY08: \$0 FY09: \$0

Short description: This proposal is to conduct a feasibility study on the potential to block off the upper end of Camas Slough and reroute the Lower Washougal directly to the Columbia. This will reduce salmon mortality due to high temperatures and high predation levels.

Recommendation: Not fundable

Key Washougal River habitats have been eliminated through dredging, channel modification, diking, filling and draining. Associated biological problems are described. Altered hydrology, sediment supply and other associated conditions are identified as limiting factors in the subbasin plan. This project would build on previous work to restore floodplain and aquatic habitats in the Washougal River and Camas Slough. It proposes to change the mouth of the Washougal river to bypass the Slough and provide a safer passage route.

However, the Washougal Subbasin Plan has only some very general statements that altered habitats may increase temperature and predation, and these were not at all related to the Washougal. The temperature problem reference in the subbasin plan on pg I-93 was related to the lack of riparian shading in Lacamas Creek not the slough. The predation problem cited on pg. I-3 of the subbasin plan was just a general statement that "altered habitat conditions have

increased predation..." These issues are the basis for this proposed project, but there is "no documentation" for these problems.

The rationale is presented as the need for improved passage and the relation of this project (if feasible) to providing that improvement. No specific reference is made to regional programs, except for previously identified limiting factors from the subbasin plan. There is no specific reference to other projects.

The objectives in this proposal are not related to subbasin plan objectives and are not justified based on documented problems.

Three work elements are: project management, feasibility study, and coordination. Details of the feasibility study are in Section b. However, these are only generally described in the form of work elements.

Methods are lacking, except for a brief mention of an analysis of sediment deposition and transport capability will be conducted to reduce the long-term O&M and allow the natural formation of a delta outside of the Highway14 bridge.

No M&E is proposed.

This proposal does not provide the basis to indicate any benefit would be provided to the focal species. If the proposed project takes place, it is likely that temperature problems will occur and introduced species will thrive in the backwater created north of Lady Island by sealing off the Camas slough. Reviewers would predict mostly adverse effects from this project.

Willamette

199107800 - Burlington Bottoms Wildlife Mitigation Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$112,735 FY08: \$110,631 FY09: \$111,609

Short description: This project will restore and maintain wildlife habitat for a variety of fish and wildlife species on 417 acres of wetlands & riparian forests. On-going work includes wetland restoration, O&M, as well as monitoring and evaluation of enhancement activities

Recommendation: Response requested

This proposal focuses on wetland habitat for fish and wildlife at the confluence of the Willamette and Columbia Rivers near Portland. This habitat is an important area for local fish and wildlife populations. Habitat management in terms of native plantings, removal of exotics, and

improvement of connectivity of creeks, sloughs and wetlands have been ongoing for more than a decade.

In addition, wildlife surveys have taken place. The types of wildlife surveys used were listed, but no data were presented to evaluate effects on wildlife use of the many management actions or the success of the plantings themselves or the success of the exotic plant removal. Admittedly, it is difficult to evaluate wildlife responses on small parcels of land (400+ acres), but as a minimum some baseline values and where this data would be stored (listing species and relative abundance/density) would be useful for evaluating future wildlife changes as the habitats develop.

A response should present the results of wildlife surveys on the parcels, identify results of planting on parcels, and provide an evaluation of exotic plant removal on parcels. Once this data is summarized, the ISRP requests an exploration between plantings and exotic plant removal and wildlife surveys to ensure that an alternative management strategy is not needed. Perhaps more passive techniques, rather than planting, would be valuable and less expensive. In the past, the ISRP have requested a summary of wildlife survey findings, but none were provided. Secondly, the ISRP is curious about the oviposition data presented in Figure 2. The ISRP interprets these data to suggest that exotic plant communities were used at a higher rate than native species, yet the exotic plant communities were aggressively controlled. The authors have a different interpretation; the ISRP requests a fuller discussion of these data.

199205900 - Amazon Basin/Eugene Wetlands

Sponsor: Nature Conservancy

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$98,764 FY08: \$583,766 FY09: \$91,267

Short description: Continue restoration and enhancement of Willow Creek Wildlife Mitigation Area. Habitats being protected or restored include riparian zones of seasonal streams, wet prairie, upland prairie, forested wetland, oak woodland, and dry coniferous forest.

Recommendation: Response requested

This project has a reasonable level of monitoring, and involves land purchased or easements that contain many plant and animal species of special concern. A very active management program is outlined that appears logical. Furthermore, a large acquisition is planned for 2008 to enhance the land already obtained. A response should identify targets for each of the proposed objectives and how measurements will be used to assess progress towards those objectives. In addition it would be useful to see a review of the monitoring data obtained in the past and where it is stored. The ISRP expect that this data exists in progress reports or manuscripts. The response should present more details to the ISRP about the types of data being collected and analysis procedures (with some results) to determine the success/failure of the active management program, e.g., effects of bullfrog reduction (including numbers of frogs eliminated) and associated responses; effects of prescribed burn on vegetation response, and eventually associated wildlife response; and removal of 65 acres of invaded wet prairies and associated plant and wildlife responses.

The proposal sections on technical and scientific background, rationale and significance to subbasin plans and regional programs, and the relationship to other projects are adequate.

199206800 - Willamette Basin Mitigation

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$2,816,657 FY08: \$4,000,143 FY09: \$4,012,310

Short description: ODFW's proposal provides an integrative mitigation program that protects, conserves, and restores areas containing diverse habitats that assist the life history needs and resources for multiple terrestrial and aquatic species in the Willamette Basin.

Recommendation: Response requested

The proposal is for a large-scale effort in habitat acquisition, enhancement, restoration and management. Consistent with the Subbasin Plan, State plans, and conservation NGO strategies, this proposal appears to be part of a well-coordinated, regional effort.

This project (really a program of many interrelated projects) has been going on for 13 years. There are 13-14 ongoing projects that include routine restoration or maintenance activities, but rarely monitoring. Is this program intended to operate projects indefinitely? New projects expand the scope of the program along the same trajectory. The long-term benefits to fish and wildlife are not as clearly described as necessary. Exactly how projects listed will benefit focal species, other than "habitat restoration" is not given, nor are non-focal or pest species that might benefit from projects described. It is likely that there will be some adverse effects on non-focal species, so these should be assessed and management plans described.

To put the current proposal in context, it would be useful to have a summary of acres affected by category: acquisition, addition to existing conservation lands, flow restoration, exotic species removed, etc. An analysis of the cost/HU of various strategies could probably be derived at this point to enhance biological priority criteria. Further, it would be useful to see what percent of funding for different projects has come from, and is proposed to come from the Fish and Wildlife Program. The project history provides some, but not sufficient, assessment of progress that the ISRP requested last year.

The numerous objectives in the proposal will require significant administration to track progress of overall project. Timelines are not clear, nor are metrics for future assessment of accomplishments. The ISRP requests a more complete description of how progress will be monitored. Measurable objectives are not always listed. For instance, the objective "remove exotic vegetation" may not be achievable by any currently known means. Work elements are often stated in terms of amount of habitat obtained or restored rather than in terms of fish and wildlife outcomes. The ISRP requests that authors address fish and wildlife responses. The ISRP believes that management plans have been completed for some sites and would like to see a description of monitoring methods. Procedures have been available during this project that should now be driving a feedback loop that is not apparent. The ISRP requests a description of how this loop functions.

The proposal identifies some M&E efforts as part of work elements, but does not provide enough details to evaluate. Even implementation monitoring would be difficult given the information provided. Many proposals do not include metrics, and it appears monitoring is just now being addressed with initial development of reference sites and procedures. The goals of monitoring are stated quite differently in different sections. The intent to "monitor extensively" is followed by "may" monitor various system components, but why, or how is too vague to be credible and appears to be an add-on. The proposal to turn responsibility over to graduate students to develop sample designs and conduct sampling and data analysis is inappropriate and will not ensure quality results over the long-term. Objectives of the analysis, the sample design, and data to be collected should be clearly described in advance of projects, not left to students to develop later. In addition to quarterly reports, strategies for sharing successes and lessons learned with others involved in similar mitigation activities is recommended. The response should describe the data to be generated, stored, or analyzed.

The land acquisition portion of this proposal is fundable. It defines the problem of land acquisition where only small parcels are available and the methods for prioritizing, selecting, and acquiring properties are sound. Monitoring is a critical element for a project of this duration. It appears that monitoring and adaptive management are still not a priority and it may fall to the Council's funding decisions to emphasize the importance of this project element. The management, monitoring and evaluation portions of the proposal require a response before the ISRP can reach a final recommendation.

200001600 - Tualatin River NWR Additions

Sponsor: Tualatin River NWR

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$145,361 FY08: \$96,685 FY09: \$372,304

Short description: Continue restoration of Oleson Tracts 1 & 2 in accordance with approved 5-year restoration and management plan. Project benefits wildlife and anadromous fish.

Recommendation: Response requested

The expected outcome of this ongoing project would be the protection, maintenance and enhancement of fish and wildlife habitat on the site, while also maintaining and increasing associated habitat values for target and other wildlife species. The 179.5 Habitat Units (HUs) generated by the 2001 HEP would be protected and maintained, while an additional estimated 230+ HUs would also be provided through enhancement activities. The proposed project will continue habitat restoration features that will benefit wildlife species as well as listed anadromous and resident fish species. Project activities would include restoration of oak savanna, riparian forest, scrub/shrub wetland, wet meadow prairie, ash woodland, and the enhancement of emergent wetland and mixed coniferous/deciduous forest habitat types.

A response is requested to provide better details on methods, objectives and details on the monitoring and evaluation plans. Provisions for monitoring and evaluation are mentioned in general, but the adequacy of the effort is unclear based on the material presented. More

information is necessary to determine if the proposed monitoring effort will allow decisions as to the effectiveness of the project.

The project history is briefly summarized, but more information concerning project effectiveness is needed. Past monitoring efforts are briefly mentioned, but interpretation of the effectiveness of the restoration activities to date is necessary. Is there a basis for expecting these methods to be successful, perhaps based on past projects and monitoring from other sites?

The response should also address a question raised in the last review concerning the downstream highly urbanized conditions that are likely to limit the benefit of this project. More information on how this project contributes to efforts associated with related projects is needed.

The objectives are clearly defined with many being measurable. Specific benefits to fish and wildlife are mentioned but quantification of targets is needed. For example, the benefits should be stated as what can be accomplished on this parcel in this time towards the larger objective (e.g., plant 6 acres of x size ash at density of y with z% survival at 3 years). General bird species monitoring is unlikely to produce data that can be tied to habitat improvements. Actual use of improved areas by birds for nesting, by neotropical birds resting, and by fish in seasonal wetlands, etc. would be useful. Benefits to fish and wildlife are anticipated, but it is difficult to determine if baseline and continuing monitoring will inform the process.

200715300 - Cardwell Hills Wildlife Mitigation and regional Biodiversity Protection Project

Sponsor: David Evans and Associates, Inc.

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$1,903,141 FY08: \$3,916,068 FY09: \$2,798,459

Short description: Wildlife mitigation project to implement Cardwell Hills Regional Conservation Planning Strategy and Willamette Subbasin Plan through purchase or easement of up to 500 acres of upland prairie/savanna, oak woodlands, and riparian forest in Benton County, OR.

Recommendation: Fundable

ISRP found this proposal exemplary, well reasoned, and well written. Although this is a new project, the context for its development has been clearly and compellingly presented and should contribute to fulfilling the objectives of the Program. The proposal clearly explains the need to acquire and manage habitat for endangered and threatened species. The project is specifically designed to benefit focal species through habitat acquisition and habitat restoration. Long-term benefits will depend on other activities in the basin for some focal species. The potential impact of restoration activities, such as burning and vegetation removal, on non-focal species should be clearly addressed.

The project appears to be a priority wildlife and habitat restoration project supported by the Willamette Subbasin Plan and OWEB. Specifically, the proposed project is a critical component of the Cardwell Hills Strategy that Governor Kulongoski has designated as an Oregon Solutions

project. After 2 years, the project has initiated an intensive landowner outreach program that has identified up to 27 landowners who may voluntarily implement restoration activities to benefit upland prairie/savanna, oak woodland, wetland prairie and seasonal marsh, and riparian habitats.

The next phases of the project involve determining which available parcels should be surveyed and protected, entering into negotiations with willing landowners, implementing restoration plans, and initiating a similar outreach program throughout the Corvallis – Philomath Oaks PCA, the Corvallis Watershed PCA, and other areas. This is an excellent model of collaboration.

This large project involves many objectives that depend on the same approach but target different habitat types and focal species. It may be more prudent to proceed in steps to acquire and restore habitat types on a priority basis to allow refining and adapting the process over a series of funding cycles. It would be useful if the sponsors identified a priority order for the objectives. There are many, many objectives that are clearly defined. Expected results are identified but not all provide measurable benefits to fish and wildlife.

There is extensive monitoring and evaluation that is adequately explained given much of the project is still in the planning and early implementation phase. This level of monitoring should be capable of determining the success of the project. The proposal mentions in general terms how the information from this project will be disseminated (annual report, technical report, or scientific publication). Plans for data storage and release are adequate. The ISRP encourages the consideration of information dissemination beyond the Willamette Valley as results and model could be widely useful if successful.

200726000 - Acquisition of a Conservation Easement over 1084 acres of Upland Prairie and Oak Habitat, Willamette Subbasin

Sponsor: Nature Conservancy

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$4,969,000 FY08: \$10,000 FY09: \$0

Short description: The project sponsors propose to cost-share on acquisition of a conservation easement over focal habitats within priority areas identified in the Willamette Subbasin Plan and subsequent FY07-09 Guidance to benefit focal species and address BPA's wildlife mitigation need.

Recommendation: Fundable

The Nature Conservancy proposes to acquire a conservation easement on 1084-acres in the Coburg Ridge Conservation Area. The parcel is well integrated with other efforts, including 32 adjacent acres already under easement. The proposed acreage is approximately 10% of the annual average lost to development in the Valley, yet is a comparatively large parcel in the network. The biological objectives are to improve the population trend for at least 26 focal species and habitat for two listed species, through protection and long-term ecosystem management. Preliminary terms of the easement have been negotiated with the landowner and a preliminary appraisal completed.

Objectives are related to Program and Subbasin plans. The intent to “improve population trend for all species” assumes what is good for one species is good for all; this is unlikely for specialist species. As a management plan develops, it may need to be ecosystem - rather than species-focused. Current work elements are procedural and reflect realistic understanding of the easement process. It appears M&E will be part of the management plan to be developed after acquisition. Collection of baseline data is a good start. Given that the project is only requesting funding for 1 cycle, they should state explicitly what future monitoring will occur. There should be some central place to store and aggregate data from all the multiple Willamette projects. This might be an additional role for the Nature Conservancy on some sort of contract basis, or perhaps ODFW?

The Nature Conservancy has a well-recognized, positive track record in easement acquisitions and subsequent management. Overall, this is an excellent proposal. Properly managed, this easement will provide long-lasting benefits in itself and as part of a growing network of conservation lands in the Valley. Inclusion of a management endowment (~150 k/yr) anticipates future needs and long-term active stewardship, and further strengthens the investment value of the proposal. At an estimated \$2490/HU, this is an effective and efficient proposal. The ISRP strongly encourages funding when M&E questions have been addressed, which should not be difficult.

200727100 - Willamette Basin Capitalized Wildlife Land Acquisitions

Sponsor: The Confederated Tribes of Grand Ronde

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$2,572,046 FY08: \$2,638,077 FY09: \$2,698,060

Short description: The Confederated Tribes of Grand Ronde would contract with the BPA to acquire 650 wildlife habitat units in the Willamette Subbasin at a fixed price range.

Recommendation: Not fundable

The Confederated Tribes of the Grand Ronde Community of Oregon (Tribe) propose the acquisition of 880 acres of wildlife habitat in the Willamette River Subbasin to protect, restore, and manage focal habitats that have been identified in the Subbasin Plan. Planning is in the very early stages, and links to existing planning documents are only vaguely described. The Tribe might be better off to pre-select a subset of parcels, perhaps in collaboration with others, then develop a more specific proposal. Provision for future management, other than just continuing Program funding, would be more compelling. Discussion of anticipated restoration (if needed), maintenance, focal species to be managed for, and a monitoring and evaluation program should all be included for specific parcels when identified. Collaboration with complementary programs in the sub-basin is likely to improve overall conservation value due to the degree of fragmentation present.

Monitoring, in terms of regular measurement of established indicators and comparison to desired conditions, followed by adaptive management, is not included in this proposal. The project's ability to “improve species trend...” is doubtful if there are no specific goals or monitoring of success relative to target species. Proposing to acquire a minimum number of Habitat Units from

unspecified lands, at estimated prices, as is done here, could create an untenable commitment by the tribe and offers no obvious advantage over a more focused approach. Timelines are optimistic. The estimated cost per HU of \$12,166 is considerably higher than similar proposals.

200728500 - Subyearling chinook salmon use of the Lower Willamette River

Sponsor: City of Portland

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$422,560 FY08: \$418,032 FY09: \$428,082

Short description: This study will investigate racial composition, habitat use and migration/residence time of subyearling Chinook salmon in the Lower Willamette River.

Recommendation: Fundable (Qualified)

This proposal rated very high in all review criteria, and the ISRP found the project worthy of support. The ISRP is not requesting a response, but the proposal would be improved if the proponents provided a better justification for Objective 5. Specifically, a better description of how the diet data will be used to indicate the importance of certain habitat types in the lower Willamette (if prey availability data are also not collected).

Other comments:

Technical and scientific background: The proposal describes a research study to determine the habitat use of subyearling chinook and to examine if this habitat is limiting to survival and productivity (growth) of these juveniles. While it doesn't focus on a high priority problem it will provide information needed to understand the function and importance of the rather limited rearing habitat for subyearling chinook in the lower Willamette River.

Rationale and significance to subbasin plans and regional programs: The proposal does a good job in relating its objectives to those in the Oregon Plan, the Willamette Subbasin Plan, and the US Army Corps of Engineers (USACE) Willamette Basin Floodplain Restoration Study.

Relationships to other projects: A well-organized table summarizes relationships between this project and other projects funded by BPA, USACE, USFWS, and State of Oregon. The nature of the relationships between projects is described.

Objectives: Objectives 1, 2, and 3 are linked to objectives in the Willamette Subbasin Plan and are very well justified. The rationale for the radio-telemetry (Objective 4) is located in the work element section 4c and could be moved up to follow the stated objective. The rationale for the food habits study (Objective 5) is weak, and the justification for these data needs further development.

Tasks (work elements) and methods: Methods are described in detail, with text, maps and photos. Sampling procedures are extensively described, as are parameters to be measured and analytical procedures.

Monitoring and evaluation: Monitoring of project implementation effectiveness is not a part of this proposal, but this project is collaborating with the Collaborative Systemwide Monitoring and Evaluation Program (CSMEP) and Pacific Northwest Aquatic Monitoring Partnership (PNAMP) on an "inform" basis. It isn't clear that these relationships will accomplish monitoring of this project.

Information transfer: Information transfer will be accomplished through annual reports, peer reviewed publications, workshops, and technical presentations. The proponents also intend to provide habitat restoration guidance as an output of this project.

Benefits to focal and non-focal species: Identification and significance of the lower Willamette rearing habitat for subyearling spring chinook may play an important role in the protection and restoration of this habitat over the long term.

200732200 - Ecosystem Economics Model for Willamette Basin Restoration and Conservation

Sponsor: David Evans and Associates, Inc.

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$425,919 FY08: \$143,650 FY09: \$0

Short description: This project will develop an system dynamics model of the Willamette Basin to map the ecosystem benefits of restoration and conservation scenarios and their associated economic value.

Recommendation: Not fundable

This is an inadequate proposal that describes an overly general approach to a very large undertaking, without specific links to ongoing work in the subbasin. The problem this proposal states is the need to take a systematic approach to coordination and decisionmaking in the use of natural resources, given competing demands, growing population, and the need for sustainability. The project would develop a system dynamics model for evaluating investment in fish and wildlife recovery on the basis of ecosystem functions and services. The background states that instead of project-level assessments, it is important to take a long-term look at repair and restoration of ecosystem functions provided by terrestrial and aquatic habitat, with a recognition that these systems are linked through water quality and quantity, and that the ecosystem functions provide value to humans and wildlife.

The systems model proposed would use spatial and dynamic modeling to assess the portfolio value of ecosystem services in the Willamette Subbasin and provide a means to estimate ecosystem functional return on investments in fish and wildlife. The analytical challenge is to identify spatial locations of water stocks and flow, their ecosystem services, and their alteration by human uses. A diagram of a conceptual model illustrates this point. The utility of spatial systems modeling is described in general terms. Literature on GIS-based, dynamic spatial models, human dynamics, ecosystem service valuation, etc. is cited. The value of ecosystem services is discussed in general terms. A table associates ecosystem functions with services.

The proposal provides a lengthy but general description of how the project would approach the valuation and modeling of ecosystem services. It gives examples of conservation investment areas that could be addressed in a portfolio framework: stormwater management, flood management, restoration employment, etc. Publications and documents related to the Willamette Subbasin are not cited. The general discussion is of the need to take a long-term integrated approach to resource sustainability, given that ecosystem services are valuable and are the subject of competing demands. This is not a novel point, and the section does not establish the nature of the problem beyond a general statement of needs.

What would have been more compelling is to tie the discussion directly to the Willamette Subbasin where this project will be situated. Is there a gap in the way the futures planning under the Willamette Subbasin Plan will be addressed by this project? Beyond a general description and hypothetical examples, what is the nature of the problem this proposal addresses? Where is the specific value-added by this work? The absence of coordinated decisionmaking is not established. The proposal cites restoration priorities and the need for coordinated planning, as presented in the subbasin plan. It relates the proposed model to increased institutional capacity, opportunities for cost-effective partnering, etc., but does not describe how specifically it will do this. The proposal does not tie the proposed work to ongoing work in the subbasin; connections with other projects are only potential and only briefly described.

The proposal has six objectives relating to building a model: developing a data set, characterize functional relationships, build model, estimate values of ecosystem services, describe portfolio of opportunities based on trades among consumers of ecosystem services, build expert systems tools. These are generally articulated but without timelines or metrics.

Methods are generally described as processes of working with existing and ongoing efforts in the region. Some existing databases from which they intend to extract data are cited; the assumption is made that existing data will be close to sufficient for modeling, with gaps addressed through expert opinions or other approaches. The data sets are enormous. Constructing the Influence Diagram (stocks and flows within a boundary) will be the most challenging - and exciting - part of this project, demanding a huge range of expertise, and a lot of time and coordination. Using existing programs will no doubt help, but their boundaries will inevitably under- and overlap, with a lot of stitching needed once the gaps and laps are confirmed. The model will need to have several scales of definition (e.g. picturing the Willamette subbasin from 10,000ft, 1,000ft and 100ft). Drawing boundaries around the area will be a great challenge as the socio-economic issues are considered.

The value of ecosystem services will be estimated theoretically using existing methods left undescribed except for the benefit-transfer method (in which resource values estimated in one setting are applied in another), which is highly problematic and subject to transfer error because of differences in characteristics between the two settings. The sponsors propose to address weaknesses in this method by supplementing with interviews with academic researchers in ecosystem services. Work elements under the portfolio assessment objective and the expert

systems tool development are quite generally described. The proposal does not provide a clear specific picture of how the project will produce products of value.

200701700 - Lower Columbia Slough Off-Channel and Floodplain Habitat Restoration Project - Phase Two

Sponsor: Columbia Slough Watershed Council

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$97,000 FY08: \$36,000 FY09: \$20,000

Short description: The Project seeks to restore 5 acres of historic tidal floodplain wetland habitat in the Ramsey Wetland Complex while principally restoring hydrologic connectivity and ecological function in the lower Willamette River benefiting native fish and wildlife.

Recommendation: Fundable

The proposal provides a very clear description of the nature of the problem and the role of floodplain habitat in providing rearing areas for juvenile salmon. Limiting factors identified in the Willamette Subbasin Plan are lack of key habitats and lack of habitat diversity that have affected the availability of habitat as refugia and rearing areas for juvenile salmon.

The proposed project is a priority for the Columbia Slough Watershed Council and the City of Portland. It is related to three other habitat connectivity projects described in this section, including phase one of this project in the Ramsey Wetland Complex, which included evaluation and assessment of the potential for reconnection projects, now being proposed. The restoration of 5 acres will add about 12% to the existing 42 acres of natural wetlands that exist.

These restoration actions are expected to provide multiple ecological benefits including benefits to listed salmon, and other native fish and wildlife. A wide range of amphibians, birds, and bats will benefit from the improved habitat. Results from this work could be informative elsewhere.

Acknowledging perhaps the high price tag of \$600,000 for this small area, the proposers claim some benefits that stretch the imagination; the increase in flood storage for the Willamette is trivial, and for the Columbia is microscopic.

Monitoring work elements are built into each objective. Fish response to the construction of backwater slough channels will be monitored by collaborations of the City of Portland, Ducks Unlimited, and ODFW. Effect of placement of large wood (Task 2.2) will also be monitored by the City of Portland. Specific criteria for vegetation success (Task 3.5.1) will be monitored. Frequency of data collection is also described. Wildlife response will be monitored by surveys as well as in coordination with volunteer groups.

200709700 - Restoring connectivity to a floodplain wetland on Multnomah Channel

Sponsor: Ducks Unlimited, Inc.

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$30,000 FY08: \$160,000 FY09: \$5,000

Short description: A creek will be realigned into its historic channel to maintain water in a wetland and run a fish ladder. A fish ladder will be installed adjacent to an existing water-control structure to increase connectivity between Multnomah Channel and the floodplain

Recommendation: Fundable

This project will restore 100 acres of tidal wetland. Restoration of such areas in the Lower Willamette River is identified as a priority in the Willamette Subbasin Plan with significance for the restoration of Upper Willamette River spring Chinook, a listed species. CREP identified loss of wetlands and habitat as a key limiting factor. The US Army Corps of Engineers report on ecosystem approaches to habitat restoration also identifies a need to restore wetland habitat in the estuary, which is also tied to the ODFW Comprehensive Wildlife Conservation Strategy. A creek will be realigned into its historic channel to maintain water in the wetland. A fish ladder will be installed adjacent to an existing water-control structure to increase connectivity between Multnomah Channel and the floodplain.

The proposal contains excellent photos and maps and a very persuasive description of the present conditions and need for resolution. The proposal does a good job referencing priorities in the Willamette Subbasin Plan. This is a collaborative project with Metro, who owns the land. In addition, collaboration and coordination with ODFW and City of Portland Environmental Services is also described. The project seems to fit well with ongoing wetlands restoration projects in this area. Information on wildlife population response to similar wetlands enhancement projects is effectively described. Good links to previous work that led to this project are given. The cost:benefit match is appropriate.

Objectives are clearly linked to restoration actions in the subbasin plan, but the proposal could do a better job of being more specific (e.g. Objective 1 states the project will "Increase water supply to the north wetland..." How much? How will they measure potential benefit?). Work elements for the four objectives are clear quantitative descriptions, with work allocation among partners clearly described. Techniques are described generally.

Monitoring of restoration effectiveness is one of the project's objectives. Monitoring of hydrologic and fish passage effects is well described in the four work elements. Specific details and timelines are given. Facilities are adequate. Existing collaborative relationships between Ducks Unlimited and other groups indicate they are an appropriate entity to conduct this project.

Results from the last phase of this project will be used as a case study in a project to write best management practices for use of water-control structures in floodplain wetlands where salmon are present. As part of an ongoing monitoring program, results from the restoration activities at this site will be reported in annual reports distributed to agencies and presented at professional

meetings. A final report will include a summary of best management practices for this type of restoration.

Focal species are only generally stated as “all wildlife” but this type of restoration should have quite a significant benefit in restoring a relatively large acreage of lowland riparian and floodplain habitat and most native fish and wildlife associated with those habitats. Other species, not listed as focal species, are likely to benefit in the long-term from improved and expanded wetland habitat.

200714700 - Willamette Flow Management Project

Sponsor: Nature Conservancy

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$141,200 FY08: \$121,375 FY09: \$147,250

Short description: The Willamette Flow Management project will identify environmental flow requirements for the Willamette River and its tributaries and design and test alternative flow releases from Corps and EWEB dams to achieve more natural flow regimes.

Recommendation: Response requested

The proposed work could be of great benefit to aquatic and terrestrial species, if flow changes that have a significant and positive impact on their habitat can be implemented. The sponsors need to adequately address a number of methodological questions, explain how the social and economic impacts of flow changes will be evaluated, and how the public will be involved in determining what flow changes to implement.

The ISRP requests a response addressing the following:

A major shortcoming is the lack of an adequate explanation of how the social and economic impacts of flow changes will be evaluated, and how the public will be involved in determining what flow changes to implement.

The sponsors need to more fully explain what they mean by “real time adaptive management of the reservoirs.”

The sponsors need a more detailed explanation of the Ecosystems Function Model and the other “biological response models” they refer to. How do these models work? What kind of data is needed to populate the model? How will they predict complex effects on floodplain function, riparian condition, etc. and the impact of these changes on biota? What is the output of the models?

Flow changes at the individual dams will have a cumulative effect on flow in the mainstem. How will this effect be determined?

Work Element 115 under Objective 3 is repeated.

The proposal also needs to address the issue of possible scour, derived from increasing spring flows into a system that is no longer braided and has lost connectivity with much of its floodplain, and therefore may no longer have the cross-sectional capacity for these flows.

200717300 - Upper South Fork McKenzie Channel Restoration

Sponsor: US Forest Service (USFS) - Willamette

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$31,900 FY08: \$11,900 FY09: \$9,400

Short description: This project will restore habitat essential to rearing spring chinook salmon and bull trout through restoration of large woody material to the upper South Fork McKenzie River.

Recommendation: Fundable

While budget-wise this is a small project, the proposal effectively addresses all of the elements needed for a successful project. If carried through as proposed, this project will add needed rearing habitat to aid in recovering spring Chinook salmon and bull trout.

The background section clearly describes the issue of restoring habitat upstream of Cougar Dam. Past forest management practices have resulted in low rates of recruitment of large wood to the channel. The McKenzie River populations are considered to be capable of being self sustaining, but habitat improvements are needed.

Regarding channel lateral migration capability, the South Fork McKenzie River and large tributaries have lost a significant portion of their ability to migrate laterally due to recent salvage of in-stream wood (1960-86). Removal of large fallen timber from the channel of the Upper South Fork of the McKenzie River significantly altered the river channel and eliminated many side channels important for rearing habitat of juvenile Spring Chinook and bull trout. The proposal's background section clearly and simply identifies the problem and provides the logic for a solution: place large woody debris back in river channel.

The project has a single objective: improve Chinook and bull trout habitat by restoring side channels. This is a measurable objective. A description of how many side channels will be added; how each will be measured for increases of added rearing habitat should be added. More details could be added to better describe placement of logs to create side-channels and some explanation of how pre- and post- project rearing habitat will be quantified.

This proposal is an element of a larger effort where spring Chinook salmon adults are transported upstream of Cougar Dam (from McKenzie Salmon Hatchery) to use isolated habitat. Transported adults and their offspring will utilize habitat restored in this effort. Downstream migrating juvenile spring chinook salmon will be trapped upstream of Cougar Reservoir by Army Corps of Engineers and transported downstream of Cougar Dam in an effort to maximize survival of naturally produced salmon in the upper South Fork McKenzie River. Juvenile salmon originating from the restoration reach may be expected to experience higher survival rates as transported fish. This project is in the planning stage.

The project is consistent with high-priority restoration, identified by the subbasin plan and the McKenzie Watershed Council. It meets objectives of the aquatic conservation strategy of the Northwest Forest Plan and also addresses action items identified in the Draft Bull Trout Recovery Plan. It appears consistent with Oregon Plan and the Oregon Aquatic habitat Restoration Enhancement Guide.

A short section summarizes relationship to ODFW project to increase natural reproduction upstream of Cougar Dam and ACE project to improve migration. ODFW has special angling protections in this watershed. The site is adjacent to an earlier USFS large wood introduction project, which is monitored by OSU.

M&E will be conducted through periodic measurement of changes in channels by aerial photo flights. Biological response will be measured by tracking proportion of juvenile Chinook downstream, under the assumption that juveniles will remain in upstream rearing habitat longer once channel habitat is modified.

Publishing results in peer-reviewed journals is anticipated as this project will be incorporated into the Large River Monitoring Project (a partnership between USFS and Oregon State University – Oregon Department of Fish and Wildlife) to monitor multiple project effectiveness.

Benefits to focal species may be cumulative with other coordinated projects and will likely persist over a long period. The effect on other native aquatic biota, such as macroinvertebrates, should be positive.

200718600 - Middle Fork Willamette River Bull Trout Passage and Habitat Restoration

Sponsor: US Forest Service

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$365,000 FY08: \$50,000 FY09: \$50,000

Short description: Proposal to complete fish passage and spawning ground restoration in an area on the Middle Fork Willamette River where bull trout have been re-introduced by a multi-agency partnership.

Recommendation: Fundable (Qualified)

Overall, the ISRP believes that this proposal should be funded, but the fundable recommendation is qualified because the proponents need to provide better justification for the generally proposed bull trout spawning habitat improvements. If funded, the proponents should provide more detail in the Technical and Scientific Background section with documentation and references regarding the habitat problems needing restoration in this six-mile section of the Middle Fork Willamette.

Along these lines, the Methods section only generally describes the proposed habitat improvements in up-river bull trout release areas. An improved proposal should include much

more detail for the planned habitat improvements, in order to determine if the most appropriate designs, techniques, locations, and types of improvements will be used.

Other comments:

Rationale and significance to subbasin plans and regional programs: The proposal does a very good job in demonstrating how the project addresses a specific high priority objective in the Northwest Forest Plan, but only generally refers to the Willamette Subbasin Plan.

Relationships to other projects: This proposal documents that the proponent has a number of relationships with eight other similar projects, plus collaboration with the Willamette bull trout recovery team. This work will directly fit into the draft Bull Trout Recovery Plan and support their goals. The eight other partnerships are only generally listed.

Tasks (work elements) and methods: Design and methods for installing the new Indigo Springs improved passage culvert and the habitat improvements in up-river bull trout release areas are only generally described. Much more detail is needed, especially for the habitat improvements, in order to determine if the appropriate designs, techniques, locations, and types of improvements will be used.

Monitoring and evaluation: In Section 2 of the proposal, a general statement is made regarding the USFS's intent to use this proposed restoration program as a framework for improved coordination, successful habitat enhancement, and integration of monitoring efforts. The statement continues, "the USFS will restore, monitor, and evaluate the status and trends of bull trout at the Province and subbasin scales. The purpose of the restoration, monitoring and evaluation program is to assure that the effects of actions taken under sub-basin plans are measured, that these measurements are analyzed so that we have better knowledge of the effects of the action, that this improved knowledge is used to choose future actions, and for the watershed as a whole, including ESA species, to benefit both short and long term in all associated programs." However, specific details are lacking regarding monitoring and evaluation of bull trout passage success and habitat use following completion of this project.

Benefits to focal and non-focal species: If this project is successful, bull trout and the Upper Willamette River Chinook ESU are likely to realize long-term benefits from improved passage opportunity and access to improved spawning and rearing habitat.

200718800 - Lower Willamette River Fish Passage and Floodplain Reconnection at Oaks Bottom Wildlife Refuge

Sponsor: City of Portland

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$390,000 FY08: \$765,000 FY09: \$45,000

Short description: This proposal is to design and implement a fish passage and floodplain reconnection/restoration project at Oaks Bottom Wildlife Refuge. The primary features include replacement of a culvert, excavation of tidal sloughs, and riparian restoration.

Recommendation: Response requested

The case is convincingly made that actions to restore flood plain and off-channel habitats are needed in this area that has been degraded by fill, invasive species, and other disturbances. A good history for the Oaks Bottom Ecosystem Restoration Project is provided. Limiting factors and restoration priorities are linked to the subbasin plan. Issues of habitat diversity, chemical contamination, and habitat quantity are discussed. The problem is adequately identified regarding the lack of access to potential rearing habitat, but documentation/references are generally lacking. Abundance, vegetation cover, water quality, habitat structure and value, invertebrate diversity sounds like a good list, but monitoring procedures and frequency need to be explained.

The priority measures recommended in the subbasin plan are consistent with the objectives for environmental characteristics included in the 2000 Fish and Wildlife Program, specifically to restore appropriate habitats to facilitate the recovery of potentially highly viable populations of the salmonids. The Oaks Bottom Project principally addresses habitats for high priority protection, as directed in the 2005 Willamette Subbasin Plan. It addresses limiting factors identified in the subbasin plan for the lower Willamette River: habitat quantity and diversity, and water quality.

The project is geographically related to a number of adjacent projects, identified on a map, and is sequentially related to previous work funded by the US Army Corps of Engineers and City of Portland. Linkage to other related projects in this area are fairly well described (an extensive list is provided).

Four objectives are specific and measurable. Each has an M&E component. They are clearly stated and are generally tied to the Willamette Subbasin Plan objectives. Methods are presented in summary form as tasks under each objective; this part of the proposal is the weak link. They sound reasonable, but are not described in detail. For example, Objective 4 is to "Increase habitat diversity for native fish and wildlife." Task 4.8 is to "Create Tidal Channels/Slough System." The method for this is 4.8.1. "Create tidal channel/sloughs to connect new culvert inlet and existing ponds. Tidal channels will be inundated daily and allow fish ingress/egress for rearing and refuge opportunities."

Details are needed of how the tasks will be done, at what locations, following certain specifications. What species of native plants will be used in the re-vegetation, where will large

woody debris be placed? This kind of detail needs to be included to ensure that this project will be following sound scientifically based techniques.

Monitoring and evaluation will take place pre and post construction. Components of monitoring are: fish passage, fish presence and abundance, bird and wildlife presence and abundance, vegetation cover, water quality, habitat structure and value, invertebrate diversity. This sounds like a good list, but monitoring procedures and frequency are not explained.

All facilities and equipment to be used on the project will be provided by the City of Portland or their subcontractors. This equipment shall include field supplies/equipment, vehicles, laboratory and office space and equipment, life support systems for organisms, and computers. The City of Portland is the logical entity to do this project on city land.

Information transfer includes draft and final bid packages, an implemented restoration project, and ongoing volunteer stewardship and public education at a City of Portland Natural Area Park.

Species benefits include reclaiming critical off-channel juvenile rearing and refuge habitat to federally listed Lower Columbia River and Upper Willamette River Chinook, Lower Columbia River coho, and Lower Columbia River and Upper Willamette River Steelhead. All anadromous fish are likely to realize benefits from the increased off-channel habitat.

Non-focal species will benefit from the creation and enhancement of rearing, resting, and nesting habitat for native wildlife including bald eagle, blue heron, osprey, western pond turtle; and other amphibian, waterfowl, shorebirds, and Neotropical migratory songbird species. These species are likely to realize long-term benefit from the increase in aquatic habitat.

200721900 - Clackamas Watershed Prioritized Fish Passage Barrier Removal

Sponsor: Clackamas River Basin Council

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$21,520 FY08: \$164,520 FY09: \$20,020

Short description: Coordinate the repair of the number two prioritized fish passage barriers in the Lower Clackamas watershed in Clear Creek in order to re-establish full access to sixteen miles of habitat and increase production of coho salmon and winter steelhead.

Recommendation: Fundable (Qualified)

This proposal is set in an area important to the recently listed Lower Columbia River (LCR) Coho ESU as well as to the LCR steelhead ESU and the LCR Chinook ESU. The proposal describes an opportunity to work with a willing landowner to fix a passage barrier on Clear Creek, a priority restoration target in the Willamette Subbasin Plan, the Clackamas River Basin Action Plan, and to general measures of the Fish and Wildlife Program, which will allow access to 16 miles of high quality habitat once removed.

According to the Willamette Subbasin plan, the Clackamas is one of the last bastions of listed lower Columbia River coho salmon. The Clackamas lower river tributaries have considerable

potential to add habitat and refugia for all anadromous fish populations in the Basin. These are habitat factors that are lacking in the heavily urbanized lower Willamette River. Obstructions (culverts) are key limiting factors in the Clear Creek tributary. Addressing key fish passage barriers in these tributaries will provide access to refugia, spawning and rearing habitat for Lower Columbia River ESU Coho and Winter steelhead. It is important to provide unrestricted access to this higher quality habitat that has lower temperatures, better riparian buffers, better spawning habitat, and better rearing habitat.

The proposal has been exceptionally well done for a simple passage barrier removal project. Three objectives are measurable and specific; although not further explained in this section, they are consistent with discussions in an earlier section. Methods to develop a passage restoration plan are brief but adequate. Full marks are given for specifying a clear-span bridge; however, a more detailed explanation of the methods for replacing the ford with a bridge, and for monitoring would improve the proposal. The monitoring and evaluation is the weakest part of the proposal but Objective 3 and associated Task 3a indicate that post project monitoring for project evaluation will be done (snorkeling surveys).

The proposal is put into the context of other Clear Creek projects being conducted through collaborations of Clackamas River Basin Council, ODFW, OWEB, OWHF, METRO, PGE and landowners. A number of habitat improvement projects are being undertaken.

Information transfer is well described and a variety of avenues (Clackamas River Basin Council website, school tours, workshops, etc.) will be employed to publicize this project.

Benefits from this project should persist for a long time for the focal species, coho and winter steelhead. Other species will likely receive long-term benefits from reconnected habitat.

200722900 - Development of protocols and priorities for re-establishing naturally reproducing populations of Upper Willamette River Chinook Salmon above US Army Corps of Engineers dams in the Willamette Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$364,001 FY08: \$522,125 FY09: \$509,700

Short description: Project will develop strategies for re-establishing self sustaining populations of Willamette Spring Chinook above 10 dams in the Willamette Subbasin. Major objectives include quantifying habitat potential and increasing survival and genetic diversity.

Recommendation: Fundable

This project will address one of the most significant problems limiting the viability of listed upper Willamette River spring Chinook and steelhead populations by developing strategies for re-establishing self sustaining populations of Willamette Spring Chinook above ten dams in the Willamette Subbasin. Major objectives include quantifying habitat potential and increasing

survival and genetic diversity. The benefits should be quite significant and persist for the long-term.

The proposal provides an excellent background clearly identifying one of the major problems limiting the productivity of Upper Willamette spring Chinook and winter steelhead: the development of ten COE hydroelectric dams that have blocked these listed species from access to quality spawning and rearing habitat. In addition, the temperature regimes and flow patterns below these dams have reduced habitat quality and further reduced the productivity of these stocks. Given their low persistence scores it is unlikely that the Upper Willamette Spring Chinook ESU could be viable without significant improvements to population spatial structure. The results of this blocked access are well described in the proposal, with references to reports of the Technical Recovery Team and the Willamette Subbasin Plan. The scientific literature is also well referenced. The background concludes with a logical approach for addressing these problems.

The proposal provides a clear rationale in the utility and potential for their reconnecting historical habitats. The project will also address the question of dam and reservoir survival, which is related to determining habitat access and the productive potential of habitat. Dam blockage of habitat access is a priority issue of the Willamette Subbasin Plan, and this proposal is very closely tied to the Plan's objectives. The proposal is extremely thorough in documenting relationships to ongoing projects and programs. Data sharing and coordination among projects is well described.

Objectives are clearly defined and linked to the goal of having self-sustaining natural production of ESA-listed Chinook above US Army Corps of Engineers' dams in the Willamette River Basin. The seven objectives are specific, measurable, and logically related to the problem statement and to the subbasin plan. Work elements are listed as tasks under each objective. Tasks are specifically worded but are not described in detail beyond a task statement. The proposal would be improved by including methods in more detail specifying how tasks will be accomplished. M&E is very well described within the task descriptions for most work elements.

Information transfer is included in several tasks through the sequential preparation of reports (Tasks 1.4, 3.4, 5.4) and the intent to have coordinated review of the rationale of research tasks (Task 2.2.1). Objective 7 provides a detailed step-by-step plan to utilize and disseminate information generated by this project including: quarterly reports, annual reports, work group presentations, technical presentations to peer groups, and peer reviewed journal papers.

200727200 - Conservation and Recovery of Endangered Species Act Listed Floodplain Fishes in the Willamette Basin, with Emphasis on Oregon Chub

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$294,109 FY08: \$143,629 FY09: \$143,629

Short description: The primary focus of the proposed project is for the conservation and recovery of Endangered Species Act (ESA) listed floodplain fishes and their habitats in the Willamette Basin. The project is a collaborative effort between various agencies.

Recommendation: Fundable (Qualified)

The proposal satisfies a clear need to protect and restore a listed non-salmonid species and is consistent with the Fish and Wildlife Program goal of protecting biodiversity. The project could be of great benefit for Oregon Chub recovery. Although the ISRP is not requesting a response, the proposal would be improved if the sponsors addressed several methodological questions described below related to monitoring and evaluation.

Technical and scientific background: The problem is well defined. There is a clear need to recover Oregon Chub, a listed species, so that the species can be downlisted. Declines have resulted from habitat loss and non-native species introductions. The sponsors provide an extensive description of the effects of changes in the Willamette River Basin on floodplain-dependent native fish such as chub, and the conditions under which this species is productive. The proposal includes excellent referencing of the related scientific literature. Data are provided to support the time trend of abundance. The rationale for increasing off-channel habitat is persuasive. The sponsors should discuss what has been learned about chub reintroduction as a result of both the successes and failures that will influence future reintroductions.

Rationale and significance to subbasin plans and regional programs: The project would contribute toward meeting objectives for the Oregon Chub Recovery Plan, Willamette Subbasin Plan, and the Fish and Wildlife Program.

Relationships to other projects: The project relates to several other chub projects in the Willamette Basin, one of which funded by BPA. A number of other BPA projects related to Oregon chub are briefly described but little detail is provided on how each project relates to this proposal. Monitoring of chub populations is funded by a number of agencies and will be coordinated with this project.

Objectives: Objective 1 is very well defined and proposes to enhance five off-channel flood plain habitats/ponds for Oregon chub re-introductions in the Willamette subbasin. Specific sites with favorable or recoverable habitat have been identified according to criteria established in the Oregon Chub Recovery Plan.

Tasks (work elements) and methods: Methods involve construction of ponds at the suitable sites and stocking fish, but details of the work are lacking. Five restoration sites have been identified.

All are on private land and are described specifically. Techniques appear reasonable. The sponsors have experience with pond construction and fish reintroduction and should be able to successfully achieve the objectives.

Monitoring and evaluation: The sponsors propose a monitoring program that appears to be adequate to assess changes in chub abundance. How often will the sites be sampled? What kind of habitat data will be collected and how will it be analyzed? Mark-recapture methods are notorious for having large confidence intervals around the population estimate. What has been the variability of the estimates so far and how will this variability (uncertainty in the estimate) be taken into account when analyzing population trends? How well have the assumptions of the mark-recapture method been satisfied? Have abundance and habitat targets been established?

Facilities, equipment, and personnel: The facilities are adequate and the personnel are exceptionally qualified.

Information transfer: Information transfer will occur via electronic annual reports, hard copy reports, on the website of the ODFW Fish Investigations Project, and in the ODFW database for ESA listed fishes of Oregon. Data will be shared with the Oregon Natural Heritage Information Center. We encourage the sponsors to publish their work on re-introductions in peer-reviewed scientific journals.

Benefits to focal species: Oregon chub will realize long-term benefits from an increase in suitable habitat. The sponsors have had some success with re-introductions so far. This project could serve as a model for similar future projects.

Benefits to non-focal species: Other aquatic species such as red-legged frogs also will likely receive long-term benefits from an increase in floodplain habitat.

199607000 - McKenzie Focus Watershed

Sponsor: McKenzie Watershed Alliance

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$162,070 FY08: \$169,121 FY09: \$176,474

Short description: Continued administration of McKenzie River Focus Watershed for coordinated planning and monitoring of fish, wildlife and water quality improvement projects and improved resource stewardship through public outreach and education.

Recommendation: Fundable

The McKenzie Watershed Council (MWC) has been very active in subbasin issues, is well directed, and has achieved considerable success. There is every reason to believe this success will continue in the future. Future reviews should focus on the adequacy and accomplishments of the proposed monitoring program.

The proposal presents a good summary of the problems facing the McKenzie watershed as identified in the McKenzie River assessment and the Willamette Subbasin Plans. It establishes a

general link between the MWC and the mitigation of identified limiting factors such as invasive vegetation, stream velocities, bank erosion and lack of channel complexity. Although the watershed has high quality habitat, significant habitat degradation has occurred in the lower river on private land. The major threat to salmon in the watershed is loss of juvenile habitat.

The MWC has been funded by BPA since 1996. The proposal includes a list of project accomplishments and reports, as well as a description of the adaptive management processes that the MWC follows to implement the conservation strategy. The MWC has an impressive list of accomplishments, many involving outreach to the public. It has established an innovative benchmark system to evaluate MWC progress toward its goals. However, as earlier ISRP comments have noted it would still be helpful to have a summary of the big picture effects of the many activities being coordinated. The project to date appears to have been well coordinated and involves multiple partners planning and actively participating in aquatic and terrestrial restoration projects. Particularly noteworthy is the 8300 volunteer hours that have been devoted to assisting with MWC projects.

The proposal directly addresses objectives in the McKenzie and the Willamette Subbasin Plans and is driven by the McKenzie River Conservation Strategy, which prioritizes watershed restoration actions. The strategy includes benchmarks that establish target conditions. The planning document connects the actions of the MWC to the Fish and Wildlife Program goals and other regional programs. The sponsors appear to have strong cooperative relationships with landowners and the McKenzie River Trust. Agency personnel participate in restoration planning.

Objectives are clear and are directed toward continuing the work of the MWC. The objectives deal primarily with coordination of restoration activities with private, government, and NGO entities. The proposal will establish several new, prioritized on-the-ground restoration projects. Improvement of water quality and outreach are especially important objectives of the proposal. They seem to be appropriate and ambitious objectives for a watershed council.

Work elements under each objective are described in detail. Techniques are appropriate for the coordination tasks described. Particularly noteworthy are the education and outreach activities conducted under Objective 4, which include not only the usual public information dissemination but also educational programs for K-12, reflecting a long-range strategy for community stewardship. In total, the work elements describe activities of a well-integrated watershed council program. The sponsors have a long-standing record of achieving success with the outlined methods.

The watershed council coordinates several monitoring programs related to water quality. As part of this proposal the MWC is developing an effectiveness monitoring program to expand on existing tributary monitoring. Information transfer is implemented through the MWC website, newsletters, and annual reports. Information distribution is also through collaborators. Probably the most effective information transfer is through the outreach and education programs which are well described under Objective 4.

Columbia Gorge

200712200 - White Salmon River watershed assessment above and below Condit Dam before anadromous fish reintroduction

Sponsor: Columbia River Research Laboratory

Province: Columbia Gorge **Subbasin:** Big White Salmon

Budgets: FY07: \$341,115 FY08: \$305,689 FY09: \$323,804

Short description: Assessment fish population structure and habitat conditions above and below Condit Dam prior to the re-introduction of anadromous salmonids.

Recommendation: Fundable

This is a large and complex proposal, and the work elements go far beyond the stated title. With Condit Dam scheduled for decommissioning in 2008, there is indeed a unique opportunity to gather as much data as possible prior to the dam's removal and to track the re-establishment of anadromous salmonids in the upper White Salmon watershed after the dam is gone. In general, the technical background section is well documented, and the history of salmon management in the White Salmon River system is adequately presented. The opportunity to assess the effects of Spring Creek National Fish Hatchery tule Chinook and the upriver brights from Little White Salmon National Fish Hatchery on an apparently naturally-spawning tule Chinook population in the lower river is interesting, as is the possibility that headwater rainbow trout may still harbor an anadromous life history strategy that can be expressed after dam removal.

In order to ensure that specific methods of data collection and analysis used as a part of this project are consistent with regional efforts to standardize methodology, biologists will be actively involved with the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP) and the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). Products and developments from these efforts will be used to ensure that information generated from the project is compatible with information generated in other subbasins and is useful for regionwide assessments.

The ultimate product of this effort will be a planning document, created by the Yakama Indian Nation (YIN), Washington Department of Fish and Wildlife (WDFW), United States Geological Survey (USGS) and the United States Fish and Wildlife Service (USFWS), which will serve as a framework for anadromous salmonid reintroduction and habitat restoration. The information on salmonid populations and habitat conditions obtained through this project will be used to create a planning document based on current scientific information. The framework of reintroduction will be as specific as possible including the number of generations that need to be conserved, the broodstocks to be used, and strategies for reintroduction will be recommended by species.

The benefits of this work will be long-term. Non-focal species are not mentioned, but it is possible that exotic species can invade the White salmon subbasin. Adding a monitoring component to follow non-native species spread would be helpful.

200705200 - Chum Salmon Evaluations Within Bonneville Reservoir

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$246,972 FY08: \$259,320 FY09: \$272,286

Short description: Evaluate and expand upon existing data for chum salmon movement patterns, habitat preferences, and population dynamics within Bonneville Reservoir with the intent to establish a viable spawning population of chum salmon.

Recommendation: Not fundable

The technical and scientific background establishes that a problem exists - a decrease in chum salmon abundance during the past century. But the technical and scientific background does not establish that this project is needed to guide management in solving the problem. There is no indication that this work is identified in a Fish and Wildlife Program subbasin plan or a federal recovery plan. Therefore, the ISRP cannot recommend the project for funding at this time.

Any future proposal should develop the topic with much more detailed justification and evidence that much of the work has not been completed by prior projects. For example, habitat evaluation is going to be completed to identify sites for Duncan Creek like supplementation. Wouldn't information already exist in databases or the EDT analysis that was part of the subbasin planning process?

The proposal could have been made more complete by describing the methodology and proposed outcomes of this study.

200102700 - Western Pond Turtle Recovery - Columbia River Gorge - Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$194,387 FY08: \$175,260 FY09: \$175,260

Short description: This project will continue with recovery efforts for the western pond turtle in the Columbia River Gorge. Emphasis will be habitat improvement and predator control. Population augmentation will continue at select sites to aid in recovery.

Recommendation: Response requested

This proposal meets the ISRP review criteria and benefits wildlife; however, the ISRP would like to see a response to the following issues before making a final recommendation.

1) Project history is not well described. The authors need to more clearly identify how many turtles (by sex) were "head started" by facility, in each year, and when and where these individuals were released. The authors should also display the progress of habitat acquisition (acres) and enhancement (acres) detailed by year, site, activity, effort expended.

2) In Objective 1, the ISRP recommends that the authors use previous work (1996-2005) as a pilot project and analyze abundance using mark recapture and present their results (mean, confidence intervals) and clearly present these estimates in a long-term recovery analysis. In

Objective 1, the ISRP believes the authors need to better define evaluation criteria that will use to select new site(s) for turtle release.

3) In Objective 2, the authors need to identify sample sizes of turtles they will mark and methods they will use to estimate survival. The choice of mark recapture as a technique to monitor turtle populations should be evaluated by analyzing data on hand as a "pilot project." The ISRP suggests authors propose alternative(s) to mark/recapture as a technique for estimating population size (e.g. index such as capture/effort?).

4) Objective 3 could be improved with a summary that describes the past husbandry techniques and specific changes that will be made in the future.

5) Objective 5 could be improved if the authors present acreages of habitat they will manage, how they will manage these acres, and present plans to evaluate habitat.

6) Also lacking are plans to evaluate efforts to reduce bullfrog populations.

200703200 - Potential effects of the invasive New Zealand mudsnail in tributaries of Bonneville Reservoir and the Deschutes River, (*Potamopyrgus antipodarum*)

Sponsor: US Geological Survey (USGS) - Cook

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$27,500 FY08: \$27,500 FY09: \$25,000

Short description: Evaluate the potential effects of the New Zealand mudsnail on important salmonid rearing habitats in the Columbia Gorge Subbasin.

Recommendation: Response requested

This proposal gives an adequate review of why this invasive snail (New Zealand Mud Snail) should be investigated in the subbasin but the program proposed is more suitable for basic research. The work could be important for characterizing the distribution and abundance of the invasive snail, examining its impact on primary production, and determining habitat parameters affecting its spread. However, the ISRP requests that project sponsors respond to the following issues:

1. The proponents have underestimated the task of determining the effect of the mud snail on the ecosystem supporting juvenile salmonids in the Columbia Gorge Subbasin. Even if the snail does consume a major proportion of primary production, if its abundance is negatively correlated with fish food abundance, or if it is found to be fish food species, the significance of these findings for survival of juvenile salmonids is not clear. The proposal would be improved by an explanation of how these data would help determine ecological effects of the mud snail at the secondary and tertiary (fish) trophic level. What would the form of the "logistic" model proposed be?

2. It would be helpful if the proponents described the potential management actions if the mud snail was found to be affecting salmon production.

200102600 - Status, Genetics, and Life History of Coastal Cutthroat Trout above Bonneville Dam

Sponsor: US Geological Survey (USGS) - Cook

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$258,294 FY08: \$259,033 FY09: \$252,916

Short description: In an effort to fill a large information need, WDFW and USGS biologists propose to conduct extensive and intensive sampling for coastal cutthroat trout in subbasins of the Columbia River watershed above Bonneville Dam.

Recommendation: Not fundable

Obtaining data on coastal cutthroat trout status would be useful, but the comments in previous years that it should be collected as part of broader faunal surveys still stand. The rationale and justification for the work elements are not compelling. Therefore, the ISRP believes this project is not fundable at this time.

In earlier reviews the ISRP recommended that data on the status of cutthroat trout could most efficiently be collected when faunal or other fish surveys were being conducted, and that a general review of what data is available needs to precede any new fieldwork. In response to these recommendations the sponsors produced a report on the status of coastal cutthroat trout in the Columbia River gorge province (Connolly et al. 2002) and identify in this proposal that fieldwork by several BPA projects in the Fifteenmile, Hood, Wind River, and Klickitat River subbasins would be involved in providing tissue samples and estimates of emigrants from PIT tagging juveniles. They also state that this proposal will be executed as part of a Hood River/Fifteenmile Umbrella Proposal.

The ISRP recognizes this effort to address earlier criticisms, but concludes that the background in the proposal, work completed to date, and work elements in this proposal do not sufficiently resolve these issues.

The background is too brief to provide justification for a problem or provide that the proposed survey would resolve that problem. The cited literature on the status of coastal cutthroat is dated and does not include any updated ESA status review by either NOAA or the USFWS. The proposal does not identify where there are gaps in the field surveys, which ongoing BPA projects will contribute to filling those gaps, and what gaps this project will address. Part of the survey work is geared to establishing relationships between habitat conditions and abundance of these trout. Yet the difficulty in establishing these relationships is not discussed. A summary of current views on those relationships is not provided, and evidence is not given that the proposal offers an approach to improve understanding of these relationships.

There is no review of recent literature on genetic analysis of coastal cutthroat trout metapopulations and hybridization between *O. mykiss* and *O. clarki clarki*. It is not clear why this new literature cannot serve this region (i.e., a case has not been made that the data need to be collected everywhere). There is no demonstration of how this data will be used to improve management. The budget to generate DNA microsatellite genotypes for population structure of

coastal cutthroat trout, mtDNA and scnDNA rflps genotypes for analysis of hybridization between coastal cutthroat and either rainbow/steelhead or west slope cutthroat trout appears inadequate.

200713900 - Rock Creek Stabilization and Habitat Rehabilitation

Sponsor: Skamania County

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$143,814 FY08: \$489,330 FY09: \$190,868

Short description: Rehabilitation of riparian area and habitat for the lower 5300 feet of Rock Creek, Stevenson, Skamania County., WA.

Recommendation: Not fundable

The ISRP believes this proposal is not fundable for the following reasons:

The symptoms of this watershed problem seem to be a mile-long channelized length of Rock Creek with excessive sediment and with poor in-channel and riparian habitat. The existing conditions are not clearly described for reviewers who are not familiar with the site. No maps, drawings or photos are provided, but they are needed. This proposal characterizes the problem as inadequate sediment transport capacity, with an overwidened, shallow channel. It does not provide a description of the channel: floodplain dimensions, channel planform/sinuosity conditions or the condition of bank and floodplain vegetation.

The technical background section adequately describes in general terms what is proposed, but it does not provide enough information about the status of the fish using Rock Creek or the extent to which the current habitat conditions have departed from pre-development conditions. The proposal is to rehabilitate about one mile of stream. Approximately how many fish used this reach in the past, and how does that compare to its current capacity? A high degree of accuracy is not needed, but the proposal does not really address the issue of how Rock Creek productivity will benefit from the restoration efforts. Additionally, it would have been helpful to cite other projects that have used a similar hard engineering approach to habitat restoration and have been able to demonstrate a significant increase in salmon production.

The proposal mentions that the role of tributaries as important spawning and rearing areas is recognized in the Lower Columbia subbasin plan, but it is not clear if Rock Creek was specifically identified as a stream in need of significant restoration. Nearby Hamilton Creek is targeted as an important chum salmon spawning site in several plans, but particular references to Rock Creek are missing from this proposal. If chum salmon are the primary focal species for this project (they are identified as such in Section 3 of the cover pages), how much potential chum production can be achieved by rehabilitating a mile of stream?

The planting plan is vague; without reference to the engineering works, it gives the impression that planting is unrelated to the stream engineering works. The prescriptions are large rock and large wood jam structures, with no mention of use of woody vegetation for bank stabilization or

channel narrowing. The relatively hard engineering approach proposed here is unlikely to achieve the stated objectives.

The concern is that this proposal will result in inappropriate alteration of a riparian corridor to a narrowed channel, with a resulting lack of spawning gravels in the channel owing to excessive sediment transport capacity. In this situation you might want to give more room for flood flows, not less; the flushing of sediments approach could scour the channel bed, resulting in headcutting.

This proposal does not provide enough information to justify the proposed actions. Of specific concern is that the project does not seem to address the cause of the problems. If flood flows are given proper access to the floodplain, then lower velocity flows will result in sediment sorting that will replenish spawning gravels by hydraulic forces. This can be achieved best by the use of bioengineered structures such as willow baffles for bank protection and finer sediment retention, connected with brush mattress design on the floodplain banks. This kind of approach will significantly increase habitat functions sustainably and cost-effectively, but a level of expertise is needed that is not evident on the team.

This project is essentially a band-aid on some other problems. In fact, the following quotes are from sections of the CGTB watershed plan and indicate an entirely different approach:

1. Restoration of degraded channel habitat in Rock Creek may require action outside the targeted reach, often extending into riparian and hillslope (upland) areas that are believed to influence the condition of aquatic habitats.
2. Sediment conditions in Rock Creek will remain moderately impaired to impaired until headwaters sediment sources are addressed.

The County should be complimented for their intent to increase fish habitat and asked to ensure the more watershed-based, passive approach indicated in 1 and 2 above.

In more detail, Table 8. "Prioritized measures for the Columbia Gorge Tributaries Basin" lists measures to improve fish habitat conditions. The 1st location is the lower mainstem Rock Creek up to Rock Creek Falls (RM 1), for anadromous access. However, the prioritized submeasures for Measure #1, Protect stream corridor structure and function are:

- A. Protect floodplain function and channel migration processes
- B. Protect riparian function
- C. Protect access to habitats
- D. Protect instream flows through management of water withdrawals
- E. Protect channel structure and stability
- F. Protect water quality
- G. Protect the natural stream flow regime

Floodplain function and channel migration processes must be maintained together with increasing riparian structure and function. Protecting channel structure and stability should follow achievement of the previous priorities, especially by addressing the excessive sediments being delivered to the lower mainstem from upstream logging-related roads and landslides.

Rather than concentrate flows by altering channel structure in the best habitat reach in order to flush sediments through this lower reach, the published priorities would imply instead some type of a revegetation/ soil bioengineering approach to restore the stream systems' sediment sorting and storage capabilities. This can be achieved while decreasing the lower channel width/depth ratio and rebuilding the lost floodplain by trapping sediments. In addition, watershed restoration should address upstream logging- related landslides and road crossings.

Table 7 summarizes the Limiting Factors for habitat conditions on Rock Creek. The list does not include the proposal proponents' assertion that channel instability is the primary problem.

Considering the relatively high cost of the project, the likelihood of continued maintenance, and some questions about (1) applying these particular restoration procedures to this channel type, and (2) whether a passive restoration approach would be more appropriate and cost-effective in the long term, this proposal needs a better scientific justification and some prediction of the effects of the project on salmonid productivity.

Other review comments:

Relationships to other projects are inadequately described; the proposal does not seem to be integrated with fish and wildlife programs. More details, and references to ongoing salmon enhancement projects of similar intent in the Columbia Gorge, are needed.

The other work described is for maintenance and replacement of a bridge, already initiated by Skamania County. There does not appear to be any interdependency or collaboration between the two proposed projects.

The objectives are clear in terms of the number of instream structures that will be placed and streambanks that will be replanted with native trees, but there are a number of unanswered questions.

It appears that this proposal will attempt to turn a plane bed channel into a forced pool-riffle channel (using the classification terminology of Montgomery and Buffington). If, in fact, the Rock Creek watershed continues to experience episodic high intensity erosion events, it seems very likely that the hard engineered structures will require frequent, expensive maintenance as the stream naturally tries to return to a sediment-rich plane bed channel. Is the high initial cost and possibly frequent maintenance the best use of restoration dollars?

The types of structures described in the proposal are typical of a Rosgen-type restoration project where the objective is to create better salmonid rearing habitat but it seems the real target species

is chum salmon, which may not really benefit from the pool habitat that may be created. The proposal mentions potential benefits for coho, Chinook, and steelhead but do we know whether these species actually use Rock Creek?

The objective of getting rid of the non-native riparian plant species and replacing them with native species is a good one. What will be done to ensure these native plants survive?

To achieve the objectives stated, the equipment and personnel are probably adequate, but again the size and number of large machines required are such that there will be a substantial impact on the local environment, compared with the alternative suggested above.

Plans appear to be limited to annual reports to BPA, with occasional presentations to the public. There is no mention of data archiving, or storage of time-series photos, and possible volunteer actions outside the scope of the project (photographs to be supplied to the client by schools taking part).

Unless funding for long-term maintenance of the engineered features of Rock Creek is guaranteed, benefits are likely to be short term and harm may possibly result. If the stream sinuosity is indeed “fixed” by this proposal, it will persist over the long-term, but this may be deleterious to the fish population.

Fifteenmile

200700700 - Determine Status and Limiting Factors of Pacific Lamprey in Fifteenmile Subbasin, Oregon

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$136,798 FY08: \$122,850 FY09: \$125,548

Short description: Determine the status of Pacific lamprey including distribution, escapement and harvest. Identify limiting factors that may prevent optimal lamprey production in the Fifteenmile Subbasin.

Recommendation: Not fundable

This project is a duplication of studies proposed by the Confederated Tribes of Warm Springs Reservation of Oregon in the Deschutes River, except that the Fifteenmile Creek basin work deals more with habitat degradation problems. Because most of the objectives are similar between the two proposals it would be more effective if the studies were focused on the Deschutes because it is uncertain if the lamprey habitat can be recovered in Fifteenmile. For these reasons, the ISRP believes this project is not fundable at this time.

While the CBFWA Lamprey Technical Working Group is mentioned, there is no indication that the TWG has identified the objectives of this proposal as fitting into an overall plan or strategy

for determining basic information on lamprey. It should be possible to generalize from results of existing studies – if this is not so the proponents need to point out the absolutely unique attributes of Fifteenmile.

The habitat in the Fifteen Mile Subbasin appears to be in very poor condition. Lamprey habitat is suffering from multiple habitat stresses ranging from toxic spills to impassable conditions owing to culverts. Although the proposal was well written, insufficient data were provided on some of the degradation to determine if some features were recoverable, especially water quality. For example the specific type of toxic spill was not identified – is the stream still suffering from chronic effects of it? Although the proponents must feel lamprey habitat in the creek can be recovered, it was difficult to get a perspective on how realistic this goal actually would be.

199304000 - Fifteenmile Creek Habitat Restoration and Monitoring Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$375,687 FY08: \$388,463 FY09: \$395,156

Short description: Provide continued operation and maintenance on previously installed fencing and instream habitat, monitor the success of all restoration efforts, and begin implementation to improve instream habitat complexity within the Fifteenmile Creek Subbasin.

Recommendation: Fundable (Qualified)

This group continues to impress, and is congratulated on preparing an excellent proposal that follows the subbasin plan and the previous advice of the ISRP. Fifteenmile Creek is one of the Basin's success stories in terms of bringing stakeholders and management organizations together. The work deserves to be continued, but it is time for the project managers to begin showing results in terms of improved population characteristics (e.g., VSP parameters) and long-term trends in habitat improvements. Although we are not requesting a response, the ISRP believes the project sponsors should consider the following points:

This project is an ODFW-led effort that has been ongoing for about a dozen years. The major emphases of the project are livestock exclusion from riparian areas, in-stream habitat improvements, and smolt monitoring. The technical background section provides a good description of the watershed's history and the significance of its fishery resources. Overall, Fifteenmile Creek has served as an excellent example of cooperation by local, federal, state, and tribal organizations, with a concerted effort to build local support. It could serve as a demonstration project for the basin, particularly for the bank stabilization work. However, a better documentation of biological response is required.

The proposal does a good job of describing the history of the project, going back to its genesis in 1987. The table giving a list of the accomplishments by year, including cost breakdowns, was helpful. The project history did not include a subbasin-wide summary of habitat improvements (e.g., total miles of stream fenced, numbers of structures placed, accompanied by an estimate of new pool habitat created), reductions in fine sediment in spawning gravels, and other performance metrics. Having those kinds of summary numbers would help evaluate the overall

project effectiveness, and improve the proposal. The Fifteenmile Creek Restoration Project has implemented riparian protection and instream habitat improvement for almost 20 years. Much of this work is now demonstrating improved ecological health indicative of riparian corridor vegetation and improved channel stability. The minimal monitoring and evaluation of the project to date has primarily been useful to qualitatively demonstrate these improvements. Photopoint documentation and previous redd surveys are useful tools to document improvements but offer minimal quantified evidence to monitor successful fisheries and water quality recovery objectives.

This project proposes more scientific-based quantitative monitoring and evaluation to determine the success of implemented measures on fisheries populations. Previous temperature monitoring has suggested slight localized improvements to late summer water temperatures but is often obscured by conditions such as beaver impoundments, and increased water withdrawal. The steelhead redd survey protocol was modified in 2003 to incorporate a stratified random reach survey with index stations. Although this method has more scientific rationale, it is still difficult to statistically enumerate adult escapement in the basin. This is the basis for proposing a quantitative approach to monitoring and evaluating the effects of habitat improvement using rotary screw traps and an adult monitoring facility.

This proposal will address instream habitat improvements that the Fifteenmile Subbasin Plan (WCSWCD 2004, pg 16) identified as the number two limiting factor in improving steelhead recovery as modeled by the EDT Scenario Builder. This will be accomplished through the design and construction of large woody debris complexes in areas defined in the subbasin plan and ODFW stream survey as productive but limiting in rearing habitat. This component will be the future direction for project implementation now that an estimated 85% of the riparian corridor is excluded from livestock grazing and undergoing vegetative recovery.

The objectives are clearly stated and measurable. Timelines were not always spelled out and should be clearer. The objectives called for increasing steelhead smolt output, but the proposal does not address the issue of adult returns and how this might influence smolt production, as we know they do. The abundance of adult steelhead returning to Fifteenmile Creek is estimated, thus it should be possible to estimate an egg-to-smolt survival rate (assuming a certain number of eggs per female), which would be an excellent indicator of restoration effectiveness. The appropriate response variable would be the smolt yield per spawner as a function of the number of spawners.

The project sponsors should publish the results of their bank stabilization efforts -- successes and failures. They have put over 2000 fish habitat structures. What are the results? There is a need for more literature in this area, towards evaluation of it as a cost-effective restoration approach. What is the tie between the efforts and the geomorphologic processes? Like the Wind River, this could be a good demonstration area. Fifteenmile Creek is the eastern-most stream for winter steelhead, thus critically important.

The background section of the proposal would have been more persuasive if it had included information about the recent status and trend of fish populations and habitat. Since this project has been in place for over a decade, what have we learned about its effects on fish (especially winter steelhead) populations and stream habitat? What is the evidence that all the hard work has really helped? The second objective (page 13) describes the monitoring program. Although this section was reasonably complete in terms of field techniques, there was no description of how that data would be analyzed, i.e., what statistical approaches would be used to measure response to the restoration work.

Some further suggestions should be considered. Methods are clearly described, and it was good to see some discussion of the changes that have been made in response to past difficulties. PIT tags will be utilized to determine in-subbasin and out-of-subbasin effects on Fifteenmile Creek's wild winter steelhead population. Because of the duration of the Fifteenmile Creek project, this watershed is an ideal place for PIT-tagging to determine the effectiveness of different restoration actions in different parts of the system. Although steelhead/rainbow trout will be PIT-tagged, it appears that the focus is on determining smolt trap efficiency and the proportion of age 0 downstream migrants to "true" smolts. Additional PIT-tag detectors on some of the tributaries and in the lower mainstem could yield important information. The assistance of a statistician may help design this level of evaluation.

200102100 - 15 Mile Creek Riparian Buffers

Sponsor: Wasco County Soil & Water Conservation District (SWCD)

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$86,168 FY08: \$88,500 FY09: \$91,887

Short description: This proposal develops riparian buffer systems on streams in the Fifteenmile Subbasin and other direct tributaries to the Columbia River in northern Wasco County.

Implementation of buffer plans developed under this proposal are fully funded by USDA.

Recommendation: Response requested

Protection of riparian areas has been given a high priority in this subbasin, as noted in the subbasin plan. The proposal, however, does not adequately describe what this project will do. With some difficulty, reviewers determined that the purpose of this project was to assist in the planning and coordination of additional riparian protection in the Fifteenmile Creek system but that the funds will not actually be used to build or maintain fences or off-stream stock watering systems. A response is requested regarding reporting of past results in terms of benefit to fish and wildlife and other issues raised below.

A map with the project sites clearly identified would have made an excellent addition to the proposal and eased understanding of the effectiveness of the treatment proposed.

It still is not clear why this was submitted as a stand-alone project and not combined with another proposal that actually implements habitat improvements. Although it is not clear why the planning and coordination phase of the Fifteenmile riparian protection effort is being submitted as a separate proposal, it is nevertheless an important step, and if more landowners are

encouraged to enroll in the CREP/CRP program, there will be long-term benefits. The effort appears positive - significant buffer zone implementation and planning (over 44 miles of streambank) should provide positive results.

The proposal describes some other projects in the Fifteenmile Creek system, but it doesn't clarify how this project has or will contribute to them. Additional details should be provided in the response. For example, what problems were the other projects having that this one helped solve?

The proposal adequately describes the biological objectives for improving riparian areas in the Fifteenmile subbasin. The "physical objectives of this project" are to develop 40 new riparian buffer plans that will benefit 44 miles of stream and 900 acres of riparian habitat. The actual objectives of this project do not involve on-the-ground implementation but instead focus on planning, coordination, enrollment on the USDA buffer program, and technical feedback to landowners. The planning, coordination, and technical transfer steps are reasonably well described. It would be helpful for the response to show where the 40 new riparian buffers would be likely to be located, and their relationship to focal species distribution.

See also the ISRP's programmatic comments and proposal review comments on 200706100 - Deschutes Sub-basin Riparian Restoration through USDA Conservation Reserve Enhancement Program (CREP) and the relation of this project to these issues:

1. How enrollment objectives are determined.
2. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
3. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.
4. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?

See also: 200203400 - Wheeler Co Riparian Buffers and 200203500 - Gilliam Co Riparian Buffers. This proposal might coordinate a response to the items above with sponsors of these other related proposals.

200722000 - Water and Economic Optimization Project to Restore Streamflow in Fifteenmile Creek in the Fifteenmile Subbasin

Sponsor: Wyeast Resource Conservation & Development Area Council

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$339,993 FY08: \$179,673 FY09: \$160,573

Short description: As irrigated agriculture adopts a new management paradigm based on economic objectives--the maximization of net benefit--rather than maximizing biological yields. Water optimization is a departure from current conventional irrigation practices.

Recommendation: Fundable (Qualified)

The ISRP believes this proposal is fundable but project sponsors should consider the following points, which may improve the quality of the project:

In many respects, this is a comprehensive proposal with high potential for lasting benefits, even under climate change conditions. Landowners in the Fifteenmile subbasin seem to be willing to try new conservation measures without waiting for additional regulations. If the agricultural economists can help them reduce water use without harming their crops, this project will be worthwhile. A literature review on similar approaches and model verification would add to the proposal.

This is essentially a "proof of concept" proposal, which seeks to demonstrate that irrigation withdrawals can be reduced by about 10-20% (up to 7 cfs) by using improved technology to optimize water use and reduce or eliminate wastage. The problem is reasonably well defined and the spatial context, i.e., priority reaches for flow increases, is provided (Fig. 3). The concept of irrigation efficiency is adequately explained, but there was no estimate of the increase in steelhead capacity (using, say, the scenario builder feature of EDT) that would result from the best-case outcome.

Overall, this is a very promising pilot study that could have application basinwide for saving water for instream uses. Although the project is certainly aware of the Subbasin Plan strategy to secure instream water rights, an important missing piece from the proposal is that the water saved would remain instream and that this additional water be meaningful. The ISRP's "fundable" recommendation is qualified with the condition that the project can address the following concerns: How far downstream on the creek would the saved water accrue? It appears in the lower third of watershed. Is this the key area for steelhead rearing? Or is the water really needed in the upper watershed? The project should meet the criteria used to select and prioritize projects by the Fish and Wildlife Program's Water Transaction project run by the National Fish and Wildlife Foundation, project 200201301.

In addition, the ISRP qualifies its recommendation because the proposal's monitoring and evaluation plan should be improved. Although this proposal is best viewed as a pilot study, the proposal does not include monitoring for whether the estimates of saved water are achieved. Monitoring in the proposal appears to be limited to the 500-acre test site to soil moisture and weather.

The proposal relates the project need to provisions in the Fifteenmile subbasin plan, the Council's Fish and Wildlife Program, and the BiOp.

Currently, a project very similar to the one proposed is ongoing in the Ochoco Irrigation District in the Upper Crooked River Watershed near Prineville Oregon. Funding for this project comes from Natural Resources Conservation Service, Oregon Trout, and Altria Foundation. The project name is Water and Economic Optimization Project. However, the proposal could have provided a more complete description of its relationship to other Fifteenmile Creek steelhead habitat restoration efforts, of which there are many.

A number of the objectives were administrative and/or process-oriented, and were related to planning and improving information transfer to the local farmers. From a scientific standpoint, the more interesting objectives had to do with deploying an array of environmental sensors that can be networked through telemetry to an irrigation optimization model that will allow modification of water withdrawal practices, increasing in-stream flows. These latter objectives have measurable outcomes, although the timelines are a little vague.

The water optimization modeling effort - the heart of this project - is still in a somewhat developmental stage at Oregon State University, but it appears to be based on the latest economic principles. Where would the initial pilot systems be located within the Fifteenmile subbasin (apparently the exact sites haven't been selected yet)?

The facilities, equipment, and personnel appear to be very well qualified, especially the two agricultural economists from OSU.

Information transfer was primarily directed at providing near real-time information to farmers, and periodic reports to BPA and NRCS. However, given the importance of pilot-scale projects like this to the basin as a whole, the investigators should consider peer-reviewed publications and other media that can reach a broader segment of the agricultural community.

The proposal did not attempt to provide a quantitative estimate of steelhead productivity improvements, but there is a very high likelihood that increasing streamflow by 5-7 cfs will be beneficial, although there is a question over the benefits being limited to the bottom third of the watershed. Non-focal species are likely to benefit from increased in-stream flows, if they can be achieved as predicted.

While this approach remains economically attractive to the farmer, it should continue to provide the benefits described. Furthermore, it would be relatively easy to subsidize the costs to the extent necessary, while continuing to monitor the tangible benefits. There is concern over the degree of sophistication implied, both in the instrumentation and technical expertise required - even allowing for a more "black box" operational approach in the longer term.

200724200 - Fifteenmile Subbasin Efficient Irrigation Technology

Sponsor: Wasco County Soil & Water Conservation District (SWCD)

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$423,912 FY08: \$424,413 FY09: \$425,005

Short description: Project will upgrade irrigation technology on 1,000 acres of orchard land from impact sprinklers (~65% efficient) to microsprinklers or drip irrigation with mulch (95% efficient or better). Total water savings are estimated at 900 acre-feet per year.

Recommendation: Response requested

Overall, this is a promising proposal for reducing water loss through evaporation. This project does include provisions for reserving water saved to instream rights, which is good. However,

the ISRP requests that certain issues be addressed before a final funding recommendation is made:

An important missing piece from the proposal is whether this additional water saved would be meaningful in terms of benefits to fish and wildlife. How far downstream on the creek would the saved water accrue? It appears that the water saved would be in the lower portion of the watershed for orchardists. Is this the key area for steelhead rearing? Or is the water really needed in the upper watershed? The project should meet the criteria used to select and prioritize projects by the Fish and Wildlife Program's Water Transaction project run by the National Fish and Wildlife Foundation, project 200201301.

Would it be more cost effective to purchase the water rights?

A response is needed to describe the monitoring plan to evaluate the effectiveness of the project.

The technical background is fairly well explained, but it is not clear why this project was separated from the Water and Economics Optimization project, which also provides tools for irrigation water conservation. This proposal is for upgrading the orchard irrigation systems on about 450 acres per year. It was a little unclear how much additional instream flow this would provide to the Fifteen Mile Creek system, but later in the proposal it is claimed that mulching 200 acres yielded 1/2 cfs over 100 days. It would have been helpful if the proposal had presented a map of fish distribution and the location of orchards where new technology might be applied -- this would have provided better context for the work.

The proposal links the work to the Fish and Wildlife Program, the Fifteenmile subbasin assessment, and the BiOp; it supports the Low Flow Restoration strategy of the Fifteenmile Subbasin Plan, which calls for a 50% recovery of historic flows as a high priority strategy for steelhead restoration.

The proposal listed other projects but did not go into a lot of detail about how it would be directly related to them. However, the restoration diagram (Figure 1) was an effective means of showing the overall goals of the different Fifteenmile Creek efforts. A little more detail about how this project would directly collaborate with the others would be helpful.

The biological objective given was the general objective of approximately doubling the number of steelhead smolts from Fifteenmile Creek, which included a 50% recovery of historic streamflows. The proposal does not specify how much incremental flow this particular project would supply by itself, but it does say that if combined with the water optimization modeling project the total increase in flow may amount to 50%. However, under a best-case scenario of improving irrigation systems on 1,000 acres, the proposal states that water diversions for those 1,000 acres would be reduced by about 30%. It would have been helpful if the proposal had translated this change into monthly streamflow increments.

In terms of science, there is not much in the work elements on which to comment. Most are process-related. It would help if priority setting included fields and orchards upstream from known spawning and important rearing sites.

The proposal did not include any provisions for monitoring streamflows after the upgraded irrigation systems were installed.

Facilities and personnel seemed reasonable.

Information will apparently be disseminated locally by Wasco County SWCD staff. Focal species are likely to enjoy long-term benefits of increased flows, although the incremental increase in total flow in Fifteenmile Creek, and the projected benefits to steelhead, cutthroat trout, and lamprey are not provided in the proposal. Non-focal species are not mentioned, but aquatic species are likely to benefit from the project.

Hood

198805303 - Hood River Production M&E - Warm Springs

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$585,897 FY08: \$544,920 FY09: \$556,421

Short description: Implement, monitor, and evaluate actions in the Hood River and Pelton Ladder Master Plans pertaining to smolt production, acclimation, and habitat.

Recommendation: Response requested

The ISRP requests that project sponsors respond to the following issues:

The Hood River Production Program (HRPP) is a fish supplementation project in the lower Columbia Basin jointly implemented by the Confederated Tribes of Warm Springs (CTWS) and ODFW. The primary goals of the Hood River Production Program are to: (1) re-establish and maintain naturally sustaining spring Chinook salmon in the Hood River subbasin, (2) rebuild and maintain naturally sustaining runs of winter and summer steelhead in the Hood River, (3) maintain genetic characteristics of fish populations within the Hood River subbasin, (4) restore degraded fish habitat in the Hood River subbasin, (5) contribute to tribal and non-tribal fisheries, and (6) ensure minimal adverse effects of the program on indigenous fish populations.

Escapement goals listed in Tables 1 and 2 differ significantly between those proposed by the 1991 Master Plan and the more recent scaling done by EDT. The more recent estimates are considerably more conservative. Presumably, the latter estimates are more reflective of carrying capacity estimates via EDT, than the earlier Master Plan goals.

Powerdale Dam provides the Hood River Production Program the opportunity to enumerate all returning adults and to control or eliminate escapement of out-of-basin strays. That ability will

be lost in 2010 when Powerdale is removed. It will be interesting to see how the sponsors propose to manage the various stocks in the Hood system once that happens. The ability to control strays and enumerate returning adults is an important current attribute of the system that will need to be addressed in future proposals.

The rationale and significance to subbasin plans and regional programs section does not provide a logical statement on this issue; rather, it rambles and mentions, more than convinces, the reader that the authors understand the issue. Clarification is needed.

Relationships to other projects are well described, particularly so for other projects within the Hood River system.

The project history is a loose narrative, rather than a synthesis of progress. There are some generalized statements that seem to be a bit hard to buy, for example, "The genetics work that has focused on winter and summer steelhead has shown that hatchery programs are not likely compromising the genetic fitness of first generation wild steelhead populations in the Hood River. Recent genetics findings from Blouin and Hitoshi (2004) determined absolute fitness between wild and Hood River hatchery winter steelhead not to be statistically different for run years 1995, 1996, and 1997. In addition, HRPP hatchery steelhead and Chinook have made contributions to both in river and mainstem fisheries." Results (and conclusions) like these need to be vetted through peer-reviewed publications, rather than only presented in progress reports. There is a disappointing lack of journal publication given the duration and data-rich nature of the program.

In sum, despite persistent ISRP recommendations about the need to provide a brief summary of results (in the form of synthesized data) within proposal, it is still not done. This is unacceptable for an ongoing project, particularly for the M&E project component of a larger suite of inter-related projects.

Objectives are often simply superficial escapement goals set by the program, not objectives on how to accomplish them. Objectives fail to lay out how the Hood River Production Program will evaluate supplementation, which is one of the major reasons the program was funded. Methodology is primarily a listing of field techniques and little has to do with experimental design.

198805304 - Hood River Production Program - ODFW M&E

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$536,935 FY08: \$583,381 FY09: \$609,659

Short description: Monitor and evaluate actions taken to re-establish spring Chinook salmon, and improve wild production of summer and winter steelhead, in the Hood River subbasin. Data will be used to develop, and refine, management objectives for the HRPP.

Recommendation: Response requested

The ISRP requests that project sponsors respond to the following issues:

The proposal was reasonably crafted and thorough, in spite of an extraordinarily dense visual presentation and technical writing that made for an arduous review effort. While the proposal did not have any marked deficiencies, it was difficult to review as it was not clearly and logically organized. The ISRP has concerns over the project design, how the project will be handled and data collected after removal of Powerdale, and over the lack of publications from such a data-rich project. The objectives and methods sections were presented more as lists than as integrated pieces of work, leaving the reviewer to infer linkages and relationships.

This specific M&E project proposes to collect species, race, and stock specific life history, production, escapement, run size, morphometric, meristic, and genetic information at juvenile and adult migrant traps located at selected sites throughout the Hood River subbasin. Information collected at the trapping facilities will be used to 1) refine the numerical fish objectives for wild summer and winter steelhead and natural spring Chinook salmon, to more accurately reflect the subbasins current and potential species and race specific spawner escapement and smolt production carrying capacities; 2) refine the numerical fish objectives for subbasin spawner escapements and harvest of summer and winter steelhead and spring Chinook salmon, 3) more accurately estimate species, race, and stock specific subbasin smolt-to-adult survival rates; 4) evaluate acclimation facilities; 5) monitor the incidental catch/take of wild and hatchery summer and winter steelhead in mainstem Columbia River fisheries, 6) develop guidelines for implementing the HRPP in a biologically sound manner, 7) evaluate both the Pelton ladder rearing facility and the proposed expanded hatchery facility at Parkdale, 8) develop guidelines for implementing the hatchery supplementation program in a manner that will minimize the HRPP's impact on indigenous populations of resident and anadromous salmonids; and 9) develop and refine strategies and guidelines for implementing the HRPP in a manner that will improve program efficiency and benefits.

Based on this description, it appears that lots of data have been (or will be) gathered; however, item 8 – the development of guidelines for implementing the hatchery supplementation program in a manner that will minimize the HRPP's impact on indigenous populations of resident and anadromous salmonids – does not seem to have been dealt with.

Escapement goals listed in Tables 1 and 2 differ significantly between those proposed by the 1991 Master Plan and the more recent scaling done by EDT. The more recent estimates are considerably more conservative. Presumably, the latter estimates are more reflective of carrying capacity estimates via EDT, than the earlier Master Plan goals.

Powerdale Dam provides the HRPP the opportunity to enumerate all returning adults and to control or eliminate escapement of out-of-basin strays. That ability will be lost in 2010 when Powerdale is removed. It will be interesting to see how the sponsors propose to manage the various stocks in the Hood system once that happens. The ability to control strays and enumerate returning adults is an important current attribute of the system that will need to be

addressed in future proposals, without which, the larger goals of the HRPP may be compromised.

Relationships to other projects is well described, particularly so for other projects within the Hood River system.

The project history carefully describes the tasks performed and includes a number of tables and figures from annual reports that, if they had been combined with a few pages of summary narrative, would have nicely described past results. Unfortunately that was not done. The question of whether the supplementation programs for summer and winter steelhead and chinook are working is never addressed!

Objectives are often simply superficial escapement goals set by the program, not objectives and strategies designed to accomplish them. The proposal does not lay out specific objectives and methods to evaluate supplementation. The methods section is simply a listing of field techniques, with little information on experimental design.

The lack of journal publication is disappointing given the duration and data-rich nature of the program.

198805307 - Hood River Production O&M - Warm Springs/ODFW

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$270,282 FY08: \$277,906 FY09: \$285,530

Short description: Restore and maintain populations of summer and winter steelhead, and re-establish and maintain the spring chinook population in the Hood River subbasin. Steelhead and chinook broodstock will be held and spawned at the Parkdale Fish Facility.

Recommendation: Response requested

The incomplete nature of this proposal, both potential missing sections as well as a lack of needed data should be addressed before funding is considered.

This project addresses adult broodstock holding, spawning, and smolt acclimation and volitional releases at the Parkdale Fish Facility located on the Middle Fork Hood River (RM 4.0). In cooperation with several ODFW facilities and operations, Powerdale Dam Fish Trap, Oak Springs Hatchery, and Round Butte Hatchery/Pelton Ladder, this project is a portion of the Hood River summer and winter steelhead and Chinook production.

Technical and scientific background: The co-managers have recently made major changes in run targets within the Hood River subbasin, e.g., "Following the completion of the HR Review, the co-managers agreed upon the future direction of the HRPP. The co-managers have revised the numerical adult fish objectives (French and Vaivoda, unpublished). This was done considering not only the HR Review, but also the Hood River Subbasin Plan. Overall the revised objectives are lower than originally proposed (Tables 4 and 5). Changes to the HRPP are being developed

to make necessary operational and facility adaptations so that the program remains biologically sound, the objectives are attainable, and the resources in the Hood River basin will continue to be enhanced and protected. The changes were based upon the assimilated data and output from several models run on the Hood River system, including the EDT model (Coccoli, 2004) and the Unit Characteristic Model, developed by Cramer and Associates (Underwood et al., 2003).”

Table 4. Adult steelhead and Chinook escapement goals to the Hood River from the Hood River Master Plan drafted in 1991 (O’Toole and ODFW, 1991).

Species	Naturally Produced Adults	Hatchery Produced Adults	Total
Winter Steelhead	1,200	3,800	5,000
Summer Steelhead	1,200	6,800	8,000
Spring Chinook	400	1,300	1,700

Table 5. Proposed adult steelhead and Chinook escapement goals to the mouth of the Hood River drafted in 2004 by HRPP co-managers (French and Vaivoda, unpublished).

Species	Naturally Produced Adults	Hatchery Produced Adults	Total
Winter Steelhead	656	1,000	1,656
Summer Steelhead	375	600	975
Spring Chinook	128	750	878

The proposal uses these new goals, but fails to mention at all how much progress is being made.

Project history: There is some history, but with little presentation of result to assess any level of success. Some of this is addressed in other sections of the proposal.

Objectives: The proposal describes a termination date of 2020 or beyond. This is part of a supplementation program, not a long-term hatchery intervention program. Sponsors go on to say, “It is uncertain at what point artificial production will not be necessary to maintain steelhead and Chinook runs in Hood River, or if further data will support different management scenarios.” A statement such as this does not seem compatible with the purpose of supplementation programs in general.

Monitoring and evaluation needs to be better described in the response.

Information transfer: The lack of publications and the lack of a sense of need to do so is disturbing in all the Hood River related projects. The proposal’s reference section does not have one peer-reviewed paper in it. How can a foundation for a proposal not have one?

Benefits to focal and non-focal species: Unknown and not discussed.

198805308 - Hood River Powerdale Dam Fish Trap/Oak Springs/Pelton Ladder - Operation and Maintenance

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$562,860 FY08: \$589,337 FY09: \$598,649

Short description: This ongoing proposal requests funding for the operation and maintenance of the Powerdale Dam Fish Trap, rearing of Hood River origin steelhead at Oak Springs Hatchery, and rearing of spring Chinook at Pelton Ladder associated with the HRPP.

Recommendation: Fundable

The proposal adequately describes an ongoing O&M project. The project interrelationships in a complex project system are laid out nicely, and it is well tied into subbasin plans and activities.

Reviewers noted one apparent discrepancy: one task is to incubate and rear and approximately 165,000 Deschutes/Hood River stock spring Chinook eggs at the Round Butte Fish Hatchery/Pelton Ladder to produce 125,000 smolts. However, the ODFW Parkdale proposal 198805315 indicates that because of fish health problems production might be moved to Parkdale and reduced to 75,000. Other than that, and the work in progress to relocate the trapping facility now at Powerdale, proposed work for this funding cycle, appears routine.

198805315 - Hood River Adult Salmonid Trapping Facilities/Parkdale Fish Facility Expansion

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$750,000 FY08: \$250,000 FY09: \$150,000

Short description: Conduct environmental compliance and initiate construction on proposed adult salmonid trapping facilities in the Hood River Subbasin, and expansion of the Parkdale Fish Facility to accommodate spring Chinook rearing.

Recommendation: Not fundable

Despite its numeric designation as an ongoing project, this seems to be new work and appropriate for the Three-Step Review process. As written, the proposal suffered greatly from a lack of clarity and definition in every aspect. The ISRP cannot recommend this project for funding at this time.

199802100 - Hood River Fish Habitat

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$699,852 FY08: \$699,825 FY09: \$699,799

Short description: Implement habitat improvement actions in the Hood River subbasin that will support wild fish and supplementation efforts of the Hood River Production Program (HRPP).

Recommendation: Response requested

The proposal is to continue to implement habitat improvement actions in the Hood River subbasin that will support wild fish and supplementation efforts of the Hood River Production Program (HRPP). The ISRP believes the project is potentially fundable, but requests a response to the following points before a final recommendation can be made.

Selection of specific actions included in this project was conducted utilizing the Hood River Watershed Action Plan (Coccoli, 2002) and the Hood River Subbasin Plan (Coccoli, 2004). Limiting factors derived from the EDT model and further addressed in the subbasin plan were used to outline the actions for FY 2007-2009." This was precisely the correct approach called for in proposals and the sponsors deserve praise for getting this right. Over the past seven years fish habitat restoration projects have been completed within the Hood River subbasin; however, many opportunities for improvement still exist. The Hood River Fish Habitat Protection, Restoration, and Monitoring Plan (CTWS, 2000) lists fish habitat restoration opportunities within the Hood River subbasin, and the Hood River Action Plan (Coccoli, 2002) further describes many of these actions and prioritizes them. The 2004 Hood River Subbasin Plan provides substantial support for the actions selected in this proposal based upon results from the EDT model and other assessment information used to develop working hypotheses in the plan. The proposed actions are expected to help restore the environmental conditions necessary to meet the biological objectives identified in the Subbasin Plan. Proposed actions are prioritized from EDT modeling – it's great to see an organized, active process of prioritization.

The HRPP is composed of seven separate contracts (Project # 1998-021-00, 1988-053-06, 1988-053-07, 1988-053-08, 1988-053-03, 1988-053-04, and 2003-054-00) that could impact the program if one or more contracts are not funded. The seven contracts primarily provide funding for three broad categories of activities. These include habitat; operation, maintenance and implementation; and monitoring and evaluation studies. The habitat funding in this proposal is used for restoring degraded habitat and increasing habitat quantity to increase carrying capacity. Funding for the operation, maintenance and implementation component of the HRPP provides for all project activities at the HRPP facilities, including broodstock collection, holding and spawning, rearing, marking, tagging, and some acclimation. Funding for monitoring and evaluation studies provides evaluation of the HRPP, monitors what effects the hatchery program may be having on wild populations of fish, and also provides funds for acclimation.

The activities in this ongoing program extend back to 1996, and are described fully, except for the results of the work and any adaptive management needed. Another project is responsible for the monitoring (198805304: Hood River Production M&E-ODFW), but that is no reason why the results should not be discussed in this proposal. There is no discussion of how fish populations have changed as a result of project activities. This was a criticism of the most recent ISRP review and does not seem to have been taken seriously.

Past ISRP comments apply to this proposal:

"Many of the ISRP's FY2000 review comments remain pertinent to our present review of this project. This is a complex project involving substantial funding from a large number of sources. It is linked to a number of other projects within the subbasin. The cost share looks attractive; the

rationale looks appropriate. The proposal would have benefited from more presentation of biological gains, even at this relatively early juncture in the project's proposed tenure. We recognize that the project is relatively new and that benefits to fish and wildlife from habitat improvement projects take time to accrue and measure. Nevertheless, the project sponsors generally tended to describe past accomplishments in terms of actions completed without discussing the biological benefits gained from the action (some of which could have been measured even at this early stage)."

The proposal still lacks discussion of the biological benefits from past actions, even though a monitoring program is mentioned: "Through long-term monitoring of biological parameters, habitat restoration is monitored. This work, in cooperation with planning efforts, aids in developing priorities for habitat restoration that uses a watershed approach to ecosystem recovery."

It is recommended that the proponents submit an addendum that states clearly what benefits have accrued from the expenditure to date, before further funding is agreed. What is the in-stream juvenile response?

Residualism of hatchery steelhead may impact habitat work because residualized fish prey on fry and juveniles, and compete, displacing wild parr, etc. What is the impact of residual males? What is the interaction with the habitat improvement work and its evaluation?

200702300 - Integrated Fruit Production in Fifteenmile and Hood River Subbasin Orchards

Sponsor: Wyeast Resource Conservation & Development Area Council

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$141,860 FY08: \$141,860 FY09: \$141,290

Short description: A project to reduce the impact of Organophosphate pesticides from entering streams and rivers in Hood River County Oregon.

Recommendation: Fundable (Qualified)

This project is creative and has much local support, and is fundable with qualifications. The project sponsors have generally addressed the issues that need to be resolved, and most farmers have bought into the concept. However, the ISRP qualifies this "fundable" recommendation because, if funded, several issues need to be addressed. The most important point remaining unaddressed is the need to develop a water sampling protocol, so they can monitor their progress. The ISRP is not requesting a response on these issues but expects that these issues could be dealt with in the Council's selection process or in BPA contracting.

The proposal could have presented a clearer argument for why these alternative production methods would be better for streams; however, reviewers understand that earlier research in the area showed serious problems (cholinesterase inhibition) with salmonids in the streams associated with organophosphate (OP) pesticides. An additional argument could have been made that some pesticides are highly toxic to aquatic invertebrates, which form the primary food

source for juvenile salmonids. Harm to stream food webs might be another serious consequence of organophosphate applications.

These organophosphate pesticides were sprayed in the adjacent orchards with considerable amounts entering the streams. The approach then became, "What can be done to reduce the use of toxic organophosphate pesticides in the orchards?" The Integrated Fruit Production system that was developed included a weather station grid and computer network to allow the farmers to minimize the use of pesticides in their orchards based on weather data and associated models. This system is continuing to develop with added weather stations (many different microclimates in the area), model development, and education (training sessions/meetings) taking place.

The first item needing improvement in the proposal is to document the tie between fish and water quality. It is unfortunate that a water-sampling framework (for pesticide residues in the rivers) is not in place at this time and is of concern. It would certainly be a complicated sampling framework to develop because of the ephemeral nature of the pesticides being used and the unpredictable nature of the spray applications. But it should be a high priority and is the best way to monitor progress (although amounts of pesticides applied in the orchards would be a good check on the amount of pesticides found in the river water). It is not clear what additional monitoring will be done, if any, to assess the potential decrease in pesticides through the aquatic food web including the fish. This monitoring and evaluation does not necessarily need to be conducted by the project sponsors, but they need to link to projects that monitor watershed conditions especially Project 199802100, Hood River Fish Habitat, which proposes some pesticide monitoring. It would have been helpful to include a map showing where the primary fruit-producing areas are located relative to important salmon and steelhead spawning and rearing areas.

The second item needing improvement concerns work previously funded as Project 20012200, the goal of which was also to reduce the use of organophosphate pesticides in the Hood River and Fifteenmile Creek. Is the current proposal only to extend geographic coverage to additional acreage? Are there new features of the proposed work?

The third item is collaboration. It is unexpected that no cost-share from USDA/NRCS, EPA, etc. is described. Is it anticipated? Proposers describe past contributions from the State and industry. Is this continuing?

Klickitat

198811535 - Klickitat Fishery YKFP Design

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$5,611,530 FY08: \$5,615,562 FY09: \$5,619,753

Short description: This YKFP Design & Construction proposal identifies facilities required to implement YKFP supplementation efforts and to successfully monitor results.

Recommendation: Response requested

General Comments on the Yakama Confederated Tribe's Klickitat Fisheries Program Proposals:

The ISRP struggled a bit with the related suite of Klickitat proposals. Funding for this particular proposal needs to be tied to an updated revised Master Plan. The suite of projects is too fragmented in their current presentation to allow linkages among work projects and goals to be readily seen. Consequently, the ISRP recommends that the proposed project be considered potentially fundable provided certain questions are addressed, with an emphasis on continuing and finishing the Master Plan, continuing with the passage improvements at Lyle and Castile Falls where we suggest that additional monitoring of passage of spring Chinook and steelhead at Castile Falls into the upper meadow sections be carried out. With these exceptions, the ISRP recommends deferring funding of other objectives until completion of the Master Plan. The ISRP requests that project sponsors respond to the following general issues that apply to the set of Klickitat Fisheries proposals as well as comments identified on individual proposals.

Opportunities for Management:

The ISRP notes that the Klickitat Subbasin presents YKFP Tribal fisheries managers with a distinct, and possibly unique, opportunity to manage a system that could "have it all" with respect to fisheries management opportunities. This could be a marketing and public relations opportunity for the YKFP to present the Klickitat subbasin as THE poster child for enlightened fisheries management in the Columbia River Basin. That ought to be worth something!

Because of the geography of the subbasin and the mix of species and stocks involved, it could be possible to have everything from a robust terminal harvest fall Chinook fishery in the lower river to a wild spring Chinook sanctuary in the upper river. The lower river (as it does now) could function as a harvest/hatchery system for fall Chinook and coho, while the middle river section could be managed for a natural steelhead fishery. The upper basin system above Castile Falls could be largely set aside as a wild spring Chinook and steelhead reserve for spawning and rearing habitat. These goals and opportunities differ only slightly from the existing management of the subbasin; however, they would rely on a much more cautious examination of the need for and proposed use of artificial production for spring Chinook and steelhead in the upper basin than is currently proposed.

In the current set of proposals it was not possible to determine whether artificial production was needed (or not) to increase steelhead or spring Chinook production. Data were absent from the proposal on run sizes for steelhead and spring Chinook over time that would give some indication of the need (or not) for artificial production intervention.

A review of the Klickitat Subbasin Plan (5/28/04) Tables 20 and 21 show that for spring Chinook, wild adult returns ranged from 153 - 1997, averaging 522 fish (Table 20). Data for steelhead returns are less detailed and lump hatchery, wild, summer, and winter fish into a single count. Table 21 shows that escapement estimates for grouped steelhead ranged from 60 - 1100 from 1986 - 2003 and averaged 277 steelhead. This seems somewhat in conflict with a statement in the Subbasin Plan immediately before the table that notes, "the average escapement of naturally spawning (summer and winter, hatchery and wild combined) steelhead in the Klickitat River from 1987 to present [2004] has been fewer than 300 fish."

The results from these tables suggest that more information is needed on steelhead abundance and composition (summer/winter, wild/hatchery) and habitat use in order to form longer-range management plans including the need for hatchery intervention on summer steelhead.

In contrast, spring Chinook numbers are much greater and are partitioned into hatchery and wild components. The wild component averaged over 500 individuals per year, calling into question the need for a supplementation program for spring Chinook, given the improved passage conditions at Castile Falls and the habitat improvement work in the upper basin. If the two primary bottlenecks for spring Chinook production in the Klickitat have been passage limitations at Castile and habitat degradation on the primary spawning and rearing grounds in the upper basin, these recent steps should release that bottleneck and the population should respond favorably.

An interesting experiment for spring Chinook in the upper Klickitat - rather than invoking a supplementation program - would be to closely monitor how the population responds to the removal of these two major production constraints.

Comments specific to this proposal:

Technical and scientific background: A summary of the status of fish culture activities for spring Chinook, summer steelhead, coho, and fall Chinook salmon is presented, along with identifying four proposals to develop facilities to modify the existing arrangements for culture in the subbasin.

The proposal makes a logical argument for the suite of related design and construction needs, if one accepts the goals for the four species/stocks (steelhead, spring Chinook, fall Chinook and coho) at face value. The various facilities are planned to provide: 1) a reduction of coho outplantings in the lower river, which theoretically will reduce competition and density-dependent mortalities among stocks; 2) capture and enumeration of adults of all stocks at Lyle Falls; 3) development of supplementation facilities and protocols for spring Chinook and

steelhead that are more consistent with the protocols in YFP and RASP; 4) increased segregation of coho and fall Chinook in the lower 25 miles of the system and steelhead and spring Chinook in the upper river system; and 5) increased access (and monitoring) into the upper basin above Castile Falls for spring Chinook and steelhead.

Sponsors make a case that spring Chinook that currently access the upper basin above Castile Falls are a small, but viable remnant wild stock. Sponsors also describe how hatchery spring Chinook are smaller and not able to negotiate Castile Falls. Sponsors suggest that the solution is to increase hatchery production of spring Chinook and to make access through Castile Falls easier. This will of course lead to introgression between the hatchery-origin spring Chinook and the wild-origin spring Chinook that are able to negotiate the falls. An alternative approach would be to manage the wild Chinook population as a wild reserve stock above Castile Falls, as noted above.

Segregation of coho and fall Chinook to lower river. The proposal suggests that development of the Wahkiacus facility and acclimation pond will reduce interactions between steelhead and spring Chinook with fall Chinook and coho. One hopes this will be the result, but significant monitoring (and a contingency plan for contrary results) should be identified to verify this expected result. The proposal also needs to spell out more clearly and explicitly (spatially and temporally) how moving the coho and fall Chinook programs to the Wahkiacus facility will keep those species in the lower river and how it will reduce interactions with steelhead and fall Chinook.

Project history: A very brief summary of the work is provided on development of fish culture facilities in the Klickitat subbasin under YKFP 198812035 Klickitat Management, Data and Habitat Project; YKFP 199506800 Klickitat Preliminary Design for Passage and Habitat Improvements. The proposal has four parts which include the construction of a Lyle Falls Adult Monitoring and Collection Facility, an acclimation facility at McCreedy Creek, the Wahkiacus Hatchery and Acclimation facility, and Klickitat Fish Hatchery improvements. The history of stocks and this project was also discussed briefly earlier in the narrative.

Missing from the project history section is a recounting of the ongoing exchange between the Yakama Nation and the Council (and ISRP) regarding the completion of a final Klickitat Anadromous Fish Management Plan. There have been several iterations; the last was completed in the fall of 2005. The Yakama Nation still has outstanding assessments and evaluations that need to be completed before a scientifically justifiable plan can move to Step-2 in the Three-Step Review process. How and in what time frame the YKFP plans on proceeding with those assessments and evaluations are not discussed in this proposal.

Objectives: The broad objective of producing fish for restoration and harvest, and the subbasin's overarching vision is present, but not concise. The objectives in section f. are task specific work elements.

Tasks (work elements) and methods: There are four work elements (construction projects): 1) Complete the Lyle Falls fishway and adult collection facility; 2) McCreedy Creek acclimation facility; 3) Wahkiacus Hatchery and Acclimation facility; and 4) Renovation work at the Klickitat Hatchery. Until the Anadromous Fishery Management Plan is complete, the later three facilities are insufficiently justified. Their need should be justified by the plan.

Monitoring and evaluation: Some monitoring will occur under this proposal, but most will be directed under 199506335 (Klickitat subbasin monitoring and evaluation). That proposal is not part of this evaluation.

Benefits to focal and non-focal species: Benefits to spring Chinook and summer steelhead for alteration of current propagation is likely. These benefits may be offset by deleterious effects from proposed supplementation. Sponsors hypothesize that the project will lead to benefits to focal species. M&E will be needed to verify this hypothesis.

198812035 - YKFP Klickitat Management, Data, and Habitat

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$445,344 FY08: \$458,674 FY09: \$472,433

Short description: Proposal provides for all YIN management functions associated with the Yakima/Klickitat Fisheries Project including project planning, O&M, research, data management, and habitat improvement and acquisition actions in the Klickitat Subbasin.

Recommendation: Response requested

The project sponsors should develop a coordinated response addressing the general comments provided under proposal 198811535 - Klickitat Fishery YKFP Design and specific comments provided with each proposal.

Comments specific to this proposal:

This proposal provides management and administrative support for YKFP activities in the Klickitat Subbasin, and coordination with the 1) Klickitat Watershed Enhancement Project 199705600; 2) Klickitat Design and Construction Projects 198811535 and 198811525; 3) Klickitat Monitoring and Evaluation 199506335; and 4) Klickitat Monitoring and Evaluation 199506325; and 5) Klickitat - Operations and Maintenance Projects 199701335 and 199701325. The proposal primarily describes tasks and responsibilities of personnel charged with financial and accounting responsibilities (payroll, budget tracking) and with key scientific personnel and their administrative duties in a broad brush presentation, rather than a detailed presentation.

The rationale and significance to subbasin plans and regional programs is well described and linked into regional activities within the Columbia Gorge and with the Yakima projects, as well as other related Klickitat projects. The objective of this proposal is to provide efficient and effective policy, management and administrative support for all YFKP operations in the Klickitat Subbasin as well as coordination with Yakima Subbasin activities. Funds are requested to cover

administrative and operational costs of the management structure. The objectives seem logical and appropriate, and are primarily administrative in nature.

The project's long history is documented here and in the Master Plan. No results (data) are provided, but this is an administrative project. Nonetheless, some evidence of adequate management of data and results would be a benefit.

199701335 - Klickitat Fishery YKFP O & M

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$0 FY08: \$0 FY09: \$250,000

Short description: YKFP O&M activities to acclimate 1,000,000 coho and 2,000,000 fall chinook at the Wahkiacus Hatchery and Acclimation Facility consistent with Hatchery Scientific Review Group recommendations.

Recommendation: Response requested

The project sponsors should develop a coordinated response addressing the general comments provided under proposal 198811535 - Klickitat Fishery YKFP Design and specific comments provided with each proposal.

Comments specific to this proposal:

This proposal is for operations and maintenance activities at the Wahkiacus Hatchery and Acclimation Facility (WHAF) in the Klickitat Subbasin. The sponsors propose to acclimate 2,000,000 fall Chinook and 1,000,000 coho smolts using existing out-of-basin production in order to implement hatchery reforms at the Klickitat Hatchery.

Reforms include reducing releases of coho from 3.5 million smolts annually to 1 million smolts. The Wahkiacus facility and associated acclimations ponds (and the very large expense of all these plans) are aimed at two management issues. The first is to effectively restrict coho and fall Chinook management (and distribution) in the Klickitat to the lower third of the river and through the use of acclimation pond releases for coho, reduce the number of smolts outplanted, thereby reducing interspecific and density-dependent competition among juvenile salmonids in the middle and lower reaches of the Klickitat. The second management issue is aimed at managing the wild steelhead and spring Chinook populations that use the middle and upper reaches of the river. The sponsors assert that investment in the Wahkiacus portion of the plan for coho and fall Chinook will accomplish this. Monitoring will be required to establish whether this result is obtained.

Sponsors have made a convincing argument that the coho and fall Chinook portion of the plan are tied to the development of the Wahkiacus facility and acclimation ponds. That said, the ISRP remains skeptical that the spring Chinook and steelhead plans for the upper basin require the level of investment in supplementation that is proposed. Nowhere in any of the related Klickitat YKFP documents or the Klickitat Subbasin Plan has there been any discussion of restricting

harvest on these species, and pursuing the plan's rebuilding goals on a natural fish only schedule, particularly now that passage improvements have occurred at Castile Falls and habitat improvements have been made in the upper meadow section above Castile Falls. An open and forthright discussion of this alternative might show that it is a feasible option, or it might show that some level of hatchery intervention is required. We don't know, and we haven't had that discussion in any of these documents.

199506335 - YKFP - Klickitat Subbasin Monitoring and Evaluation

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$2,594,240 FY08: \$1,350,659 FY09: \$1,367,010

Short description: Monitoring and evaluation of spring chinook, steelhead, fall chinook, and coho fisheries enhancement projects in the Klickitat Subbasin. M&E results guide adaptive management decisions.

Recommendation: Response requested

The project sponsor should develop a coordinated response addressing the general comments provided under proposal 198811535 - Klickitat Fishery YKFP Design and specific comments provided with each proposal.

Comments specific to this proposal:

Technical and scientific background: The background section for this proposal is very nicely written and summarizes the status of fishery management (production, harvest, and habitat measures) in the subbasin and identifies the need for monitoring data to serve management. This a thorough and thoughtful proposal that reflects much of the past dialogue between Klickitat sponsors and the ISRP about the need to carefully monitor supplementation projects in order to understand the effects and to adaptively manage unanticipated effects.

The proposal contains substantial detail on a large number of biological objective and associated tasks that will be critical to understanding the success and effects of the proposed work. Like many of the M&E proposals, this one relates to many tasks. The suite of Klickitat proposals is dependent upon the overview and direction of the yet-to-be completed Master Plan. In the Master Plan it would be helpful to have separate treatments for major fisheries management issues such as:

1. monitoring for inventory and assessment (basic fisheries management information),
2. evaluation of a) habitat actions, b) hatchery actions,
3. research on uncertainties or others, such as rearing studies.

Without the overview and direction provided by a comprehensive and thoroughly integrated Master Plan, it has been difficult to be certain that all the many fisheries management issues in the Klickitat have received appropriate attention in a manner that increases the likelihood of the proposed actions reaching their objectives.

Relationships to other projects: There is clear identification for the need for the data and the other projects within the Klickitat subbasin that are served by the data produced by this proposal.

Project history: The summary of project history is brief but adequate. It would be improved by a more thorough discussion of how management has been modified as a consequence of data collected and analyzed in this project.

Objectives: The newly proposed tasks seem to have clear and reasonable objectives and timelines, especially the comparison of rearing strategies (1 yr vs 2 yr) study that is nicely laid out with testable hypotheses. On the other hand, much habitat-related monitoring seems to be done in automatic mode: conduct habitat surveys in 5-10 reaches per year, continue to take gravel samples, and on. No data (or results thus far) are presented in synthesized form to show reviewers how such data are used. These programs should be justified by the presentation of results that bear on biological objectives, or discontinued.

Tasks (work elements) and methods: The methods are summarized briefly and appear adequate for new tasks, but inadequate for many ongoing tasks, especially habitat monitoring. For example, to say that a Timber, Fish and Wildlife protocol is followed might be okay, but unless that information can be used for a predetermined purpose, its chance of being worthwhile is slim.

Monitoring and evaluation: This is a monitoring and evaluation, and data management proposal; consequently, the M&E section is very thorough. Not surprising as this is the main thrust of the proposal, which informs all the other Klickitat proposals in this suite of projects.

Information transfer: At least one paper was submitted to open literature. Adequate explanation of the dissemination of information occurs largely by BPA reports.

Benefits to focal and non-focal species: If robust interpretation follows the collection of the data, and management responds to the information it receives, there should be persisting benefits to the focal species. Benefits or adverse effects to non-focal species are not considered.

200306500 - Klickitat River Cooperative Evaluation Program (Formerly Bull Trout Presence, Origin, and Movements In Bonneville Reservoir)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$305,000 FY08: \$320,249 FY09: \$336,261

Short description: Joint operations with Yakama Nation to determine and evaluate anadromous salmon and bull trout population baselines within Klickitat River.

Recommendation: Not fundable

This proposal appears to redirect the program, and what is proposed differs substantially from previous work. If so, then the project as proposed should be reviewed as a new submission, rather than an ongoing one.

The problem of monitoring anadromous salmonid and bull trout movements between Bonneville Reservoir and Klickitat River is well explained. The idea that baseline data are needed to assess future activities is sound. It is worth noting that there has been a minimum of 13 "capture events" of bull trout in Klickitat since 1980s.

The objectives are defined but not necessarily measurable. It is not clear how the objectives are tied to the subbasin plan. The proposal states that biological objectives specific to species were not adopted due to insufficient data and the lack of confidence within the planning committee to identify adequate quantitative measures. The work elements need to be more adequately described. The monitoring and evaluation provisions have not been developed. Development of M&E is one of the objectives.

The proposed work will use a stratified Peterson or Jolly-Seber mark-recapture methodology to estimate annual baseline populations for all salmonids in the basin. This is an item often cited in ISRP comments as being absent from project proposals/designs and more specifically, not having been adequately addressed in the Klickitat Subbasin Anadromous Fishery Master Plan, of the Klickitat River Subbasin Plan, Appendix F. All bull trout and salmonids will be biologically sampled and marked. Such work will almost exclusively be with species other than bull trout.

The project history is described with limited success noted in several aspects (e.g. trapping bull trout at Drano). It is not clear that methods have been devised to increase the chances of success so it appears unlikely to yield substantial new information. Project staff have been attempting to collect bull trout in Drano for several years and apparently have caught none (a few have been caught by others). One fish was briefly radio-tagged but the "subject" shed its tag. This is a difficult task, no doubt, but several years more would seem to have little chance of success.

Information transfer plans are minimal. If the project can provide baseline data that do not exist to support the development of baseline data for anadromous salmonids and bull trout within the Klickitat River subbasin this would be useful to other projects.

199705600 - Klickitat Watershed Enhancement

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$559,671 FY08: \$1,076,040 FY09: \$1,067,747

Short description: This project (KWEP) restores, enhances, and protects watershed health to aid recovery of native salmonid stocks in the Klickitat subbasin. Implemented by the Yakama Nation Fisheries Program and funded by BPA, KWEP addresses FWP goals and objectives.

Recommendation: Response requested

The ISRP requests that certain issues be addressed before a final funding recommendation is made:

The overall goal of the Klickitat Watershed Enhancement Project (KWEP) is to restore watershed health and stream habitat to aid recovery of native salmonid stocks in the Klickitat Subbasin. A response is needed to describe how the program will bolster and protect fish resources, i.e., how the goal will be met. This response thus needs to include a summary of results tied to fish.

There has been a large amount of time and money spent on assessing the watershed (10 years). This is a long-standing effort with some \$2.55 million invested since 2000, and over \$3 million in non-BPA matching funds for active and upcoming projects; the cost-share is impressive. A large sum is requested once again. Other projects include the YKFP Klickitat Management, Data and Habitat (Project 198812035) and the Monitoring and Evaluation Project (M&E, 199506325). After this time, and considering the costs and several reviews over these years, by now there should be clear documentation of the assessments of fish habitat, prescriptions listed by priority, and much of the rehabilitation work completed or underway. In addition, a well-planned monitoring and evaluation plan should be available and presented in this proposal. If these are available, they need to be clearly summarized.

Most of the work over past few years appears to have largely focused on planning, design, and data organization and reorganization. The latest annual report available electronically (2002-03) is similar in format to this proposal - itemized lists but no cohesive narrative putting results in terms of realized or potential benefits for fish and wildlife. It is good that the process used to prioritize reaches and tributaries that will receive initial restoration and protection was based on EDT and the subbasin plan. However, the proposal lacks any narrative explaining how the program will bolster and protect fish resources. No fish data is presented that indicates a fish response to past efforts.

200736700 - Klickitat and Rock Creek Subbasin Habitat Improvement Program

Sponsor: Klickitat County

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$345,300 FY08: \$2,107,900 FY09: \$2,356,800

Short description: The proposal funds a program that encompasses areas within Klickitat County that are addressed in the Klickitat and Lower Middle Columbia Subbasin Plans. The program will address key habitat issues throughout the area.

Recommendation: Not fundable

The proposal was inadequately presented. Justification for the \$5M requested needs to be more carefully made before this project can meet the ISRP review criteria. As written, with exception of Little Klickitat falls study, this is a generic proposal that could fit (or really, not fit) almost any catchment in the arid portion of Columbia system. It is not specific to the Klickitat, Little Klickitat, or Rock creek. It mentions that a few habitat surveys have been done but ignores their results. It shows inadequate understanding of existing habitat, fish and wildlife, and potential for restoration/enhancement. The ISRP notes that some of the road relocation/sediment reduction strategies in the County could be beneficial to the fish and wildlife resources. However, the proposal does not adequately demonstrate the priority of these strategies or the actual benefits to

fish and wildlife. A large portion of the proposal is to determine if steelhead pass Little Klickitat Falls.

Proposal readability suffers greatly from having 34 pages of objectives and methods in tabular form. The proposal would be improved by a clearer separation of the watershed assessment and fish passage/monitoring components. Portions of the proposal appear redundant with assessments done in Lower Klickitat by the Yakama Nation. The proposal does not provide evidence of collaboration with the Yakama Nation.

There is major expenditure associated with reducing the sediment input from roads. The ISRP is concerned over the following quote from the proposal summary Work Elements section: "Traffic is the number one factor affecting sediment inputs to streams; hence, little used roads are seldom major contributors of sediment." The concern is that this is a fundamental misunderstanding that could affect any road system assessment. Sediment input to streams is caused by poorly designed and maintained roads, especially their drainage ditches and culverts, whatever the frequency of use.

Klickitat County raises a potential issue concerning public availability of data collected with BPA funds that deserves the Council's inquiry: "The Klickitat Management Plan emphasizes the need for quality control and requires that all data collected in support of the program be available to the public. Data collected in the past using BPA funds have been treated as proprietary in most cases. Hence, that data is not available to support public policy, public decisions regarding habitat improvement, and/or habitat protection."

Wind

200707700 - Hemlock Dam Removal

Sponsor: Gifford Pinchot National Forest

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$345,000 FY08: \$2,351,000 FY09: \$56,000

Short description: This project will remove a 26-ft high dam on Trout Creek, a tributary to the Wind River. Trout Creek provides spawning and rearing habitat for LCR steelhead. The project will restore unimpeded fish passage and improve water quality and habitat.

Recommendation: Fundable (Qualified)

This well-written proposal provides a clear description of what appears to be an important problem and excellent opportunity for substantial gain for fish, especially steelhead, by improving access to 15 mile of stream. The current fish ladder is inadequate. Dam removal would open up significant habitat that has received some extensive restoration such as side channel work. There is strong collaborative effort on this project, especially with USFS, and monitoring and evaluation would be done by WDFW and UCD under separate projects.

The ISRP is not requesting a response but believes the project sponsors, Council, and BPA should consider the following points. A new 1/3 mile-long channel will be excavated through the accumulated sediments and stabilized prior to dam removal. Stabilizing the stream banks will not be an easy task. Although the proposal describes some methods to stabilize the banks, such as use of root wads and tree planting on the banks, reviewers expect a major element will be - or should be - soil bioengineering in nature. This “fundable” recommendation is qualified. If funded, the Council and/or BPA should require a more complete description and clarification of how the streambed and banks will be stabilized, and what variations in plan, longitudinal and cross-sectional profiles are envisaged. If requested, the ISRP would be willing to review the updated stabilization plan.

199801900 - Wind River Watershed Restoration

Sponsor: Underwood Conservation District

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$767,217 FY08: \$775,382 FY09: \$849,551

Short description: This project is a continuation of the 2001-2006 Wind River project. The project involves continued monitoring of fish populations, project effectiveness, restoration work, public involvement, and technical assistance to landowners.

Recommendation: Fundable (Qualified)

Monitoring for this project by Washington Department of Fish and Wildlife (WDFW) is extensive. Sponsors are unusually well positioned to continue an excellent program - they are one of the few to have an active watershed council, no hatchery stocking, and data from a modeling effort to aide in limiting factor analysis by stream reach and fish life-stage. A good general summary of project activities is provided, but summaries of how key habitat attributes and fish populations have responded over time are not included, which is a shortcoming of this proposal. In the province reviews four years ago we recommended that results of the Wind River project would likely be publishable. We continue to emphasize that results be published. There is no need to wait until everything is perfect. The ISRP is not requesting a response, but the proposal would be improved be addressing the following comments:

A summary of results and a plan for publishing and/or further efforts to disseminate the information should be included in the proposal. This project has the potential to be a demonstration monitoring site for the entire basin. The importance of the Wind River as a research area will increase further if Hemlock Dam is removed.

This project is one of the few watershed efforts that include tasks dealing with most of the Hs -- hatcheries, harvest, and habitat, excluding hydro, which isn't present in the subbasin. The broadly based attempt to monitor trends in each of the other Hs (hatcheries, harvest, and habitat) should be applauded. This is very much a fisheries project; there was no reference to wildlife restoration although some of the tasks will certainly affect some wildlife species. It would be helpful to provide some discussion of wildlife benefits.

The proposal would be improved by describing how EDT results, the Subbasin Plan, etc., were specifically used to prioritize the activities proposed for 2007-09 funding. Also a table showing the project's target habitat conditions would be helpful.

The Bayesian approach to modeling spawner-recruit relationships using Markov Chain Monte Carlo simulations seemed quite sophisticated for a watershed council. The new PIT-tag study should also be helpful in further documenting the 3-year "canyon" life cycle of steelhead, as this is a fairly unusual life history pattern (although logical, given the oligotrophic nature of the watershed). Additional work on the presence and significance of the protozoan parasite, especially in Trout Creek - perhaps the dam and sediment-rich reservoir have something to do with this - should also be helpful in other systems where dams are scheduled for removal. These topics could provide additional opportunities for publication.

200721500 - Adult Steelhead Monitoring in Trout Creek

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$61,500 FY08: \$344,120 FY09: \$11,620

Short description: The US Forest Service has proposed to remove Hemlock Dam, located on Trout Creek, a tributary of the Wind River. WDFW proposes to install a resistivity counter to evaluate effectiveness of dam and to maintain adult count dataset.

Recommendation: Fundable (Qualified)

Steelhead monitoring in Trout Creek is worth continuing because of the importance of this population in the Wind River and to the ESU as a whole. It is a core population, with no hatchery influence, and a good long-term monitoring database. Much of the project's cost is in the resistivity counter itself. There is no reason to fund this particular proposal if Hemlock Dam is not removed (fish are currently monitored at the fish ladder), and therefore funding should be contingent on a firm commitment to remove or breach the dam.

Although the ISRP is not asking for a response, the recommendation for this proposal is qualified because the sponsors should carefully examine the crump weir design in this high-energy stream setting (ability to withstand high flows carrying coarse sediment and large woody debris, and to resist scour damage), weir location, and potential cost sharing. A well-designed weir could potentially allow for PIT-tag detection if suitable modifications are included. Project staff should consider locating the weir downstream from the Hemlock Dam site in order to document adult salmon and steelhead use of lower Trout Creek.

Columbia Plateau

Columbia Lower Middle

200715600 - Rock Creek Fish and Habitat Assessment for the Prioritization of Restoration and Protection

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Columbia Lower Middle

Budgets: FY07: \$291,307 FY08: \$254,940 FY09: \$287,504

Short description: Information will be collected on the abundance, growth, genetics, diseases, habitat condition, and movement of salmonids in Rock Creek, a unique watershed of the middle Columbia River.

Recommendation: Fundable in part

The ambitious proposal has many objectives. However, there is a need to prioritize among the objectives and attack objectives and work elements in a logical sequence that allows planning and funding to proceed in stages. The ISRP recommends that objectives that relate to obtaining access, assessing fish population abundance and productivity, and assessing habitat be conducted. Specifically work elements presented below should be conducted if sponsors can justify how this information will be used. The ISRP suggests using flow charts or similar methods to identify how contingencies will be addressed based on the baseline data.

Possible fundable work elements:

1.1.1 Collect field data and develop RM&E methods and designs. Derive estimates of salmonid population abundance in select reaches of Rock Creek. (USGS, YN)

1.1.2 Collect field data. Determine fish species composition and distribution within the watershed. (USGS, YN)

1.1.7 Determine adult counts (YN)

1.1.8 Monitor juvenile and resident fish. Conduct redd counts and spawner surveys. (YN)

2.1.1 Conduct stream habitat monitoring. (YN)

2.1.2 Sample spawning gravel/sediment.

2.1.3 Monitor stream temperature and water quality.

2.1.3 (second) Monitor stream flow.

Existing data should be used to prepare initial EDT models. If more data are needed then justification for collection of additional data should be provided in the future. Justification for sample sizes, whether they are sites, reaches, or fish, should be specified. Monitoring and evaluation should have been described in more detail to ensure that success of the project can be effectively evaluated.

It is expected that this ambitious project should generate much information that would be useful to others in the region. Strategies for sharing information should have been identified better.

Crab

200102800 - Banks Lake Fishery Evaluation Project

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$482,076 FY08: \$609,631 FY09: \$471,756

Short description: The Banks Lake Fishery Evaluation Project proposes to enter an implementation phase, applying results from the past 4 years to create strategies to maximize kokanee production in the lake with the creation of an artificial spawning channel.

Recommendation: Not fundable

This proposal is for adding an “implementation phase” to the past investigation of Banks Lake fishery potential, in which the sponsor would try to boost kokanee production by creating an artificial spawning channel for the lake. The ISRP considers the kokanee plan scientifically unsound and thus not fundable because the sponsor maintains major fisheries for walleye and bass in the lake (as well as burbot population) and all of these species prey on kokanee.

The project’s studies to date have shown that predation by walleye is a limiting factor for kokanee in the lake. Bass are even more abundant than walleye and may be another major predation source. The Narrative p 8 (near bottom) states: "Predation has been identified as the predominate factor affecting survival of kokanee in Banks Lake. Annual kokanee losses to walleye predation are 13-17% (Polacek et al. 2004); however, this is a conservative estimate since acute predation occurs during stocking events (Polacek, unpublished data)." However, it is said at end of the Abstract that and overall project goal is to "maintain quality fisheries for walleye (*Sanders vitreus*), bass (*Micropterus* spp.), and burbot (*Lota lota*)." It is indicated on p 2 that smallmouth bass are about 3 times more abundant than walleye, but the effect of small mouth bass on kokanee is not mentioned in the project history.

Moreover, even if the proposed artificial channel were to increase kokanee reproduction, a concentrated source of kokanee fry could attract walleye to the entry area. In other words, the new production would just feed the existing predators. The effort to manage for a significant kokanee fishery in the lake should halt, pending literature evidence from elsewhere that suggests kokanee can thrive in the face of predation by walleye and bass, species with which kokanee did not co-evolve.

In short, the proposal should clearly eliminate alternative hypotheses for low numbers of kokanee before accepting the alternative that shortage of spawning habitat is the problem. The ISRP recognizes that although it was not mentioned in the proposal, a strategy of eliminating walleye and bass from the lake probably would be impractical from a management standpoint and undesirable for the lake’s present anglers. It would be advisable for the sponsor henceforth to manage the lake as a fishery for walleye and bass, given the fact that those non-native species dominate the sport-fish community.

A detail: The proposal's method dealing with investigation of predation states: "Fish prey [from stomachs] will be identified to species . . ." but the sponsors present no study design for sampling the predators.

The ISRP is not requesting a response, because the proposal presented enough information to determine, based on science, that the management strategy described has a very low probability of success; i.e., the proposal does not meet the ISRP criteria of benefit to fish and wildlife.

199106100 - Swanson Lake Wildlife Mitigation Project (Swanson Lakes Wildlife Area)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$258,085 FY08: \$236,322 FY09: \$244,596

Short description: Protect, increase, and maintain a viable sharp-tailed grouse meta population, increase mule deer use of the project site, and enhance habitat for shrubsteppe obligate species, as mitigation for losses associated with the Grand Coulee Dam.

Recommendation: Fundable

The proposal clearly relates the need for intervention to increase and maintain sharp-tailed grouse populations on SLWA. The proposal adequately describes the relationship between the objectives in the project and the Crab Subbasin Plan. However, because of the continuing decline in sharp-tailed grouse numbers, it is not clear if the facilities and personnel are appropriate to achieve restoration.

The history of the project is effectively documented. Some evaluation of results is included but more indication of possible reasons for the continuing decline of sharp-tailed grouse populations despite intensive intervention efforts is recommended. While results to date are not promising it may be that habitat enhancement activities that are in place, coupled with protection and supplementation, will show signs of success in the near future.

The ambitious monitoring and evaluation component may serve as an example for others if conducted, documented, and distributed effectively. The ISRP was pleased to see plans for monitoring vegetation, planted shrubs, and marking supplemental birds from Idaho and British Columbia. A few additional considerations could improve the monitoring and evaluation component of the proposal. Participants should monitor livestock trespass to ensure the adequacy of smooth wire bottom strand of new fencing. The proposal could include some analysis of genetic composition of individuals on the area as well as samples from birds added annually. These data could serve as baseline information and allow a critical evaluation of the importance of genetics in recovery of these birds.

Measurable objectives in terms of sharp-tailed grouse numbers as well as habitat alterations are clearly stated. The proposal, however, should better present support for the importance of fragmentation of habitats for this population. The sponsors do a good job of clearly indicating

the relationship of this project with other projects and identifying cooperative efforts for sharing information on sharp-tailed grouse with other projects.

200600300 - Desert Wildlife Area O&M (Wetland Enhancement)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$320,138 FY08: \$365,205 FY09: \$222,705

Short description: Completion of, and operation/maintenance for, six wetland enhancement construction projects initiated with BPA funding (MOA and FY06 contract) on the Desert Wildlife Area.

Recommendation: Response requested

The project focuses on completion of six wetland enhancement construction projects designed to increase the area of submerged aquatic vegetation and area of open water in project wetlands. The proposed project will benefit waterfowl but results will not persist over the long-term without continued monitoring and remedial action. It is likely that the nature of the methods used (excavation, burning, mowing) will have an effect on non-focal species that could be adverse. A discussion of such effects and precautions is needed. The proposal has a strong section on objectives and associated monitoring and evaluation plans. However the project is not linked to a subbasin plan because the Crab subbasin was not complete at the time of proposal writing.

There is little evidence that results have been obtained. It appears that there has been much planning and few accomplishments for this ongoing project, perhaps because of the short history for the project. Not all key personnel are identified so it is unclear if the proposed work elements can be accomplished. The sponsors should identify what personnel will assist and what each will accomplish. More details should be provided on excavation methods, equipment, availability of equipment, and the timing of excavation.

The proposal refers to other similar restoration projects but no collaborative efforts are identified with other work funded in the Fish and Wildlife Program. Methods for restoration are described but more justification that the best scientific techniques will be used is necessary. Plans for information transfer beyond WDFW sites should be provided to demonstrate a wider distribution of successes and lessons learned to benefit others involved in similar activities.

200723400 - Assessing Habitat and Environmental Suitability for Northern Leopard Frogs in the Crab Creek and Pend O'reille Subbasins of Eastern Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$179,751 FY08: \$183,075 FY09: \$190,644

Short description: The project sponsors will improve environmental conditions and evaluate disease in 2 leopard frog populations. The project sponsors will develop a leopard frog habitat

suitability model and apply it in the Crab Creek and Pend Oreille drainages to estimate translocation site availability.

Recommendation: Fundable

The proposal clearly explains the problem of declining leopard frog populations in Washington State. Background information is provided to justify improving environmental conditions and evaluating disease in two leopard frog populations. The proposed techniques for disease assessment appear to be the best available.

The proposal is clearly written with well-defined objectives and work elements. The relationship to the subbasin plan is clearly stated and collaborative efforts with other projects are noted. Measurable benefit to leopard frogs is not explicitly identified nor is the likelihood of long-term success discussed. Long-term benefits will persist only if continued monitoring and management is conducted and if the limitations that are identified are truly the limiting factors and they can be reduced by the actions proposed. The proposal would be stronger if it identified how visual surveys for leopard frogs will be deployed (i.e., how much effort will this require). Some benefit to other species is mentioned but a complete discussion of the impact on non-focal species would be beneficial.

Plans for information transfer that emphasize publication of results and providing the habitat suitability model on WDFW website are good. Successes and lessons learned concerning habitat restoration should be made available to others in the region involved in similar efforts.

200724300 - Crab Creek Subbasin Plan 2007

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$5,778 FY08: \$0 FY09: \$0

Short description: Provide a more complete wildlife section (assessment, inventory, and management plan) and address key ISRP comments on the original Crab Creek Subbasin Plan. The goal of the project is the adoption of the Crab Creek Subbasin Plan by the NWPCC.

Recommendation: Not fundable

The problem addressed in this proposal is that of an inadequate subbasin plan. This appears to be a request for funding to write a proposal and is not applicable for ISRP review. Sufficient information was not provided on methods to scientifically justify this proposal

199502800 - Piscivorous Avian Resource Utilization of Moses Lake and the Relationship to Other Systems

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$298,000 FY08: \$298,000 FY09: \$298,000

Short description: Recent findings lead us to believe predatory birds may be impacting the resident fishery of lakes within the Columbia Basin including Moses Lake and potentially anadromous fishes within the Mainstem Columbia.

Recommendation: Not fundable

This is, in reality, a new project. The proposal uses an ongoing project number but is essentially new. The title is new, and the work proposed was never mentioned in the original scope of work.

This proposal is inadequate in several respects and does not provide confidence that this would be a successful project. There is an inadequate match to subbasin objectives. The literature review is fairly restricted and does not make a convincing case for avian control. Numerous relevant studies were not referenced: for example, Antolos, M., Roby, D. D., Lyons, D. E.; Collis, K., Evans, A.F. Hawbecker, M., and B.A. Ryan. 2005 Caspian tern predation on juvenile salmonids in the mid-Columbia River Transactions of the American Fisheries Society. 134:466-480.

The presence of mergansers and cormorants is indicative that forage fish are available and being consumed. A useful estimate of consumption would be generated quickly based upon a few metrics from the literature. The important issues involve the determination of (1) are "too many" fish being consumed, and (2) if so, what could be done that is effective and acceptable to the community. The proposal does not satisfactorily describe possible courses of action needed to deal with either of these issues.

200701800 - Stock Assessment for salmon, steelhead, and other fish species in Lower Crab Creek, WA

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$269,000 FY08: \$259,000 FY09: \$254,000

Short description: The overall objectives of this project are to identify the origin and abundance of Lower Crab Creek salmonids; to identify the habitats they use in the stream, and to characterize changes in the environmental conditions they face.

Recommendation: Fundable (Qualified)

This is a fundable project and will provide valuable information for an area of the Columbia Basin that receives relatively little attention. The project participants should address some of the methodological issues raised below prior to implementing the study. These issues should be easy to rectify.

Technical and scientific background: The title is a bit misleading, in the sense that "other fish species" will not be investigated as part of this proposal but deferred to subsequent years. This project's goal is really to determine if steelhead and fall Chinook in lower Crab Creek constitute legitimate spawning populations, or are simply collections of strays from other sources. The question seems worthwhile as the environmental conditions of the Columbia Plateau differ from those of the North Cascades, and if the salmon and steelhead in Crab Creek are truly native stocks then they may possess local adaptations that contribute to the viability of the evolutionary significant unit (ESU) as a whole. Overall, the technical background section does an adequate job of defining the problem.

Rationale and significance to subbasin plans and regional programs: This proposal references the Crab Creek subbasin plan and the relevant parts of the Council's Fish and Wildlife Program. The Federal Columbia River Power System Biological Opinion (FCRPS BiOp) is not mentioned. The lack of knowledge about fish populations and habitat in Crab Creek was one of the key deficiencies identified in the subbasin plan. This project would begin to provide solid information on the origin and abundance of anadromous fishes using the basin. The habitat and water quality information should provide some indication of the productive potential of Crab Creek for salmon and steelhead and help identify potential restoration projects.

Relationships to other projects: The proposal describes its relationships to four other Crab Creek projects funded by BPA, as well as other agency and PUD efforts, in general terms. This project will also provide data to a regional monitoring effort, CSMEP. There appears to be good coordination with other genetic characterization efforts in the Columbia-Cascade province.

Objectives: The objectives are clearly stated and address a key information need identified in the subbasin plan. The four phases are framed out in a logical progression. This proposal only applies to the objectives listed under Phase 1; work under the other phases will come later. But the description of all four phases provides valuable context. A map of lower Crab Creek would have helped, especially when discussing sample locations.

Tasks (work elements) and methods: Most of the methods are appropriate. However, there are several instances where the methodology to be used is unclear, or some problems are likely to be encountered. The collection of turbidity and flow information periodically at selected locations (spawning sites) is likely to yield information of doubtful value. Turbidity and flow can change rapidly and biological responses are often related to transient episodes of high discharge or sediment transport.

It would be very unlikely to sample these episodic events with periodic sampling. Installation of a continuous flow station, perhaps at the fish trap location, would provide a good flow record. A turbidity sensor, possibly coupled with a pump sampler, located at this flow station would provide a complete record of turbidity/sediment concentration. These continuous data could be used in conjunction with periodic samples collected at spawning sites to develop an understanding of the spatial distribution of these attributes and better evaluate how the fish are responding to these parameters.

It may be possible to distinguish anadromous vs. resident rainbow trout without stable isotope sampling. Easily observable features, such as color, shape, and size, may enable this determination for adult fish. This approach likely will not work to distinguish juvenile resident and anadromous rainbow trout in lower Crab Creek as both will contain marine-derived nutrients from decomposing carcasses as the result of food web effects and isotopic differences will become progressively muted as the fish grow.

Stable isotopes may work well to distinguish between anadromous and resident adult fish. If stable isotope samples are used for determination of anadromy, samples from both known anadromous and known resident fish need to be sampled to provide a basis for evaluating isotope values from unknown fish. Perhaps samples from steelhead collected at a nearby dam could be used to represent anadromous isotope values. Resident fish selected as references should be of the same species and approximately the same size as the fish being sampled to determine life history type.

Therefore, determining appropriate resident reference fish may be a problem. Also the sponsors should be careful that resident fish selected to represent resident isotopic values are not utilizing lakes. Fishes from lakes may have a different isotopic signature than those resident fishes rearing in flowing water. How these reference fishes will be selected should be discussed in the proposal.

Work element 2.2 proposes to identify spawning locations by assessing hyporheic flows with piezometers. Networks of piezometers are effective means of mapping hyporheic patterns, but they are very labor intensive to install and maintain. There is not enough detail presented on this aspect of the study to determine how these instruments will be deployed or maintained. It may be more cost effective to locate cool hyporheic inputs using Forward Looking Infrared (FLIR) technology, which was used effectively in the John Day River subbasin to identify hyporheic influences. FLIR is also a good method of locating cool water pockets, which may be very important in lower Crab Creek.

The possibility of using a fishwheel to sample migrating adults is mentioned, but the proposal states that 100% of the flow will be sampled. Is this possible with a fishwheel? Or will there be a combination fence and fishwheel setup?

Monitoring and evaluation: This is essentially an M&E proposal, as no restoration actions will be evaluated. Data collection and analysis are adequately described.

Facilities, equipment, and personnel: Facilities, equipment and personnel are well qualified for this project.

Information transfer: Annual reports and WDFW website status reports will be produced. Unfortunately, there were no plans for peer-reviewed publication. If the steelhead and Chinook

spawners turn out to be local populations, it would make a good publication. No details about data archiving or public access were given.

Benefits to focal and non-focal species: More information on the status of the anadromous fishes on Crab Creek will provide a definite benefit. If determinations can be made as to origins of the focal species in this system, protection and management benefits to these species could be long-term.

There is little discussion of non-focal species other than the component of the study that will examine predation rates on salmon and trout by introduced predatory fishes in the system. However, the predation evaluation is a component of out-year funding and not covered by the current proposal. Regardless, gathering information about the anadromous fishes in this system is not likely to adversely impact other species, unless the fish trap hinders their migrations in some way.

Deschutes

200201600 - Evaluate the Status of Pacific Lamprey in the Lower Deschutes River Subbasin, Oregon

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$167,016 FY08: \$157,686 FY09: \$161,351

Short description: The goal of this project is to determine the status of Pacific lamprey and their habitat in the Deschutes subbasin. Adult escapement and tribal harvest will be estimated. Adult spawning habitat will be described and redd production determined.

Recommendation: Response requested

Technical and scientific background: The problem is adequately described and involves gaining a better understanding of the basic biology of lamprey populations in the Deschutes River to enable development of a restoration plan.

Rationale and significance to subbasin plans and regional programs: The project is consistent with a number of plans calling for lamprey protection and restoration. The project directly addresses objectives in the Fish and Wildlife Program, the Deschutes River Subbasin Plan, and the CRITFC tribal recovery plan.

Relationships to other projects: The project is said to be related to work funded by PGE and other BPA funded lamprey projects in the basin. ODFW personnel will assist with some of the fieldwork. It was encouraging to read the discussion of the "Columbia River Basin Lamprey Summit" convened by CRITFC in 2004, and the designation of a Columbia Basin Lamprey Technical Working Group in 2005. The ISRP recommended such a system for coordinating Lamprey studies in the Basin. However, it is not clear how the TWG operates. We thus raise a

question whether the projects funded to restore lamprey populations in the basin are well enough coordinated to avoid duplication of effort. Although they are conducted in different watersheds, the results ought to be transferable to some degree from one to the other. We don't see this issue discussed in any of the proposals. There should be coordination of objectives and assignment of tasks to avoid duplication.

The ISRP has developed a separate statement with programmatic comments on lamprey studies. The sponsors should refer to it.

Project history: The proposal would be improved by providing more details on how close the proponents are toward completion of the habitat model as well as the stock-recruitment relationships. Some simple correlations are mentioned but the model seems to be a multiple regression model. The inclusions of results (e.g., abundance estimate plots) in the proposal helped give a perspective on findings. The knowledge gained since inception of the project would appear to contribute significantly to understanding lamprey biology in the Deschutes River.

The sponsors, however, did not organize the statement of results according to the original objectives, so it is not possible to determine to what extent the objectives were achieved. The sponsors should interpret and draw conclusions from graphs and tables rather than simply referring the reviewer to them. The variance estimate for the M-R study was very large. What will be done to reduce the variance? The sponsors should report the 95% CI for the population estimates.

Objectives: Objectives are quantified. The proposal would be improved if more benchmarks were provided toward completion of the model. According to one statement it is not going to be completed until 2010.

The objectives are clear and are a logical extension of previous work. The sponsors should explain why they think a stock-recruitment model is appropriate for population assessment. What function will it serve? How will the model be developed using the data obtained?

The objectives focus upon the river above Shirar Falls. It is not clear whether Shirar Falls has itself been identified as an obstacle to lamprey passage that should be corrected. There is "assumed" to be no spawning below the dam there. The basis for this assumption is not given. It seems peculiar, given that studies are being funded of spawning in the mainstem Columbia River.

Tasks (work elements) and methods: Methods are described reasonably well and most appear to be scientifically sound. Methods used to date have apparently shown mixed results especially trapping. The proposal would be improved if more details were given on why the trap holding efficiency was zero. Is that because the larvae escaped? Feasibility studies with redd caps show an innovative approach.

There are a few issues the sponsors have to address. Multiple adult population estimates will be obtained throughout the summer. How will these multiple estimates be treated analytically? How was the number of radio-tagged fish arrived at? Given the number and size of tributary streams above Shirar, it would seem that 100 tags would be grossly inadequate to provide the information the sponsors are seeking. More information is required on the habitat model that is proposed.

Monitoring and evaluation: Provisions for monitoring are an integral part of the project. Migration patterns, escapement, harvest and temperature data are key information.

Facilities, equipment, and personnel: Good facilities and equipment including a specialized lamprey electrofishing unit (not sure what that is however). The personnel are trying to cover a variety of species and are lamprey generalists with some reports submitted. Facilities seem adequate. This type of work has been ongoing since 2002. The personnel appear qualified and have been conducting lamprey research in the Deschutes basin. They have not produced any peer-reviewed publications. Economies are achieved by borrowing equipment from other projects.

Information Transfer: The description of this element is particularly good, and could serve as a model for others. Plans are in place for release of data on Streamnet with a final technical report in 2010. "Analyze data generated from this project and compile findings in a technical report for distribution to managers. Significant results will be submitted for publication." The proponents should consider focused papers in journals before that as well as presentations of results at workshops or public meetings.

Benefit to focal and non-focal species: This is a fairly comprehensive project with some innovations (e.g., the redd cap work) that will benefit other lamprey studies in the Columbia River Basin. The information will be used as the basis for a lamprey restoration plan. As described the project will probably benefit the species locally and contribute to a broader understanding wherever lamprey are found in the Basin. At this stage there remains an uncertainty. Possible benefit to bull trout and others is considered. Proponents should consider effects of electrofishing and trapping on focal salmonids, non-salmonids and mammals.

Response should address the following questions and issues:

1. The sponsors did not organize the statement of results according to the original objectives, so it is not possible to determine to what extent the objectives were achieved.
2. There are several methodological issues that the sponsors need to deal with. A critical one is the methodology to obtain reasonably accurate estimates of numbers of returning adults.
3. The method used for estimating trap holding efficiency was unclear.
4. Respond to the issues raised in the ISRP's Programmatic Comments on Lamprey

200715700 - Bull Trout Status and Abundance Monitoring in the Waters in and Bordering the Warm Springs Reservation, Oregon

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$150,330 FY08: \$138,374 FY09: \$151,519

Short description: Census bull trout abundance, determine fluvial life-history and identify threats from brook trout in the lower Deschutes Subbasin.

Recommendation: Response requested

Despite long-term ongoing funding and sampling for a predecessor project, the sponsors of this proposal have not succeeded in framing (conceptualizing) this study in a broader context of bull trout ecology. Information sharing with bull trout projects out of central Oregon is noticeably absent. There is not a lot of evidence that much thought has been given to higher-level ecological issues for bull trout. Without a sound, ecologically based rationale, their objectives read more like tasks to be performed. Although they have analyses sections under their objectives, they do not indicate in even a general way what methods they will use or how they will analyze data (even for data already collected by them). They do not seem to have given this topic adequate consideration. This is an off-shoot of long-term continuing project, and at this point it seems that it should just be in the monitoring phase. If this project is funded in this cycle, any future effort should move from research on movements and status monitoring development to strictly status monitoring.

A response is requested to clarify several questions:

1. The basis for asserting that the Warm Springs River and Shitike Creek populations of bull trout warrant delineation as a separate core areas. The observation that the Warm Springs River and Shitike Creek are genetically unique from one another is not particularly informative. Using microsatellites, almost every semi-isolated population will be unique to the extent that significant allele frequency differences exist. The critical elements to estimate are migration and gene flow between the populations, so this can be incorporated into viability analyses.

2. What is meant by "relative juvenile abundance and adult escapement indicate that Shitike Ck is robust while the Warm Springs R. population is less healthy than believed"? What is the size of the two populations? What data is used to arrive at the former conclusion?

3 A short summary of the extent of bull and brook trout introgression - hybridization beyond the F1 is needed. Evaluating hybridization is not the same thing as "Determining the level of genetic threat brook trout pose to the persistence of sympatric bull trout in these two streams." Sponsors need to identify how they are going to measure the level of threat based on the identification of hybrid individuals. How do you decide individual fish are likely hybrids? Are there other lab methods besides allozymes and PINES? No microsatellites or single copy RFLPs similar to those used to evaluate *O. clarki* and *O. mykiss* hybridization? If the allozymes could be eliminated fin tissue could be used for the analysis and broader sampling could be used. Ten fish per year does not provide a lot of data to draw inferences from.

4. Provide the reasoning that more data is needed to complete the task of evaluating the census model for bull trout abundance. Has the model been peer reviewed?

199404200 - Trout Creek Fish Habitat Restoration Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$475,545 FY08: \$499,050 FY09: \$533,900

Short description: Construction, O&M, and M&E of numerous new and existing instream and riparian habitat restoration projects; Monitoring and Evaluation of summer steelhead smolt production and adult return. M&E of instream and riparian habitat restoration activities.

Recommendation: Response requested

The project has a record of successful restoration activities. To merit continued funding, the sponsors need to provide a summary analysis of changes in habitat and fish abundance that have occurred as a result of the past projects. They also need to revise the objectives to more accurately reflect the proposed work and develop a more comprehensive monitoring program.

Technical and scientific background: The proposal is very readable and lays out in a very logical manner the work that is proposed. This is a large long-term project of mid-level expense that appears to be a valuable investment and is yielding important results. Restoration of habitats and the steelhead population in the Trout Creek watershed is the number one priority in the Deschutes subbasin and this project appears to be a credit to that priority status.

The problem is well defined. Trout Creek is one of the most productive streams for summer steelhead in the Deschutes basin, but habitat has been seriously degraded. The potential for increased production apparently is great. The sponsors provide an excellent summary of the habitat and genetic problems in the basin and discuss how they are addressing the problems. One question: are the stray hatchery fish being moved elsewhere or are they allowed to pass through to the spawning grounds? If the latter is the case, the sponsors need to justify this action, given the dangers to wild fish that the sponsors say exist.

Sponsors supply ample evidence of the habitat work that has been conducted in recent years, although actual data on many of the important long-term metrics were not supplied. Sponsors' response will need to include additional biological data that address metrics of direct impact on fish survival (i.e., changes in temperature, habitat characteristics, numbers of redds, etc.) so as to better understand if the habitat changes so readily observed in the proposal photos are in fact altering the stream in a manner that fish are responding to (or are likely to respond to) in a positive manner.

Authors note that such results were readily available upon request (as was an offer for a guided on-site visit that would be of value to the ISRP) and note that their existing proposal already exceeded the recommended 25-page limit.

Under genetics concerns (p. 5, first bullet) the word trap after is missing after outmigrant. Second bullet refers to adult trap. Where are the two traps located?

Rationale and significance to subbasin plans and regional programs: The Trout Creek habitat project was ranked as the #1 priority in the Deschutes Subbasin Plan. It also addresses elements of the Oregon Plan and the Fish and Wildlife Program.

Relationships to other projects: The sponsors have worked cooperatively with several agencies and groups on restoration projects and more cooperative work is planned. They have worked with local landowners to develop restoration projects.

Project history: The project has an impressive list of accomplishments, and the photos suggest significant improvements in riparian vegetation and channel form. The sponsors have focused the discussion on the activities that have been undertaken but need to provide a better discussion how successful the restoration actions have been from an action effectiveness perspective, particularly as it relates to fish use (all life stages) and abundance. Quantitatively, if possible, they need to summarize what changes have occurred in habitat conditions (e.g., has the number of deep pools increased, have summer temperatures been reduced, has the amount of large wood increased, has summer flow increased, has the amount of spawning area increased). Quantitatively, if possible, how have fish responded to the habitat changes (fish use by all life stages, and abundance)? What are the results of the smolt trapping and redd count surveys, and adult returns.

Objectives: The stated biological objective is too general and would best serve as an overall goal for the project. The objective will not be achieved solely by the proposed work, nor does it provide a clearly measurable outcome for the project period.

The habitat restoration objectives should be stated in a way that accomplishment of the objectives within the project period can be assessed. A map of the area identifying current and planned project sites should be provided. The sponsors also needed to explain how the sites were selected and the method for prioritizing sites. New sites should be listed and an explanation of why they were selected should be given, in terms of habitat potential and fish productivity.

Tasks (work elements) and methods are well described in general terms. Sponsors chose to present this section in broad brush due to the suggested proposal length limitation of the proposal and the multi-faceted nature of this ongoing project. The supporting photos were very helpful. The methods principally involve installation and maintenance of restoration projects. The sponsors seem to be experienced with this kind of work. The methods, however, will not be sufficient to achieve the stated objective.

Monitoring and evaluation: The sponsors need to give more thought to the M&E program. More detail would have been appreciated here. The design of the program is not clear. How will the monitoring sites be selected? Will unexcluded areas and reference sites in relatively intact habitat

be included for comparison with changes at the project site. Have the sponsors considered a BACI-type design?

Will longitudinal stream surveys be conducted using EMAP or some other protocol? The EMAP approach is being widely applied within the basin.

Will fish habitat use and abundance at the reach and channel unit scale be conducted? How will genetic introgression be assessed?

Facilities, equipment, and personnel: Facilities are adequate, and the personnel seem well qualified. There is a good track record of cost-sharing and collaboration with other projects and entities.

Information transfer will apparently occur through interaction with landowners and other agencies.

Benefits to focal and non-focal species: The habitat improvements made thus far, and those proposed, are likely to have lasting positive benefits on Trout Creek steelhead and redband trout populations, but the sponsors did not provide enough information on fish response to habitat changes to make a definitive assessment of the benefit. Non-focal species should benefit due to extensive improvement in instream and riparian habitat conditions.

199802800 - Trout Creek Watershed Restoration Project

Sponsor: Jefferson County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$263,287 FY08: \$281,870 FY09: \$295,428

Short description: Implementation of numerous riparian and upland habitat improvement projects on private lands in the Trout Creek watershed, Deschutes basin. Monitoring and evaluation of current and past projects.

Recommendation: Response requested

The response needs to provide substantially more detail on past results in biological effectiveness terms. Also more detail is needed on objectives, methods and especially, monitoring and evaluation. The project has a record of successful restoration activities. To merit continued funding, the sponsors need to provide a summary analysis of changes in habitat and fish abundance that have occurred as a result of the past projects. They also need to revise the objectives to more accurately reflect the proposed work and develop a more comprehensive monitoring program.

Technical and scientific background: This is an ongoing project that works with private landowners and multiple funding agencies/sources to improve riparian, aquatic, and upland habitat in the Trout Creek Watershed. It is a companion project to the ODFW Project #199404200) and works to leverage BPA funds by writing grants to numerous funding sources, as sponsors move to finish Phase 3 of the Trout Creek Channel Habitat Improvement Project.

This project has, and continues to, implement extensive instream and riparian habitat improvement projects on a basin wide scale to significantly improve habitat for Mid Columbia ESU summer steelhead with several planned projects.

The sponsors supply ample evidence of the habitat work that has been conducted in recent years, although actual data on many of the important long-term metrics were not supplied. The sponsors' response will need to include additional biological data that address metrics of direct impact on fish survival (i.e., changes in temperature, habitat characteristics, numbers of redds, etc.) so as to better understand if the habitat changes so readily observed in the proposal photos are in fact altering the stream in a manner that fish are responding to (or are likely to respond to) in a positive manner.

Rationale and significance to subbasin plans and regional programs: The Trout Creek habitat project was ranked as the #1 priority in the Deschutes Subbasin Plan. It also addresses elements of the Oregon Plan and the Fish and Wildlife Program.

Relationships to other projects: The sponsors have worked cooperatively with several agencies and groups on restoration projects and more cooperative work is planned. They have worked with local landowners to develop restoration projects.

In past years, the ISRP has been impressed with SWCD's abilities to leverage BPA dollars into additional dollars -- sometimes achieving quite high overall funding levels relative to BPA funding levels. Much of this work occurs through enrollment of local ranchers into stream habitat conservation programs such as CREP. This approach makes BPA dollars go much farther than anticipated. The Jefferson SWCD has been particularly good at this in years past (e.g., Table 1 on Page 5 of proposal).

The Jefferson SWCD has also been instrumental in signing up landowners into FSA's CREP program in Trout Creek. To date, the SWCD has enrolled 9.92 miles of stream, totaling 145.6 acres into the program, with more planned in the near future.

Project history (for ongoing projects): The sponsors have focused the discussion on the activities that have been undertaken. They needed to provide a better discussion of how successful the restoration actions have been from an action effectiveness perspective, particularly as it relates to fish use (all life stages) and abundance. Quantitatively, if possible, they needed to summarize what changes have occurred in habitat conditions (e.g., has the number of deep pools increased, have summer temperatures been reduced, has the amount of large wood increased, has summer flow increased, has the amount of spawning area increased). Quantitatively, if possible, they should have explained how fish have responded to the habitat changes (fish use by all life stages, and abundance)?

Objectives: The objectives do not accurately reflect the work that will be conducted and do not provide measurable outcomes. Accomplishment of the first biological objective will not be achieved solely by the proposed work. The first objective, however, may serve as an overall

goal. The Work Elements appear to be directed more toward a habitat restoration objective and an objective involving landowners participation. A map of the area and project sites is needed. The sponsors also need to explain how the sites were selected and what is the method for prioritizing sites for restoration? It is not clear why the second objective is separate from the first because both involve habitat restoration.

Tasks (work elements) and methods: The sponsors did not clearly explain how the proposed tasks will lead to the accomplishment of objective 2. The methods will not be sufficient to achieve the objective 1.

Monitoring and evaluation: M&E was not addressed.

Facilities, equipment, and personnel: Facilities are adequate, and the personnel appear to have limited experience in habitat restoration.

Information transfer is not addressed. It probably will occur via landowner participation.

Benefits to focal and non-focal species: The benefits to focal species cannot be adequately assessed because objectives and some methods are unclear, the site prioritization is not explained, and information on past project effectiveness is not given. The effect on non-focal species is unclear, but the project probably will not cause harm

200201900 - Wasco Riparian Buffers

Sponsor: Wasco County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$85,582 FY08: \$87,782 FY09: \$91,032

Short description: This proposal develops riparian buffer systems in southern Wasco County in the lower Deschutes and lower John Day subbasins of the Columbia Plateau Province.

Implementation of buffer plans developed under this proposal is fully funded by USDA.

Recommendation: Response requested

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have a strong potential to benefit aquatic habitat and species (summer steelhead and resident fish), as well as non-aquatic riparian species.

The proposal shows a clear connection to the limiting factors identified in the John Day and Deschutes Subbasin Plans, many of which can be addressed by riparian buffers, and to subbasin restoration priorities. It has excellent collaboration and complementarity with other projects. A brief history of the project to date is described in terms of the number, area and amount of USDA contracts leveraged, but without analysis of the determinants (plus or minus) of enrollment rates or locations. The SWCD projects would benefit from an analytical assessment of what works and what doesn't.

Specific objectives are stated in terms of the # buffer acres, # riparian acres, and # miles to be implemented in riparian buffers. It is good to have these objectives quantified, but as with other riparian buffer projects there is no discussion of the basis for these numbers. How do the SWCDs develop their enrollment targets? How do these targeted enrollments relate to the total need?

Tasks are appropriate to the objectives. Monitoring and evaluation will be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

The sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

Given the growing body of experience in the implementation of these USDA contracts, it would be timely and useful to assess what works, what doesn't work, and nature of the constraints facing voluntary habitat improvement programs. The ISRP recommends that SWCDs collaborate in developing a report assessing the determinants of successful implementation processes for these USDA programs.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.
3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200706100 - Deschutes Sub-basin Riparian Restoration through USDA
Conservation Reserve Enhancement Program (CREP)

Sponsor: Wyeast Resource Conservation & Development Area Council

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$103,557 FY08: \$99,257 FY09: \$99,257

Short description: Develop riparian buffer systems on streams using the Conservation Reserve Enhancement Program (CREP) to restore and enhance riparian areas in the Trout Creek Watershed and other high priority stream reaches identified in the Deschutes Sub-basin Plan.

Recommendation: Response requested

The proposal provides a good synthesis of focal species, habitat conditions, and limiting factors from the Deschutes Subbasin Plan. Detail on habitat conditions establishes the need for riparian improvements. The proposal explicitly identifies how the implementation of riparian buffers will address specific limiting factors. It provides an excellent description of the CREP that also includes some assessment of factors that influence landowner willingness to enroll. Links to regional programs are well described. Collaborations between this and other related projects are presented in good detail.

The objectives are direct components of riparian buffer contracts and are measured in: # contracts, acres, miles. It is good to have these objectives quantified but as with other riparian buffer projects it would be helpful to know more about the basis for these numbers in order to understand how the SWCDs develop their enrollment targets or how these targeted enrollments relate to the total need.

The work elements are reasonable and follow NRCS protocols. The project will monitor riparian buffer implementation and the effectiveness of livestock exclusion. Monitoring and evaluation will also be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment (although this proposal is notable for having included some discussion of this aspect in the rationale section) and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs to work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

One aspect of the information transfer component of the project is described as the transfer of information on project accomplishments to Streamnet "with approval of the landowner in accordance with USDA policy." The quoted phrase deserves more explanation as to which project data will be public and which may remain confidential.

The ISRP requests a response clarifying the following issues identified in the review:

1. How enrollment objectives are determined.
2. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
3. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.
4. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?

200728600 - Deschutes Cooperative Stream Flow Restoration

Sponsor: Deschutes Soil and Water Conservation District

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: Restoration of stream flows in the Deschutes basin above the Pelton Round Butte complex to sustain the successful reintroduction of anadromous fish. Flows to be restored through development of cooperative irrigation water management projects in the basin.

Recommendation: Not fundable

Implementing water conservation projects is likely to be beneficial, as demonstrated by instream flow increases resulting from previous improvements in irrigation efficiency. However, this proposal lacks detail to explain how it will be done, how the project links to others, why the Deschutes SWCD is the logical entity to coordinate implementation, and how effectiveness monitoring would be conducted. The proposal states “Nothing succeeds like success.” However, success in restoration is only achieved if positive impacts of flow augmentation on habitat conditions and fish populations can be demonstrated.

Review concerns specific to individual proposal components are identified below:

Technical and scientific background: This section is missing a discussion of the magnitude of the problem of dewatered streams and how it relates to the limiting factors and restoration priorities identified in the Deschutes Subbasin Plan. Information on the utility of irrigation improvements for the increase in in-stream cfs (presented in the objectives section) should be included in this section.

Rationale and significance to subbasin plans and regional programs: This section presents relevant but minimal information. The proposed work is generally consistent with the Deschutes Subbasin Plan and the Pelton-Round Butte re-licensing agreement; however, is not specifically linked to the Deschutes Subbasin Plan limiting factors and priorities, the BiOp, the Fish and Wildlife Program, or the OR Plan.

Relationships to other projects: The proposal is related to several similarly oriented projects whose essence is collaboration with landowners and agencies. However, the proposal contains only minimal detail on the relationship to other SWCD projects in the area. Only passing mention is made to the Deschutes water transactions program, another program working toward increased stream flows. The need to discuss the water transactions program is further strengthened by the proposal's assertion in the objectives section that cooperation has an advantage over "market-based" approaches for increasing stream flows. The basis for this statement should be made clear.

Objectives: The sponsors have proposed a number of very worthwhile activities, activities that they have successfully been engaged in for some time. The sponsors have already secured considerable funding for their projects. The principle question for this review is what, specifically, will BPA funding add to their program. Objectives should be constructed to address this question. Objectives are not specified in measurable form and little detail is presented as to how the objectives will be accomplished. A lot of the material presented in this section is justification that would more reasonably be put in the background or rationale section.

Tasks (work elements) and methods: Methods are described generally, with the sponsors primarily recounting past projects. Very little information is provided as to how the objectives will be accomplished and measured.

Monitoring and evaluation: The sponsors speak of a monitoring effort but do not provide details except for "periodic ground truthing." More information is needed. It would be useful for the Deschutes SWCD to collaborate with a larger scale monitoring effort so that it will be possible to ascertain whether the flow increases achieved by conservation practices have improved habitat conditions and fish populations.

200731600 - McKenzie Canyon Irrigation Project

Sponsor: Deschutes River Conservancy

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$2,460,000 FY08: \$2,460,000 FY09: \$30,000

Short description: The Deschutes River Conservancy, Three Sisters Irrigation District, Upper Deschutes Watershed Council and the Deschutes Soil and Water District propose to restore instream habitat and flows in Squaw Creek to benefit ESA listed steelhead and bull trout.

Recommendation: Fundable

This is a well-written proposal, tight, detailed, supported with numbers and credible references. Wildlife and (named!) weeds are addressed and local land use pressures and ecological trends are recognized along with socio-economic elements. Identifies the major habitat-related problems within the Squaw Creek basin, including lack of adequate stream flows for fish. Historically, Squaw Creek was a major spawning and rearing area for steelhead and today supports a viable population of redband trout. Increased flows in Squaw Creek could be of particular significance as efforts to reintroduce steelhead above the dam complex continue.

The sponsors need to better justify, in as specific terms as possible, the extent to which the flow increases will improve habitat conditions. Will the proposed flow increase make a significant, or even noticeable, difference to fish, especially in the lower reaches? What reaches will be most affected by the flow increase? What would be the estimated improvement in habitat (e.g., spawning areas or spawning habitat)? Where would the major increase occur and how much? Would new areas be open to spawning and how much? How would juvenile habitat be improved and where would the greatest improvement occur? In the areas where flow would be increased, is the physical habitat otherwise in good condition?

The sponsors state that the flow increase represents 25% of the ODFW minimum flow request. At what location in the basin does this estimate pertain? Greater flow augmentation would make this project more appealing. Beyond focal species, the proposal did not note impacts on species adapted to ditches, such as nesting birds or amphibians, but did suggest vegetation salvage, an interesting, but not likely successful effort to reduce impact on non-focal species. It was nice to see terrestrial species being considered.

The sponsors use the subbasin plan to justify the proposed project as part of a larger, ongoing regional effort. The first phase has been funded by numerous agencies and NGO's. It is related to other streamflow restoration projects in the Deschutes Basin. In this water stressed, rapidly developing region, getting agricultural interests to put half the water saved into conservation rather than reducing over-allocation is a remarkable achievement. The work appears well organized and quite low-cost compared to many projects with less definable deliverables. The sponsors have extensive experience, and obvious cooperation with other agencies. Information transfer is not included, but should be. This model deserves more attention, and data should result, both technical and economic, that would be useful.

The project needs plans for M&E to determine whether the flow increases have been achieved and what impact they have on habitat and fish. Implementation and effectiveness monitoring for this project could be part of the larger M&E program for the Deschutes Basin, but the sponsors need to assure that the larger program expressly addresses their project objectives.

John Day

199802200 - Pine Creek Conservation Area: Wildlife Habitat and Watershed Management on 33,557-acres to benefit grassland, shrub-steppe, riparian, and aquatic species

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$278,836 FY08: \$309,615 FY09: \$409,792

Short description: Ongoing wildlife habitat and watershed management on the Pine Creek Conservation Area in FY2007-2009 (includes Pine Creek Ranch and Wagner Ranch acquisitions).

Recommendation: Fundable

This proposal meets the ISRP review criteria, benefits wildlife, and is an exemplary proposal among the wildlife set of proposals. The project sponsors may want to explore work with their neighbors to expand the benefits of this project.

200735900 - Application and enhancement of monitoring protocols for assessing productivity and watershed condition in headwater subcatchments of the John Day subbasin

Sponsor: PNW Research Station -- Wenatchee

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$292,030 FY08: \$272,938 FY09: \$282,900

Short description: The project sponsors developed monitoring protocols for assessing watershed condition in the headwaters of the Wenatchee sub-basin and The project sponsors propose to test the same techniques and evaluate the effects of landscape-scale factors in the John Day sub-basin.

Recommendation: Fundable

The number of proposed activities is quite large. The proposal makes a good connection between biological and physical components by examining the relationship between food web productivity surrogates and the health of downstream fish communities in multiple basins. The project location is in headwaters in nearly fishless areas, therefore this study looks at watershed processes and the influence of headwaters on downstream areas with fish.

The proposal would be stronger with more assurances on collaboration with other John Day and regional projects. Some projects are mentioned, but there are several other projects in the John Day that could complement this work (SWCD, ODFW, NOAA). The proposal ties the project to the goals of the Fish and Wildlife Program, the BiOp (RME), the monitoring programs ISEMP, PNAMP (through the intensively monitored watersheds), and the John Day Subbasin Plan objective of achieving aquatic ecosystem health.

The objectives, identified as components in the proposal, are reasonably specified, and a rationale is presented for each. Methods for the site selection work element are described in detail, with timelines and deliverables. The characterization of the 60 selected sites is described in less detail, but with timelines and deliverables. Sampling and measurement is described at length. Statistical analysis is described in good detail. The statistical design shows good awareness and appears technically sound.

Facilities and personnel are reasonable. Similar work by this team has focused on the effects of headwater restoration on downstream fish productivity in Lake Wenatchee. Plans for information transfer are reasonable.

198402100 - Mainstem, Middle Fork, John Day Rivers Fish Habitat Enhancement Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$486,515 FY08: \$519,262 FY09: \$537,463

Short description: This project was initiated on July 1, 1984, (BPA) contract number DE A179-84 BP17460 and allows for initial landowner contacts, agreement development, project design, budgeting, and implementation for anadromous fish habitat on private lands.

Recommendation: Not fundable

This proposal describes some fish data being collected and shared, as well as photo points, but there is no history of accomplishment of original objectives, only completion of tasks. After 22 years, is this working? The ISRP has constantly noted the need for long-running projects to present results in biological terms, not just as a listing of tasks completed. The lack of presentation of such results in a study with 20+ year duration is unsupportable.

Objectives are contingent on landowners, but this appears to be an active program. The project has built an amazing 542 miles of fence alone, to what end? The larger question is overall benefit to fish, or even water quality, flow regimes, and the other original problems. Understanding of the general problems addressed has advanced significantly since 1984, as have approaches to restoration and knowledge relating to the "underlying assumption." It is not clear that this project has kept pace, scientifically or technically. For example "spraying weeds" is now usually part of an IPM strategy, not a strategy itself. Innovations noted are in equipment, not thought, or approach. Is this a biologically effective use of resources?

If there has been a recent review of this project's biological results, it should be summarized and cited in the proposal, otherwise, it is time for one. One year of funding might provide time for this with continuation of ongoing field projects.

199306600 - Oregon Fish Screens Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$1,015,374 FY08: \$1,073,876 FY09: \$1,136,071

Short description: The project provides immediate and long-term protection for anadromous and resident fish species in the John Day, Umatilla, and Walla Walla basins by the installation or replacement of out dated fish protection and passage devices on irrigation diversions.

Recommendation: Fundable

This project provides direct, long-term benefits for salmon and other aquatic species. Screening, especially for rare and much reduced species, can be critical to rebuilding populations. It is important that screening technologies be updated and that the best available methods be used to benefit different species and sizes of fish. This drainage is a significant wild fish "control" system in the Columbia Basin. Objectives are straightforward and tasks are identified appropriately. Success in screen projects is highly dependent on the skills of the people implementing them and requirements can be quite site-specific. It is not clear in the proposal exactly how success will be measured, before and after rates of entrainment? Monitoring for effectiveness should be essential.

Is this cost effective in terms of fringe and overhead? These costs seem high.

199801700 - North Fork/Mid-John Day Fish Passage Improvement

Sponsor: Monument & Wheeler SWCDs

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$516,795 FY08: \$498,720 FY09: \$313,249

Short description: The project sponsors will replace problematic irrigation diversions and culverts in the Lower North Fork and Mid-mainstem John Day Watersheds with fish-friendly structures that ensure fish passage and improve riparian habitat while efficiently meeting land managers' needs.

Recommendation: Fundable

This well-written project proposal describes activities to improve habitat connectivity and riparian habitat conditions in selected tributaries to the North Fork and Mid-mainstem of the John Day River by replacing between 18 and 25 problematic irrigation diversions, culverts, and other artificial structures with fish-friendly structures. The culverts were identified through a prioritization process. The focal species include Mid-Columbia Summer Steelhead, redband trout, specific life histories of Mid-Columbia Spring Chinook, and Pacific Lamprey.

This is a solid proposal that demonstrates its activities are linked to priority needs from regional and subbasin planning documents and that is making steady progress toward achieving its objectives. Much of the proposal and planned work is straightforward with simple monitoring planned to document that anticipated results are actually achieved.

No termination date is identified for the project even though sponsor comments indicate that approximately 10-13 years work will be needed to address passage issues in the John Day Basin. Even though such a termination date is uncertain and is some years out, a termination date should be identified for projects, rather than leaving them open-ended.

The ISRP has a programmatic concern on all projects proposing culvert replacement.

1. Prioritization of specific culvert?
2. How much habitat is made available?
3. What is the "quality" of the habitat?

This project has addressed these concerns within its proposal.

Technical and scientific justification: Fixing fish passage barriers is the focus of this project. Primary barriers are culverts and push-up dams. Excellent descriptions of problems with push-up dams and culverts at the specific watershed sites to be addressed by this project are included in the proposal. These are effectively illustrated with maps, graphs, and photographs of problem areas and fish-friendly alternatives.

Push-up dams and old makeshift diversion dams are to be replaced with removable flashboard dams and/or rock step-pool weirs, while poorly-installed culverts and other problematic road crossings (collapsed log bridges, etc) will be replaced with properly-sized culverts, bottomless arch culverts or small bridges. Funding is requested for \$1,328,764 over the 3-year project period.

Priority areas are consistent with those identified in the John Day Subbasin Plan. Fish passage has been identified in the subbasin plan as a high-priority limiting factor.

Relationship of activities under this project to the Fish and Wildlife Program and to the subbasin plan is clear. The actions in this project are directly tied to specific priority restoration strategies in the subbasin plan. The proposal also discusses relationship to the draft recovery plan (not yet released) for Mid-Columbia steelhead. Project actions relate to RPA 149 in the 2000 BiOp.

Relationships to other projects: Examples are given of other projects this group works with: ODFW fish screens, multi-agency riparian habitat restoration, Oregon Water Trust irrigation efficiency projects, other SWCD upland conservation. The project will build on previous passage work of these SWCDs and others.

Project history: To date, this project has replaced 15 problematic irrigation diversions with fish friendly alternatives, with another 8 scheduled for replacement in 2006 (Map G). This represents over 60% of the problematic diversions in the initial project area. As initially developed, the project focused on eliminating push-up dams on the lower mainstem of the North Fork John Day. In 2003, sponsors started to emphasize works in tributaries, as low-flow passage barriers typically have much more impact in small streams that do provide summer habitat to salmonids.

Objectives: Five project objectives are clearly specified with quantitative measures of progress. Brief but clear descriptions of the intent of each objective are included. Timelines are not included.

Tasks (work elements) and methods: Work elements are specifically described. Methods have previously demonstrated effectiveness. Note is made of the need for voluntary cooperation of landowners, and that this may limit project success. However, a history of positive working relationships of the SWCD and landowners make failure unlikely.

Monitoring and evaluation: The project includes basic monitoring of effectiveness of actions -- habitat response to project implementation. Population response monitoring is done by other projects (ODFW, NOAA/BOR). Work elements are included for project effectiveness monitoring to collect data on: site changes (photopoints) and stream temperature. Monitoring, data collection, and analysis are done in collaboration with Monument SWCD. Primary use of project-generated monitoring is to assess effectiveness and guide project implementation.

The project also includes a monitoring component, which aims to 1) document the changes at project sites over time through photo monitoring, and 2) determine whether in fact push-up dams result in warming of downstream flows. Photo documentation has show gradual riparian recovery at the sites of old push-up dams. The temperature monitoring that has been collected has documented that specific types of push-up dams (in particular, ones that create long artificial side-channels in summer low flow conditions) can elevate water temperatures. Other types of push up dams do not have as clear a temperature signal.

Facilities, equipment, and personnel: Facilities are reasonable. A history of collaboration among SWCDs and among SWCDs and landowners make these groups uniquely qualified to implement these types of projects on private lands.

Information transfer: Project results to be reported in SWCD newsletters, reports and other publications of the SWCDs and watershed councils, local and regional media. If monitoring shows broadly applicable results, sponsors intend to summarize in more broadly distributed reports.

199801800 - John Day Watershed Restoration

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$1,011,616 FY08: \$962,383 FY09: \$924,329

Short description: Continue implementation of protection and restoration actions, planned under the John Day Subbasin Plan, to improve water quality, water quantity, and riparian habitat, and to eliminate passage barriers for anadromous and resident fish.

Recommendation: Response requested

Chinook Mid-Columbia ESU, Steelhead Mid-Columbia ESU in addition to a range of wildlife and resident fish should benefit from this project. The project is tied to the limiting factors

identified in the subbasin plan: stream flows, water temperature, passage, channel stability, sediment loads, habitat diversity, predation, harassment, and oxygen. It is also relevant to the 2000 BiOp RPAs, 2000 and 2003 modifications to the Fish and Wildlife Program, the John Day Subbasin Plan, BOR Water Optimization Plan for the Upper John Day, Wy-Kan-Ush-Mi Wa-Kish-Wit, and the CBFWA Integrated System Plan for Salmon and Steelhead Production. The project is linked to others doing watershed research and restoration in the subbasin. It specifically references the ODFW habitat restoration work, the ODFW fish screening project, the Oregon Water Trust, and the SWCDs.

It would be helpful to have proposers clarify objectives and work elements, with rationale for priorities and work distribution. Objectives seem reasonable but are not associated with timelines or metrics. The sponsors are involved in a variety of activities and subcontracts, and it is difficult to discern how priorities are developed. Work elements are somewhat difficult to track and are described in varying detail (e.g. monitoring is described in detail, while work elements associated with "restore habitat diversity, improve water efficiency are not described). Most descriptions are general.

The proposal would benefit from more presentation of biological results achieved thus far. A description of project history and activities, with summaries of habitat improvements resulting from projects is provided but it is not well quantified or evaluated. Monitoring is a component of the objective "improve and monitor water quality and project effectiveness." Examples are provided of both qualitative and quantitative monitoring that is conducted. The quantitative monitoring is better described. Monitoring is done both by this project and in cooperation with other projects.

199901000 - Pine Hollow/Jackknife Habitat

Sponsor: Sherman County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$23,609 FY08: \$23,609 FY09: \$23,609

Short description: Implement practices to reduce erosion, flooding, and protect critical areas in the stream corridor which will allow natural recovery of riparian vegetation and channel stability in the Pine Hollow and Jackknife watersheds.

Recommendation: Fundable

This is a well-written proposal for another cost-effective SWCD project that will leverage private and public money to achieve subbasin environmental improvements. The proposal shows good collaboration with other resource agencies and is well integrated with private interests.

The proposal does a good job describing the causes and effects of watershed impairment, as well as the history of collaboration among landowners and agencies in addressing problems of aquatic habitat quality and quantity. The project is clearly linked to the limiting factors and restoration priorities identified in the John Day Subbasin Plan, as well as to regional programs. Benefits are clearly defined; however, it would be useful to have more detail on the nature of the linkages among the various riparian buffer projects

Specific results of the project's several years of implementation are reported. The accomplishments are impressive and represent good cost-sharing and leveraging. However, more evaluative detail on the effectiveness of past projects (actual impact, beyond enrollment numbers) would be helpful. It would also be useful to know how the results of the project fit within the overall needs of the watershed to have a better understanding of how recovery is progressing.

Objectives are clearly stated in measurable terms, with time lines, in ways that address limiting factors identified in the subbasin plan. The project will use straightforward approaches. M&E is tied to each objective. Methods are clearly described in specific terms and relate well to objectives. Justification for each work element is clearly provided. This project appears to have excellent interagency and landowner coordination in implementing work elements.

Effectiveness monitoring is conducted in collaboration with ODFW and landowners. The effect of restoration is monitored in part through redd counts and water temperature. The redd count data presented in the proposal show sensitivity to drought years, and it would be interesting to know the sponsors' thinking on how this effect might be alleviated. M&E is also a component of the work elements for each habitat improvement project. Lists of indicators and performance standards are provided as a way to monitor habitat improvements. The metrics are measurable and reasonable. Information on project results will be reported on the form of metrics: water quality improvement, number of stream miles, water quality projects, etc.

Benefits to focal species in the John Day Subbasin Plan (steelhead and redband trout) are clear and should be long lasting. The changes being made in the process of restoration are likely to be permanent, although the question of how to further protect in-stream flows in drought years should be addressed.

Overall, this proposal outlines a practical, on-the-ground approach to protection of focal species. The improvements provided by project activities should also benefit a wide range of non-focal aquatic and terrestrial species.

See comments under proposal 200201900 and the programmatic section of this report on SWCD projects.

200001500 - Oxbow Conservation Area Management

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$264,366 FY08: \$211,073 FY09: \$341,261

Short description: The 1,022-acre Oxbow Conservation Area project is a mitigation property acquired by the CTWSRO through BPA funding. This proposal aims to continue the O&M, M&E, and habitat improvement projects on this valuable anadromous fish property.

Recommendation: Fundable

This is a well-prepared proposal that is making progress toward its well-stated and well-justified objectives. The Oxbow Conservation Area was purchased as a high priority project in 2001 with BPA mitigation funds by the Confederated Tribes of Warm Springs Reservation of Oregon (Tribes). The Project has since received BPA annual funding for O&M as part of the Memorandum of Agreement between the Tribes and BPA.

The Oxbow property is located in the Camp Creek 5th Field HUC in the John Day subbasin. The subbasin plan identifies the Middle Fork John Day River as the highest priority subwatershed for the John Day subbasin. The valuable property holds a high concentration of adult spring Chinook salmon through the high temperatures and low flows of the summer months in its deep pools. The conservation area offers spawning and rearing habitat to Chinook, summer steelhead and bull trout as well as access to the five fish-bearing perennial tributaries that come into the property from National Forest lands.

Technical and scientific background: The proposal contains good detail of riparian and in-stream problems requiring remediation and describes in some detail past accomplishments. A list of monitoring activities is presented and an M&E document is referenced. The proponents gave adequate responses to past ISRP questions and concerns. In particular, monitoring and evaluation on the Oxbow Ranch appears to be well coordinated with ongoing ODEQ and ODFW monitoring projects for the John Day basin.

This section contains a quite complete description of the Oxbow Conservation Area, including habitat conditions and context. It also contains material that would be more appropriately placed in the sections on project history, objectives and methods. The section on spring Chinook contains a statement that the fish are protected under MSFCMA, when the reference should be to ESA. The table on fish distribution should contain some citation to sources. Overall the section contains good description of the fish and wildlife species and assessments done on their abundance and habitat. Helpful photos are provided. A good description of habitat issues that need to be addressed by the activities proposed in this project is also provided: dredge tailings, fish passage, riparian trees and shrubs, non-native plants and forest health.

Rationale and significance to subbasin plans and regional programs: The proposal establishes good rationales and significance through linkages to the 2000 Fish and Wildlife Program and to the John Day Subbasin Plan. The area in which Oxbow CAP is located is identified as the highest priority for restoration in the subbasin plan. Recovery strategies identified as highest priority in the subbasin plan are consistent with activities contained in the proposed project. The Oxbow CAAP has developed a draft management plan which is under review at BPA. Goals and objectives of that plan are reflected in this proposal. The proposal also notes links to the USFS and NC management plans for the Middle Fork John Day, with ODFW management plans, with the Grant County SWCD, the watershed council, and with Wy-Kan-Ush-Mi-Wa-Kish-Wit.

Relationships to other projects: The proposal lists several other projects to which this project is directly linked and with which it shares resources. A table identifies specific activities that are shared with other projects.

Project history: A history of project development and various funding issues affecting project scale is presented. This is followed by a description of project results by category such as habitat protection, fencing, planting, fish screening, etc. The project clearly has implemented a substantial amount of restoration work. It would be helpful to have a little more evaluation of what these actions mean in the overall context; e.g.; where is the area now relative to where it was, and needs to be.

Objectives: The proposal contains a number of biological objectives that link the subbasin plan and Oxbow CAP management plan. Several work elements are associated with each objective. The objectives are quite general in specification (e.g. "restore stream base flows) but contain a work element that is quite specific (obtain instream leases for water rights). Time lines are specified. Specific details are contained in the work element metrics (admin and budgeting section).

Tasks (work elements) and methods are broadly described, but seemingly appropriate. Several work elements are associated with each objective. Some of the work elements are presented in general, rather than specific terms (e.g. install fence) but do contain discussion that establish the intention, context and rationale in more detail. Other work elements (e.g. replace 4 fish screens) are specific and measurable. All work elements have specific time lines attached. The objectives and work elements cover a lot of ground and consist of reasonable activities, with reference to their motivation in management plans and to monitoring activities (e.g. the grazing plan, water conditions, fish counts, etc). Specific details are contained in the work element metrics (admin and budgeting section).

Monitoring and evaluation: M&E is conducted in a separate grazing management plan. M&E of project results for fish and habitat is also a separate work element. Data are collected and monitoring conducted on stream temperature, bird surveys, habitat condition, stream flow, fish counts, weather, etc. Descriptions of monitoring efforts contained in Section B provide additional detail of the type of assessment, monitoring and evaluation that is part of this project. It would be useful to see the Oxbow Conservation Area Management Plan to see how the monitoring is integrated to inform decision making on the area as a whole. There is quite a bit of monitoring laid out, but not very good indication of what they are looking for in terms of responses.

Facilities, equipment, and personnel: Facilities and personnel are well situated in place with strong ties to related projects. Also note cost-sharing with the Nature Conservancy and other institutions.

Information transfer: Good description of not only routine reporting to BPA, but also specific details on information sharing and coordination with other projects and agencies.

Benefit to focal and non-focal species is well described. Project restoration activities will provide realizable benefits to spring Chinook, steelhead, redband trout and lamprey. Habitat

restoration actions will also benefit frogs, white-tail deer, mink, mallard, yellow warbler, black-capped chickadee and western meadowlark. It is reasonable to expect that these benefits will persist over the long term.

200003100 - North Fork John Day Basin Anadromous Fish Habitat Enhancement Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$269,609 FY08: \$283,090 FY09: \$297,244

Short description: Increase habitat for Chinook salmon and steelhead on private and public-owned lands via implementing fencing, off-stream water development, revegetation, culvert replacement, pool development, mine tailing removal and large wood placement projects.

Recommendation: Fundable

Chinook Mid-Columbia ESU steelhead, Mid-Columbia ESU bull trout and interior redband trout should all realize long-term benefits from the habitat improvements proposed. This project is well planned, and the objectives and methods have been thought through. Clear ties are made to the Fish and Wildlife Program, the BPA Watershed Management Program, the BiOp RPAs, Wy-Kan-Ush-Mi Wa-Kish-Wit, and the Subbasin Plan. There are many complementarities between this project and others in the subbasin, with clear descriptions of who does what, how they are related, and presentation of the role of CTUIR in the communities and watershed council.

This project proposes tributary habitat improvements in priority areas identified in the Subbasin Plan and tied to EDT results. Habitat limiting factors are linked with strategies and restoration activities. Detailed descriptions of habitat problems and activities to date are provided by geographic area. There is a clear description of project history and actions, but little evaluation of project outcomes and impacts. A table lays out the rationale for proposed actions. Objectives are specific to location, expressed in measurable units and relate actions to time lags for discerning measurable effects. Work elements are similarly specific, with milestones and dates. M&E will be done through collection of well-described, pre- and-post implementation data on channel hydrology and vegetative response. No direct monitoring of fish use of habitat. The sponsors should coordinate with ODFW so that fish monitoring occurs and can be tied to habitat improvements. Information transfer is accomplished through outreach and education activities, watershed council participation, landowner collaborations, and periodic reporting.

200104101 - Forrest Conservation Area Management

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$318,783 FY08: \$278,947 FY09: \$200,597

Short description: The Forrest Conservation Area consists of 4,232 acres and contains 8.5 miles of critical fish habitat in the Upper Mainstem and Middle Fork John Day River systems.

Management prioritizes protection of fish, wildlife and their associated habitats.

Recommendation: Fundable

This is a well-written proposal with a clear history and clear objectives, methods, M&E, and demonstrated cooperation with other related projects. The Forrest Conservation Area was purchased by the Confederated Tribes of Warm Springs Reservation of Oregon (Tribes) in 2002 as a high priority project with BPA mitigation funds. The project has since received BPA annual funding for O&M as part of the Memorandum of Agreement between the Tribes and BPA. The Conservation Area is 4,232 acres and is split into two geographically separate parcels located along the Upper Middle Fork and Upper Mainstem John Day Rivers in the John Day Subbasin.

Though currently well below its potential for fish and wildlife due to previous habitat degradation, the property contains critical habitat used by spring Chinook, summer steelhead, and a variety of wildlife. Spawning spring Chinook densities on the Middle Fork property are the highest in the basin and the property represents 4,083 Habitat Units (HU) of protection for 7 wildlife mitigation species for BPA. Benefits from this project to focal and non-focal species should persist over the long term.

Previous ISRP reviews of this proposal were very positive and noted that it was an important high priority project. The current project proposal recounts biological results (gains) that have occurred since acquisition of the property.

Technical and scientific background: The technical and scientific background is excellent. It describes in detail the subbasin context and the Forrest Conservation area within it. It includes a description of the property, assessments conducted, baseline conditions, limiting factors, desired future conditions, and restoration strategies to achieve these. It also contains information that probably should be included in other sections (ties to other projects, history, objectives, etc). The section on spring Chinook contains a statement that the fish are protected under MSFCMA, when the reference should be to ESA. Helpful photos are provided. A good description of habitat issues that need to be addressed by the activities proposed in this project is also provided.

Rationale and significance to subbasin plans and regional programs: The proposal establishes good rationales and significance through linkages to the 2000 FCRPS BiOp and to the John Day Subbasin Plan (JD SBP). The conservation area is a key component of the JD SBP. Recovery strategies identified as highest priority in the SBP for are consistent with activities contained in the proposed project. Project actions are motivated by the limiting factors and their corresponding strategies in the JD SBP. The proposal also describes links to the 2002 Fish and Wildlife Program habitat strategies. The proposal also notes links to the Wy-Kan-Ush-Mi-Wa-Kish-Wit.

Relationships to other projects: An extensive list of direct links to and complementarities with other projects is provided. These projects are managed by CTWS, ODFW, CTUIR, OYCC, BOR, Grant SWCD, ODEQ, public schools, USDA NRCS, etc. The proposal describes very strong links with description of the nature of the link.

Project history is extensive and well documented, particularly for a project that is only 3+ years old. A short history of project development and funding is presented, followed by an extensive description of project activities by category such as fencing, planting, CREP, flow enhancements, irrigation improvements, fish screening, etc. The project clearly has implemented a substantial amount of restoration work. Good detail is provided as justification for the activities. A detailed description of monitoring of project activities is included.

Objectives: Objectives relate to those specified in the JD SBP and to specific restoration goals for the Forrest Conservation Area. Objectives are stated in general form, but become more specific in the expression of work elements and quite specific and measurable in the metrics presented in the administrative section. Objectives are reasonable and comprehensive.

Tasks (work elements) and methods: Several work elements are associated with each objective. Some of the work elements are presented in general, rather than specific terms ((e.g. remove vegetation) but do contain discussion that establish the intention, context and rationale in more detail. Other work elements (replace culverts) are specific and measurable. The objectives and work elements cover a lot of ground and consist of reasonable sounding activities, but lack discussion of their motivation contained in the Oxbow proposal. Each work element contains collection of data for monitoring and evaluation. Specific measurable quantities are contained in the work element metrics (admin and budgeting section).

Monitoring and evaluation: A detailed description of monitoring activities is included in the section on project history. Work elements also contain components to "collect, generate, validate field and lab data" with a description of how these data will be used in evaluating success of the strategies. It would be useful to see the Forrest Area Management Plan to see how the monitoring is integrated to inform decision making on the area as a whole.

Facilities, equipment, and personnel: Facilities and personnel are well situated in place with strong ties to related projects. A specific list of equipment and facilities, with functions and conditions noted, is provided.

Information transfer: Good description of not only routine reporting to BPA but also specific details on information sharing and coordination with other projects and agencies. Indirectly addressed through listing of proposed reports.

200201500 - Provide Coordination and Technical Assistance to Watershed Councils and Individuals in Sherman County, Oregon

Sponsor: Sherman County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$112,352 FY08: \$116,360 FY09: \$118,799

Short description: One watershed council coordinator and three planner/designers will provide support to four watershed councils in Sherman County. All future conservation projects will be based on watershed plans and individual ranch plans developed by these positions.

Recommendation: Response requested

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have the potential for strong benefits to aquatic habitat, and so aquatic species, as well as to non-aquatic riparian species. This project will directly benefit focal species of the Deschutes and John Day Subbasin Plans. Benefits will persist for at least as long as the riparian buffer contracts, and maybe longer if contracts are renewed or if landowners discover additional benefits of riparian buffers that encourage them to maintain them.

The proposal provides a good description of riparian habitat problems in the Deschutes and John Day Subbasins and their linkage to problems of aquatic habitat (stream flows, water quality) and upland conditions. The proposed work is clearly linked to regional programs and to the priority rankings and associated restoration strategies for particular watersheds in the John Day and Deschutes Subbasin Plans. It is also linked to the Sherman County SWCD work plan. However, the proposal would be improved by also demonstrating the relation to other SWCD riparian projects and to the range of riparian projects in the John Day and Deschutes subbasins.

The proposal makes the point that there is a growing demand for conservation projects and an associated need for coordination and implementation. It lists work tasks accomplished since 2002, but without evaluation of the impact of these actions. Evaluation of what has happened in the buffers implemented in 2002 and the key factors affecting enrollment would be informative and helpful. NRCS protocols require that CREP contracts be given three annual reviews post-enrollment. What are the outcomes of these reviews?

Enrollment objectives are measured by number of stream miles. An explanation of the source and derivation of these enrollment objectives would provide useful explanatory information. Methods described are reasonable to accomplish the objectives of implementing riparian buffer contracts and coordinating watershed councils. Monitoring and evaluation includes indicators and performance standards, which is a step toward more thorough evaluation of the process. Monitoring and evaluation will be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness, a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

Information transfer is built into the outreach and education objectives. The proposal also describes the transfer of project results (metrics) to the BPA Pisces system. However, the sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

Given the growing body of experience in the implementation of these USDA contracts, it would be timely and useful to assess what works, what doesn't work, and nature of the constraints facing voluntary habitat improvement programs. The ISRP recommends that SWCDs collaborate in developing a report assessing the determinants of successful implementation processes for these USDA programs.

The ISRP requests a response clarifying the following issues identified in the review:

1. The relation of this project to other SWCD riparian projects and to the range of riparian projects in the John Day and Deschutes subbasins.
2. How enrollment objectives are determined.
3. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
4. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
5. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200203400 - Wheeler Co Riparian Buffers

Sponsor: Wheeler County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$89,780 FY08: \$94,769 FY09: \$94,094

Short description: This proposal will provide technical support and planning needed to implement riparian buffer contracts (CREP) on streams within Wheeler County. Riparian buffers address many of the limiting factors identified in the John Day Sub-basin Plan.

Recommendation: Response requested

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have the potential for strong benefits to aquatic habitat, and so aquatic species, as well as to non-aquatic riparian species.

The proposal briefly but clearly describes the nature of the riparian problem and the need for private landowner cooperation. It specifically identifies how riparian buffers will address the aquatic habitat limiting factors identified in the John Day Subbasin Plan as well as the listing factors in the DEQ 303(d) stream segments in Wheeler County. Wheeler SWCD has developed, in collaboration with ODFW, and OWR, a map of passage barriers and habitat potential, and has used this map to prioritize riparian enhancement projects. This project has extensive links and collaborative efforts with other projects conducted through a number of different entities throughout the subbasin.

The proposal describes the project history in terms of what did or did not happen, but does not go beyond this to evaluate why things did or did not happen. The proposal would be improved if it presented the project history in more analytical terms, going beyond description to evaluation of why the position has been hard to fill, why landowners do not see it in their interest to sign on, and how to make it in landowner interest to adopt riparian buffer plans, etc. How was the 2002 enrollment target of 60 contracts developed? Why wasn't it achieved?

Objectives are linked to the focal species of the John Day Subbasin Plan and reflect components of riparian buffer contracts. They are measured in: # contracts, acres, miles. It is good to have these objectives quantified, but as with other riparian buffer projects it would be helpful to know the basis for these numbers, to understand how the SWCDs develop their enrollment targets or how these targeted enrollments relate to the total need.

The work elements are reasonable and follow NRCS protocols. The project will monitor riparian buffer implementation and the effectiveness of livestock exclusion. Monitoring and evaluation will also be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

The sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

The proposal mentions low rates of adoption in the last funding period. It would be useful to have the sponsors explain how these will be addressed in the next funding cycle. Will outreach and education be conducted in a different manner or target specific areas of concern, or reasons for non-adoption? Will the outreach and education effort have the information to identify landowner concerns, for the purpose of understanding and acknowledgement of reasons for nonparticipation, and to better identify how it might be made in their interest? Has the project learned from its history and is it able to modify practice to improve the number of CREP/CCRP contracts?

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment (although this proposal is notable for having included some discussion of this aspect in the rationale section) and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.
3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200203500 - Gilliam Co Riparian Buffers

Sponsor: Gilliam Soil & Water Conservation District

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$80,221 FY08: \$84,806 FY09: \$91,839

Short description: The project sponsors seek BPA funding to continue our riparian buffer position. This job entails making 10-15 year contracts with private landowners to establish riparian areas. Non-BPA monies are then leveraged to develop, maintain and enhance fish and wildlife resources.

Recommendation: Response requested

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have the potential for strong benefits to aquatic habitat, and so aquatic species, as well as to non-aquatic riparian species.

Gilliam County has a high proportion of private landownership, and so needs landowner cooperation in riparian restoration. A good description is provided of the causes of riparian degradation, the relation of degradation to the decline of aquatic species, and link between riparian condition and stream flows. The Subbasin Plan is cited, as is the Thirtymile watershed assessment that will identify strategies for riparian buffers on this priority stream.

The project is well connected to the priority drainage areas identified in the John Day Subbasin Plan. The restoration of these systems is linked to the strategies listed in the Subbasin Plan that in turn relate to the long-term recovery goals for summer steelhead, redband trout, and spring Chinook. The project is also linked to a range of other projects in the subbasin and to regional programs. There is information exchange with SWCDs in other subbasins. A good description of the project's history includes assessment of the potential for further leveraging. There is also some evaluation of off-site stock watering and the cost-effectiveness of mulching options.

Quantitative objectives for riparian buffer contracts enrollment are provided, as with the other SWCD proposals. The biological and habitat objectives are taken from the Subbasin Plan, with an emphasis on restoring riparian habitat in order to support recovery of focal species on private

land. This project will focus enrollment efforts on Subbasin Plan priority areas but will assist in other areas as well. However, as with other riparian buffer projects it would be helpful to know the basis for these numbers, to understand how the SWCDs develop their enrollment targets or how these targeted enrollments relate to the total need.

The narrative does a good job of showing how enrollment activities relate to the "improve stream flow" objective. It also is convincing as to why the NRCS cannot do the expanded enrollment alone, and how the activities to enroll landowners in the CRP/CREP programs are related to the subbasin goals. The work elements are reasonable and follow NRCS protocols. The project will monitor riparian buffer implementation and the effectiveness of livestock exclusion. Monitoring and evaluation will also be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers. Does the existing information sharing with ODFW extend to collaborative monitoring?

The sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

The sponsors don't give themselves enough credit for the information transfer built into the proposal. They indicate that the proposal's information will be transferred and available for review on the BPA publication web site and the PISCES reporting web site. But elsewhere in the proposal they describe the joint tour of ODFW/SWCD of the riparian projects, to share information on flow requirements, passage issues, and riparian planting methods. There is also noted information sharing among projects, and among SWCDs (software, processes, USDA and SWCD personnel). They also mention teaching stream bank restoration techniques in Morrow and Umatilla counties. This project does an excellent job at information transfer.

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.

3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200701300 - Convert BPA Term Riparian Lease Agreements to Permanent Riparian Conservation Easements

Sponsor: John Day Basin Trust

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$433,690 FY08: \$427,811 FY09: \$433,145

Short description: The John Day Basin Trust requests program operations funding and a "set aside" allocation of purchase funding to pursue the conversion of current and expired riparian lease agreements to permanent riparian conservation easements.

Recommendation: Response requested

This proposal requests funding to purchase and administer the conversion of riparian area protections (fenced areas) to permanent conservation easements. The proposal lacks detail to support the request, including justification for why conservation easements are the most effective tool, identification of the specific amount of easements needed, or details of the approach. The proposal links conservation easements to the achievement of subbasin plan objectives but should be able to demonstrate why conservation easements would be the most cost-effective approach to long-term protections in the John Day Subbasin. The sponsors' response should better justify the easement approach and present information about the costs and benefits of this approach relative to other protection tools. It would be helpful to include citations to studies that demonstrate the cost-effectiveness of conservation easements in contributing to subbasin goals.

In addition to responding to the areas identified in the paragraph above, sponsors are also asked to respond to the concerns and questions identified in the sections below.

The technical and scientific background includes an extensive description of the project area and its existing riparian protections. Several questions pertaining to the project context are left unaddressed.

1. What proportion of priority and habitat streams are fenced by existing projects? (e.g. What does 76 miles of fence mean in context?)
2. What proportion (actual %) of the existing riparian fenced areas are within the Subbasin Plan's high priority areas?
2. The proposal shows a trend of increasing numbers of conservation easements in the John Day Basin (Figure 3). What influenced the relatively low number in 2004?
3. What is the basis for the statement that conservation easements (compared to fee-simple acquisitions) may be one of the most efficient approaches? How has this evaluation been made?
4. How are standards for continuing fence maintenance monitored and enforced under easements?

Proposal objectives are quite generally specified. They sound reasonable for the development of conservation easements, but more detail should be provided. Work elements pertain to the objectives but are also quite general. More information should be provided as to the specific of developing and implementing conservation easements. No detail on monitoring and evaluation is provided. Added to these concerns are the following specific questions:

5. How are conservation easement targets (size, locations) determined?
6. What are the likely constraints?
7. What is the function of the HEP reports - do the conservation easements then become associated with wildlife credits?
8. What monitoring and evaluation of the conservation easement process – both development and post-implementation – will be done?

More information should also be provided as to why the John Day Basin Trust is the best entity to perform this work and how the information produced by this project will be shared. Information transfer is only generally described. It would be helpful to have more specifics as to how this will be done, especially given the potentially controversial nature of this activity.

200736500 - Canyon Creek Culvert Replacements

Sponsor: Malheur National Forest

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$294,320 FY08: \$36,225 FY09: \$20,680

Short description: This project proposes to replace two culverts on Canyon Creek which are partial barriers to adult salmonids and complete barriers to juvenile salmonids and improves fish passage at one culvert on Canyon Creek without replacing the culvert.

Recommendation: Response requested

Canyon Creek passage improvements are a high priority in the subbasin plan. Steelhead (mid Columbia ESU), spring Chinook (mid-Columbia ESU), interior redband trout and westslope cutthroat are all likely to realize long-term benefits from expanded spawning and rearing habitat. It is stated in the proposal that the culverts are partial barriers to adults and complete barriers to juveniles, but no data, even a cursory analysis showing that, is provided. Although this may be a worthwhile project, there is no evidence of even a preliminary fisheries assessment indicating the extent of the passage problem. It would not be expensive for the Forest Service to conduct a brief, straightforward evaluation verifying that a problem exists and to what extent. These data could become the “before” component of an effectiveness monitoring plan, currently lacking.

Even some information explaining the nature of the culvert, the height of the drop, and literature indicating the likelihood of a problem would help. The lack of a fisheries participant in this proposal showed in the choice of only general fisheries references and lack of any fisheries data from this site or elsewhere that could justify this expenditure. A response is needed with problems and benefits more clearly documented, and detail on what will be monitored and how. Methods seem reasonable and appropriate, but broader data sharing is needed.

199801600 - Salmonid Productivity, Escapement, Trend, and Habitat Monitoring in the John Day River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$997,800 FY08: \$1,034,705 FY09: \$1,082,220

Short description: Research monitoring and evaluation project that monitors anadromous salmonid status and trends in life-stage abundance, survival, and distribution and status and trend in their habitats.

Recommendation: Fundable (Qualified)

This is a large and well-designed data collection project promising important information on key species in the basin. Strong benefits to anadromous and resident fish over the long term should result from ongoing monitoring of population status and trends and of habitat restoration effectiveness. This project is to continue monitoring in the sub-basin, identified as a priority watershed in the 2000 BiOp, to quantify status and trends of fish populations. Index sites identified in the 1960s are still monitored and the project has expanded beyond index sites to include census surveys of all known spawning habitat. The proposal is to quantify status and trends of Chinook and steelhead populations and their habitats in the sub-basin. Benefits to non-focal species could result from ongoing monitoring of population status and trends and of habitat restoration effectiveness. The trapping and surveys have the potential to provide considerable information on other species if planned properly. It would be useful to make certain that they see and gain these side benefits from the extensive (and expensive) sampling involved.

Previous data from the project have been used by NOAA's Technical Recovery Team. The project cooperates with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), provides juvenile steelhead data to BOR research, data on bull trout to BPA project, smolt data to the Comparative Survival Studies, and habitat data to the Nature Conservancy. There is ongoing discussion of collaboration potential with other ODFW projects.

The proposers are well qualified and experienced for this work. The project's objectives are defined over monitoring areas (e.g. life-cycle metrics, spawner escapement, habitat) and tied to strategies of the SBP. Appropriate methods are described in detail for each objective and related to specific work elements with detailed deliverables and timelines. Appropriate literature is cited. The proposed probabilistic sampling and BACI experimental designs are linked to the Fish and Wildlife Program, ISRP recommendations, NOAA, BOR, and Streamnet database development, the 2000 BiOp RPAs for monitoring and the subbasin plan.

BACI is used to evaluate effectiveness of restoration activities. The proposal includes clear descriptions of sampling issues, history, and development of approaches. The proposal is weak on analysis procedures and how the data will be used to inform management activities (i.e., adaptive management). Strong collaborations in data provision and compliance monitoring mean that information is routinely transferred among collaborators. Information is also transferred through reports and provision of data to regional databases. Outreach publications and peer-reviewed journal articles may also be appropriate.

The budget seems high even for the fairly ambitious work planned.

Lower Snake, Tucannon, and Plateau-wide

198506200 - Juvenile Fish Screen Evaluations in Columbia Plateau Province

Sponsor: Pacific Northwest National Laboratory

Province: Columbia Plateau **Subbasin:** None Selected

Budgets: FY07: \$91,717 FY08: \$94,608 FY09: \$97,981

Short description: The goal of this project is to monitor and evaluate fish screen facilities to ensure they meet NMFS criteria for safe juvenile fish passage. Fish screens will be evaluated in most subbasins within the Columbia Plateau Province.

Recommendation: Fundable

This ongoing project is likely to benefit fish. The need for properly functioning juvenile fish screens is clearly identified. The relationship to other projects and the rationale for this project in the context of past and current fish screening projects are clearly noted. Collaborative effort with screening projects is described.

The project history is described in detail. The proponents have carefully documented results in annual reports. The 2005 annual report showed strong evidence that appropriate data are being collected, well analyzed, and taken seriously. Most screens function properly, but it is clear from the report that PNNL staff are working actively with BOR and WDFW to remedy a few problem spots.

A summary of the number of problems identified, their severity, and the resolution of the problems would strengthen the proposal. Also, a description of how selection of sites will be prioritized would have been useful. The proposal would be improved by more detail on how the target of 25% subsampling was chosen, how the various sites were stratified, and whether or not this subsampling level is a representative sample. The timelines for the work are vague because there is little detail concerning which subbasins will be monitored when, and how prioritization will be made.

The facilities appear appropriate. The key personnel have a long history with this project. Future proposals should specify the proportion of time each person will devote to the project and indicate the timeframe for activities.

In the future the sponsors should provide information that makes it clear that this project is a success in terms of impact on fish. While the description of problems and solutions identified at fish screens are available in annual reports with excellent links provided in the proposal the ISRP would like to have a summary of these activities presented in future proposals.

200712600 - Protect & Restore Lower Snake Tributary and Pataha Streams/Watersheds - Nez Perce Tribe

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Columbia Plateau **Subbasin:** Snake Lower

Budgets: FY07: \$217,823 FY08: \$215,022 FY09: \$180,102

Short description: Fill critical data gap in the Lower Snake Subbasin tributary streams as well as the Pataha Creek drainage within the Tucannaon River Subbasin through inventory, assessment, prioritization of fish passage barriers for removal, renovation or replacement .

Recommendation: Response requested

The project proposal addresses primary fish passage issue within the Lower Snake and Tucannon subbasins through an inventory of culverts and other obstructions. The problem is straightforward. Barriers can seriously hamper fish movement upstream and downstream. The sponsors propose to identify and replace barriers that impair fish movement. The project also proposes to develop an action plan to reengineer these passage issues where feasible. Fish passage issues are problematic for Lower Snake Steelhead.

The ISRP finds the proposal potentially fundable if the individual projects can be appropriately justified and prioritized with habitat conditions above the current barriers as productive for focal species' populations. Specifically, the proposal needs a stronger justification as to why it is needed, how it will lead to population responses, and where in the Subbasin priorities these actions fall. Moreover, the ISRP is uncertain as to why existing culvert inventories are inadequate to prioritize individual projects at present to justify what seem to be high inventory and design costs. Also, will an updated assessment (and priority projects) realistically lead to fish populations using the newly accessible habitats?

In addition to strengthening the justification, the ISRP recommends that the response should address and clarify a number of other key issues.

The timeframe (along with costs) appear to be greater than for other such "culvert" projects. A three-year time horizon for inventory seems excessive. A summary of previous efforts that justifies this time and expense might provide such support. Another benefit of summarizing what is presently known about barriers in this subbasin would provide the basis for their conclusion that present inventories are significantly incomplete.

Ultimately, this is a proposal to develop a new program of passage improvement for the Lower Snake Subbasin. It is intended to be an ongoing program; the identified problems to be addressed after the initial steps of barrier identification and plans for improvement. The ISRP recommends it be approved only for the development of the needs as a standalone project. Upon identification and prioritization of substantial barriers, subsequent project proposals may be submitted for review and funding based on measurable objectives, expected impact, and suitable M&E elements.

The ISRP recommends clarifying the relationship of this assessment project to other ongoing or proposed projects. Other projects are mentioned, but there is no summary of what is known and what specific actions are presently underway by other groups. Simply listing other projects and entities without a tie-in is not convincing that the assessment is critical or will lead to projects that will benefit focal fish populations.

The objectives are clear and flow somewhat from the problem statement, but are really tasks rather than measurable biological objectives (e.g., return x# steelhead to watershed or provide access to y# miles of spawning/nursery habitat). Perhaps including a salmon biologist on the team would be helpful.

How will quality, quantity, and type of habitat (e.g., spawning area, rearing habitat, thermal refuge) above the barrier be assessed? A barrier may receive a red rating and be replaced but the habitat above the barrier may be so degraded that it is only marginally suitable for fish. Habitat condition should be part of the prioritization process. The sponsors should explain how habitat conditions will be taken into account.

Watershed-scale population monitoring will be done by co-managers. Are the co-managers aware of this and building in appropriate effectiveness and population monitoring to measure a response?

200001900 - Tucannon River Spring Chinook Captive Broodstock Program

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$125,000 FY08: \$102,000 FY09: \$58,000

Short description: Conduct the final years of the Tucannon River Spring Chinook Captive Broodstock Program to spawn remaining adult captive broodstock and rear and mark progeny. Release progeny (smolts) into the Tucannon River to help rebuild the run and prevent extinction.

Recommendation: Response requested

The Tucannon Spring Chinook Captive Broodstock program has generally been a well-run project and has been responsive to previous ISRP reviews through the provincial review process and the Three-Step process. Significant improvements occurred to the project through the latter review process, particularly with respect to integrating hatchery operations with subbasin habitat improvements. Sponsor are requesting funding to complete the rearing of existing hatchery raised cohorts but are not planning to continue collecting fry to bring new generations of captive broodstock into the hatchery. The project is scheduled for termination in 2009 and appears to have a budget appropriately scaled to the remaining tasks. It makes sense to take this project to a meaningful concluding point, so funding is acceptable if they respond to questions raised by the ISRP below. The following comments summarize continuing ISRP concerns with the project.

Technical and scientific background: The background presented in the technical and scientific section of the proposal is mostly a recounting of the historical development of the project, rather than a careful review of technical and scientific issues associated with captive breeding projects

in general or the Tucannon project in specific. As such, much of the technical background was citation of programmatic language from subbasin, fish and wildlife program, and other co-manager management plans that authorize using artificial production as a policy matter. The final page of this section does provide evidence of poor adult returns and depressed smolt numbers as the rationale for using a captive rearing program. Sponsors also provide an estimate of the number of adults they would like to return from release of smolts produced by the captive broodstock.

Relationships to other projects: The project sponsors indicate they are participating in the BPA Captive Broodstock Technical Oversight Committee – this should be encouraged and continue. The most significant deficiency in this portion of the proposal was a lack of indication of who and what projects were analyzing the genetic data sponsors are collecting as part of their monitoring program. This should be clarified and elaborated on – i.e., what are they measuring or monitoring – in a response to the ISRP. Also, how exactly does each of the projects listed actually interfaces with 200001900.

Project history: Well-described including the domestication effects of artificial propagation on captive brood and supplementation stocks as shown in Figures 2 and 3 on female fecundity and egg morality. These are important results to present to the Columbia River Basin community.

The project sponsors identify strengths - higher than expected survival of retained smolts to captive adults - and weaknesses - lower than expected fecundities of females and lower than expected egg survival compared to wild/natural or anadromous hatchery females. The summary provided is however quite sparse. No mention is made of the number of smolts retained to produce the captive stock, or the actual survival of the stock. These should be provided in a response.

If the timeline in the proposal is correct, adult returns from the first release of captive brood derived smolts should have started returning in 2005. This data was not in the proposal and should be included in a response to the ISRP

Objectives: The primary objective - to use captive broodstock technology to increase the run size of ESA listed Tucannon River spring Chinook – is a necessary, but insufficient objective. The fish that return must also spawn successfully and produce parr and smolts for the program to benefit the species. This concept of objectives beyond production of smolts and return of hatchery adults should be reflected in an overarching project-level objective. It seems the primary objective is to use these technologies to prevent extirpation of the Tucannon independent population of spring-run Chinook during periods of near demographic collapse. Results-to-date relevant to this larger goal should be presented in the proposal.

Tasks (work elements) and methods: Adequate, if not rather lightly presented. Sponsors may be relying on ISRP familiarity with the details of the project from previous reviews, rather than presenting a more full explanation of methods. Presentation of methods was inadequate for reviewers not already familiar with the Tucannon project. The methods are a fairly simplistic

listing of task definitions, and require more detail to understand and evaluate the methods and expected outcomes.

Monitoring and evaluation: Similarly, monitoring and evaluation is insufficiently identified and explained in the work elements and methods. Presentation of M&E methods was inadequate for reviewers not already familiar with the Tucannon project.

Facilities, equipment, and personnel: Adequate given the history of the project. No new facilities or special needs exist beyond the Lower Snake Comp and WDFW hatchery facilities and equipment used for conventional and supplementation production for several decades.

Information transfer: Adequate plans.

Benefits to focal and non-focal species: Focal species expected outcomes were addressed adequately for the short term. Results from the program could provide a basis for future decisions on using captive broodstock technology on an emergency basis.

199401806 - Tucannon Stream and Riparian Protection, Enhancement, and Restoration

Sponsor: Columbia Conservation District

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$330,780 FY08: \$348,928 FY09: \$365,502

Short description: Implement habitat protection, enhancement, and recovery strategies to support Subbasin Plan identified ESA focal, cultural significant and species of interest recovery within the Tucannon Subbasin.

Recommendation: Response requested

This work has been ongoing for a sufficient amount of time to have made significant progress from the past reviews, but it includes no description of biological benefits nor does it demonstrate adaptive management. The history of the project is more reassuring than the proposed work. It puts more emphasis on riparian types of work. Perhaps the instream part of this project could be terminated.

Sponsors did provide some information to show impact of projects on physical structure of the channel, but none to show the biological benefits. The data (Tables 1 and 2) presented are difficult to interpret. Many more pools were reported in 2000 than in 1998, but the stream got wider and shallower. Stream discharge was greater in 2000 than in 1998 making it difficult to assign the observed differences to project activities. Data in Table 12 are offered as evidence of benefits for fish, but these data need to be compared to similar data from both control and treatment sites before the alterations were made if it is to have any meaning.

Demonstrated value of the work depends on availability of information to describe changes that have occurred as a result of the project and whether or not these changes are consistent with the project objectives. Even if the impact of project actions on fish and other aquatic organisms is

ignored, sponsors need to answer questions concerning impacts on substrate composition, bank stability, stream temperature, and the hydrograph. Site specific actions taken to alter the physical structure of a stream and to overcome a perceived problem often result in unintended consequences making it important to initiate actions only with a clear understanding of dynamics in the entire system. Actions at one site are only reasonable when taken with a complete understanding of their potential impact at other locations.

The ISRP is concerned that the focus of the project appears to have changed to development of bio-engineered instream structures. The project needs to return to its original purpose. That is "... increasing pool and spawning habitat quality and quantity through geomorphic stabilization, riparian bio-function restoration, increasing complexity, maintaining adequate flow, and reducing water temperature and sediment." The project needs to ensure reviewers that competent and experienced fluvial-geomorphologists have assisted in design, evaluation, and choice of projects that will provide a high probability for gaining geomorphic stability, and that sufficient change is possible to attain subbasin objectives for the system. These inputs should be in place before new actions are taken.

NMFS comments from the province review are consistent with the ISRP's view that bioengineering projects should be limited to "fine-tuning" once watershed function has been restored.

The ISRP requests responses to at least the following items.

1. What information is available to help assess whether or not the work that has been completed under this project has made any progress in reaching its objectives?
2. Can observed changes in the channel be attributed to project activities or did similar changes occur in other channels?
3. What assistance has been incorporated in the project from competent and experienced fluvial-geomorphologists?
4. What is the geomorphic basis for the projects that have been completed and proposed projects?
5. What is the basis for and the estimated probability that completed and proposed projects will attain desired channel conditions given the limitations imposed by alternative uses of the water and floodplain?

199401807 - Improve Habitat For Fall Chinook, Steelhead in the Lower Snake and Tucannon Subbasins

Sponsor: Pomeroy County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$199,345 FY08: \$200,237 FY09: \$201,154

Short description: To obtain funding to continue with the districts effort to reduce soil erosion on the uplands and along the streams of Garfield County to improve water quality and fish habitat.

Recommendation: Response requested

This proposal will receive a fundable recommendation only if the sponsors include better justification of the biological benefits of converting farmland production to no-till and a rigorous economic analysis.

The project has been approved and continued for more than 10 years. It is an effort to reduce the embeddedness, increase summer flows, reduce stream temperatures, facilitate riparian recovery, and increase large woody debris in streams of the basin by encouraging/facilitating no-till agriculture, grazing management, and planting stream-side vegetation. Since the goal is to improve habitat for fall chinook salmon and steelhead, it is assumed that these actions will facilitate attainment of the goal. Goals, or expected contribution to subbasin goals, for fish abundance are not specified. It is not an adaptive management project. Past results are stated in terms of acres in no-till and number of trees planted. No results are presented to show that the project has reduced embeddedness, increased summer flows, reduced temperatures, increased large woody debris, or increased fish numbers providing no basis to assess whether or not the project should be continued.

Project elements other than no-till (bio-engineering elements such as the placement of large woody debris) need to be guided by requirements for restoring "normal" channel dynamics. An assessment of a competent fluvial geomorphologist is needed to identify those requirements and to help develop priority for appropriate proposals.

Projects 199401806 and 1807 should be related (#199401806 should be obtaining data useful in evaluating the present project, and useful in designing strategies for in-stream or riparian habitat improvement). Is it not possible to conduct a simple adaptive management experiment with treatment and controls and a few physical (sediment) and biological response variables (e.g., invertebrates or parr density) at a few sites? There appears to be a disconnect between ISRP reviews, subbasin plans, M&E, and these long-standing projects.

The approach seems intuitively to have merit in that it would be expected to reduce sediment loads in streams, thereby improving habitat for fish. In this respect it has an advantage over a closely related proposal, #199401806 Tucannon Stream and Riparian Protection, Enhancement, and Restoration, where the latter proposes to provide in-stream structures to deal with the same problem (embeddedness of substrate, etc.). Those instream structures are likely to be ineffective unless measures are taken to reduce effects of erosion of the surrounding land.

The ISRP requests responses to the following items:

1. The ISRP has previously requested information to assess biological benefits of converting farmland production to no-till and a rigorous economic analysis. Has such an analysis been completed?
2. Discuss the basis for your conclusions that the percentage of acres likely to be in no-till for the long term will be sufficient to cause significant reduction in fine sediments in the associated channels and spawning gravels?
3. What is the trend in number of acres under no-till (acres per year) since the project began?

4. What has been the performance of, and conclusions regarding, bio-engineered projects previously completed under this project? These are potentially important findings and detailed reports would be helpful.
5. This project is justified based on benefits to fish. What evidence can be provided to show that these benefits are sufficient to continue and expand the project?

200712500 - Protect & Restore Tucannon River Watershed - Nez Perce Tribe

Sponsor: DFRM Watershed Division

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$174,527 FY08: \$204,106 FY09: \$216,106

Short description: A cooperative project to reduce sediment, protect and restore critical riparian/stream habitat and increase fish survivability in the Tucannon Subbasin thru road decommissioning streambank stabilization and native plant restoration.

Recommendation: Fundable (Qualified)

"The overall goal of this project is to decommission roads that contribute sediment to the streams and encroach on stream channels, flood plains, and riparian areas." "... This project is intended to be a cooperative and collaborative project to reduce sediment, protect and restore critical riparian/stream habitat and increase fish survivability in the Tucannon Subbasin ..."

While reference is made to #199401806, there is no reference to #199401807, also in the Tucannon. The latter takes a similar approach, i.e. sediment control by land management actions away from the stream (road decommissioning in the present case). These three projects are directed to similar objectives and should be more closely coordinated both in specifying goals, objectives, and tasks, and in development of either a collaborative monitoring program or in providing a convincing case that monitoring by other agencies and projects will provide data to assess the success or failure of these efforts. The sponsors need to include their methods for assessing whether or not the actions proposed here do in fact result in attainment of the physical changes described by the objectives. If the projects have to be separately maintained, they each should include a summary of how they are related, coordinated, and evaluated.

Reduction of sediment input from uplands is likely to be the appropriate place to start, but apparently the state and federal governments own the roads. What is their responsibility? A large part of this proposal is to survey which roads to decommission, but this should have been covered in the subbasin plan and on Federal Lands by the Forest Service, state by state. If the existing data from state and federal files are inadequate for the purposes outlined in this proposal, these deficiencies should be described and discussed.

Objectives include reducing embeddedness to 20%, producing large woody debris of one or more pieces per channel width, reducing man-made confinement to less than 25% of bank length, and reducing temperature to fewer than four days of greater than 75F. It is assumed that there is a direct relation between these objectives and measurable benefits to fish and wildlife. The scientific basis for many bioengineering actions does not exist. The sponsors should modify their proposal so that it reflects programmatic comments regarding bioengineering activities.

Umatilla

198343500 - Umatilla Hatchery Satellite Facilities O&M

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$1,059,166 FY08: \$1,102,743 FY09: \$1,143,182

Short description: Acclimate juvenile salmon and steelhead prior to release in the Umatilla Basin. Collect, hold, and spawn steelhead, coho, and chinook salmon and provide eggs to ODFW and other hatcheries for incubation, rearing, and later release in the Umatilla Basin.

Recommendation: Fundable (Qualified)

This project is part of the larger Umatilla Program and comments associated with Project 199000500 apply. A useful project review will only result from an intensive review of the overall program, a review that is not possible in the time available for the present review.

The supplementation program remains a concern to the ISRP. There is concern that the whole system will be comprised of fish derived from supplementation, as more and more hatchery fish spawn in the wild. The practice continues in spite of the fact that supplementation, as an ecosystem experiment, remains untested and unproven.

It is not clear that the identified personnel needs are just for the satellite facilities? If so, the budget seems high.

198903500 - Umatilla Hatchery Operation and Maintenance and Fish Liberations

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$951,664 FY08: \$981,110 FY09: \$1,011,412

Short description: This proposal funds operation and maintenance of Umatilla Hatchery and fish transfers from the Umatilla, Cascade, Oxbow, Bonneville, and Little White hatcheries to acclimation facilities on the Umatilla River.

Recommendation: Fundable (Qualified)

The ISRP concludes that the Umatilla Program is too large and complex for a brief annual review and should receive an intensive overall review of all program elements and the progress that has been made in attaining project objectives (also see comments on Project 199000500).

In general, the Program seems to be well organized but is not reaching its overall adult fish production goals. Release numbers are presented in a table but few data (text only) on adult returns and harvest are provided. Adult return goals have not been met for any of the species, a result of low smolt-to-adult survival. Some adaptive management is indicated in the spring

chinook program (reductions). There is insufficient communication of program results and impacts, even if there is a separate M&E project.

199000500 - Umatilla Hatchery - M&E

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$684,278 FY08: \$714,367 FY09: \$745,852

Short description: This proposal is for ongoing research, monitoring and evaluation of the Umatilla Hatchery program. The Umatilla Hatchery RM&E Project evaluates hatchery practices for steelhead supplementation and spring and fall Chinook salmon reintroduction.

Recommendation: Fundable (Qualified)

This proposal does an excellent job of identifying the problem and providing the technical background. The section on relationship to other projects was particularly helpful, both for understanding this project proposal and the others mentioned. The proponents are to be thanked and congratulated for supplying this vital information despite the limitations of the format of the proposal form.

Past history of some efforts is properly glossed over. These have been commented upon in past ISRP reviews. A history of review and adaptation within the program is clearly evident, with continual improvements, reporting, and publication. Success and failures are noted, and a list of adaptive management examples was tabled. Research continues on release strategies, but more work may be required on the issue of acclimatization sites and steelhead residualism, as well as evidence of collaboration on supplementation studies in the basin.

The reported results seem to indicate that the hatchery is not contributing to natural fish populations (see Figures 1 and 2). Are there other actions that need to occur besides hatchery releases and their habitat restoration activities to increase abundance?

The methods and procedures for collecting data on recovery of marked fish will be done by related projects that are specified. The goal is to obtain full accounting of all artificial production strategies -- a worthy goal. A missing ingredient seems to be designation of responsibility for combining description of both steps, the marking and recovery methods. Since it appears that the present project has the ultimate responsibility for analysis of the objectives specified, are we to assume that the progress report of this project will include both?

The ISRP qualifies this fundable recommendation suggesting that this program (Umatilla Program) is too complex to adequately review in an annual process and needs a more intensive review including a site visit, and presentation and discussion of results. Such a site review should be comprehensive enough to include an assessment of program goals and measurable objectives, results to date based on whether the program is leading to increased natural production (preliminary data to date do not show this is happening), design and structure of M&E program, and importance of entire O&M elements. Also, there is need to show how co-manager's programs are working together (or at least in communication).

198902401 - Evaluation of Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River Basin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$549,550 FY08: \$398,065 FY09: \$416,435

Short description: Evaluate migration patterns, abundance & survival of hatchery & natural smolts in the Umatilla basin using PIT tags; install an adult ladder detector at TMFD; assess affects of river variables on fish migration; monitor life history characteristics.

Recommendation: Fundable

This is a very thorough proposal with thorough methods that justify continuation. A history of the project to date was covered in detail in over ~ 20 pages. This project should assist in providing critical evaluation information to the set of Umatilla projects. And the ISRP encourages the proponent to publish results and observations in the formal fisheries literature. Monitoring and evaluation of smolt yields and survivals is the focus of the investigations. Some adaptive management is evident (e.g., steelhead releases moved to lower reaches), clearly indicating the benefits of this type of work.

The project should provide data on egg-to-smolt survival and/or smolts-per-spawner as a function of spawner density to augment the information provided in table 4 (p 33). This is the key response variable in monitoring population dynamics and towards evaluation of management actions.

There may also be a possibility, worth exploring, to collaborate with other tagging studies (e.g., POST), and to explore alternative methods for estimation of adults to relate smolt yields to spawner abundance more effectively.

199000501 - Umatilla Basin Natural Production Monitoring and Evaluation Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$779,657 FY08: \$795,314 FY09: \$831,704

Short description: Salmonid Monitoring and Evaluation: Provide ecological information and technical services to decision makers in support of adaptive management for sustainable restoration, conservation, and preservation of salmonid and aquatic resources.

Recommendation: Response requested

This project has numerous objectives and multiple tasks. There are well-defined relationships with the subbasin plan and Fish and Wildlife Program, as well as mention of the roles of ODFW and CTUIR. A response should better justify all the various data to be collected and then relate these studies to the evaluation of program goals and the roles and management actions of the agencies. A clear linkage must be demonstrated. The ISRP had reviewed the Umatilla RM&E plan previously (2004) and were pleased with the many improvements therein, but some

recommendations and prioritization of RM&E activities still apply. Clear indication of the response to the 2004 ISRP review would benefit the proposal.

Project history is explained but past actions are not presented fully, although results have been distributed and communicated at least within the basin. The large amount of information already collected and only partially presented (redds, radio tagging, etc.) has undoubtedly led to adaptive management improvements, but these are not tabled here. The response should indicate more clearly where management decisions have benefited from these data collections.

Stock-recruit analysis presented here should be discussed as to its potential significance to the Umatilla program and others in the Fish and Wildlife Program. Steelhead recruitment is below replacement except for two data points, may have been derived from different regimes of productivity, and does not appear to be well-estimated or explained from the figure presented. Some results presented argue for a different approach to salmon recovery (outside the subbasin) than what is proposed here. For example, variation in adult abundance (Fig 13) could be explained by out-of-basin effects, indicating little effect from recent subbasin actions.

Please refer to comments related to the statistical design and evaluation of observational data as described in project 200708300 (Grande Ronde RM&E) and the ISRP's programmatic comments on this topic, which apply here.

Historical information and background is provided in the same manner but with much more (and questionably necessary detail) as in the ODFW proposal, 198902401, with which this is closely related. The ODFW and CTUIR collaboration remains a major requirement. The presentation of this proposal is lengthy, with rather confusing objective(s) that may include 25 of 44 loosely related objectives of several projects. The connection is not well defined, and a clear design is lacking. The purpose, to "support adaptive management of Umatilla salmonid natural production through pro-active monitoring and evaluation of those resources" is vague. What if only 198902401 were supported (or vice versa), would the monitoring be adequate? A clear definition of the experiment at hand and the evaluation of key response variable(s), of which there should be only a few (e.g., smolts per spawner as a function of spawner density), is required. What is the experiment? What feature of "salmonid population performance" is to be monitored, and why?

There is a very long explanation of the relationship with other projects, but rationale that this will be useful is weak. There are several management actions outlined in Table 3, but one is unconvinced that the design will sort these actions, nor control for many other confounding factors. There are too many relationships here. Table 4 lists many monitoring actions but the purpose is not clear, nor coordinated. There are multiple objectives but a clearer explanation of purpose and linkages is necessary. The work should be subdivided according to task.

For a project that began six years ago, with the goal of monitoring natural production of salmonids in the basin in detail, very little data to that effect is presented. In the response,

indicate how information from this work will be used to evaluate achievement of the vision, goals, and objectives of the subbasin plan.

199009200 - Wanaket Wildlife Area

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$233,337 FY08: \$242,653 FY09: \$251,401

Short description: Continue operations and maintenance of the 2,765 acre Wanaket Wildlife Area to provide 2,334 habitat units of protection credits and generate 2,495 habitat units of enhancement credits. Primary habitat types include wetland and shrub-steppe/grassland.

Recommendation: Fundable

The proposal is clearly written and complete. It describes work elements associated with continued operations and maintenance of the Wanaket Wildlife area and clearly identifies the relationship of the project to the Umatilla/Willow Subbasin plan. Primary habitat types are wetland and shrub-steppe/grassland.

The benefits to focal species are clearly identified, and justification for the methods is very good. More information, however, concerning the impact of management on non-focal species would be beneficial. The proposal includes provisions for monitoring and evaluation that apply to the multiple objectives of the project, but the project would be improved by more efforts to share lessons learned and experiences with the region, especially similar projects. This work is related to other projects, but more evidence of collaboration would have been helpful if included.

199506001 - Iskuulpa Watershed Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$180,983 FY08: \$187,222 FY09: \$193,764

Short description: Continue operations and maintenance of the Iskuulpa Watershed to protect and enhance watershed resources to provide benefits for seven HEP Target Species and anadromous and resident salmonids.

Recommendation: Fundable

The proposal is well organized and written. The proposal clearly states the logical need to provide and maintain habitat in the Iskuulpa Creek Watershed that includes interior grassland, riparian wetland, ponderosa pine, and mixed conifer. Enhancements designed to address limiting factors to fish production, such as reduction of stream temperatures and fine sediment, are clearly explained and tied to the Umatilla Subbasin plan. Past results are documented with benefit to fish and wildlife noted.

The proposed project will benefit focal species. Biologically measurable outcomes are identified where possible. Monitoring and evaluation is provided by a directly related project. These benefits may persist over the long-term if human disturbances can be controlled. The project would benefit from a better discussion of possible impact of habitat restoration on non-focal

species. Also, the project sponsor should identify the metric to be used for evaluating bird community response.

Sharing of personnel and equipment with other projects is commendable. Collaboration with others involved in similar projects outside the subbasin should be explored. Information transfer, in addition to annual reports, should be considered and described. For example, strategies for sharing successes and lessons learned with other teams in the region could be considered information transfer.

199402600 - Pacific Lamprey Research and Restoration Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$528,041 FY08: \$507,930 FY09: \$533,161

Short description: The purpose of this study is to provide the critical information to restore Pacific lampreys *Lampetra tridentata* in the Umatilla River that is called for in the Draft Umatilla/Willow Subbasin Plan.

Recommendation: Response requested

Technical and Scientific Background: Decline in abundance of Pacific lamprey is recognized as one of the key anadromous fish problems in the Columbia basin. The proposed work is directed at developing self-sustaining lamprey populations. The proposal addresses this problem by attempting to better understand factors impeding upstream migration of adults. The sponsors need to explain why they believe that conditions in the upstream migration corridor in the Umatilla are the major factors limiting adult lamprey abundance rather than passage at the mainstem dams. The proposal would be improved by more background material on possible passage problems for lamprey in the Umatilla watershed (e.g., number of dams, descriptions, etc). If mainstem passage is the principle cause of low adult abundances then improvements in the migration corridor in the Umatilla Basin may have little impact on adult returns.

The literature review is adequate but the cited references to the sea lamprey may not be relevant.

Alternative hypotheses concerning factors affecting survival should be mentioned, especially estuarine and marine factors.

Rationale and significance to subbasin plans and regional programs: The proposal directly addresses biological objectives and specific action items related to lamprey restoration in the Umatilla Subbasin Plan, the biological objectives in the Fish and Wildlife Program, and the 2000 Biological Opinion. The proposal also addresses uncertainties identified by the Lamprey technical work group.

Relationships to other project: The tie-in with other lamprey projects is mentioned, especially with 20070220 (stress/cDNA microarrays). However, we question whether there is a potential benefit to fish from that particular aspect of the project. The potential application in a restoration initiative is not clear. Two in-basin M&E projects collect data said to support the proposed

project. The project is said to provide useful information on lamprey migration to a BPA funded project seeking to increase flows in the Umatilla.

The proposal seems somewhat in isolation from non-lamprey projects and might benefit from collaboration with people working on stream habitat.

We found no mention of the Lamprey Workshop sponsored by CRITFC in 2004. This is a serious omission from this proposal. To ensure there is maximum return from its investment in restoration of Pacific lamprey, the Council should insist that proponents of lamprey studies throughout the Basin spell out the nature of their cooperation with the others. This could be accomplished through the Columbia Basin Lamprey Technical Working Group mentioned in proposal 200201600.

This proposal makes no mention of lamprey work being conducted elsewhere, as for example in the Deschutes River (Proposal 200201600). There is a question whether full information exchanges have continued. Agreements should be designed to maximize information obtained from the studies by apportioning responsibilities among the funded lamprey projects.

Project history: Valuable information appears to have been gained since the project's inception; however, some accomplishments are poorly presented. For example, it is not clear whether the sponsors believe that outplanting of lamprey has been effective or not. The description of past work is often sketchy and conclusions sometimes were not provided. The sponsors need to provide a bottom line, a comprehensive synthesis, a summary of what has been learned since project inception. Based upon past work, the knowledge gaps that need to be addressed should clearly and logically be identified. For example: What has been learned about stock genetics that is relevant to the project? What conclusions can be drawn from the pheromone studies about migratory cues and how is it relevant to lamprey restoration in the Umatilla? We are skeptical that these have potential for practical application in restoration initiatives.

Objectives: Objectives relating to population monitoring and stream surveys should have measurable benefits for long-term databases. Research on olfactory cues is more exploratory, and results are less tangible for the program unless some form of attractant can be developed. Most of the objectives are directed at issues related to lamprey recovery and are necessary for M&E. Objective 2, relating to pheromones is poorly justified and its relevance to lamprey recovery is unclear. The sponsors have been conducting pheromone research since 2000 but they have not presented any firm conclusions that make clear how the work might benefit lamprey restoration in the Columbia Basin. Here, the problems are exactly opposite those in the Great lakes, where the objective is to reduce lamprey populations. Pheromones have been useful there in attracting lamprey to their deaths. Ecological factors such as reduced flow, increased temperature, and mortality and passage problems at mainstem dams may be far more important in explaining the low adult return than an insufficient concentration of pheromone attractors. Stimulating migration up the Umatilla by introducing pheromones into the water, if it can be done successfully -- a large unknown -- may have little impact on adult returns to the river unless other major causes of adult declines are addressed first. Objective 2 should be eliminated.

Tasks (work elements) and methods: The methods used are adequate for investigation of freshwater factors that may be limiting lamprey in the basin. Radio-tagging and trapping designs are reasonable. Statistical aspects of estimating larval lamprey in the sediments may be questioned, see 200001400 (lamprey in Cedar Creek WA). Extrapolation of trap counts to number per square meter in the Umatilla River is a stretch given the mosaic of habitats in the river.

For others, such as the in-river behavioral studies, description of the design and methods is insufficient. In the radio-telemetry study it is unclear how the two hypotheses will be tested and how they can be distinguished from each other. The use of radio tracking addresses the objective of improving upstream passage for adult lamprey, and assumes that solutions have already been devised ("low elevation ramp"). Would it not be reasonable to assign high priority to fitting the obstacles identified in year 1 with these ramps and shifting the objective of the radio tracking study to evaluating the effectiveness of these ramps? Why wait?

Monitoring and evaluation: M&E is a part of the proposal. The adequacy of some of the methods such as those used to assess adult abundance is questionable. The confidence interval for the 2000 estimate of outmigrant abundance using screw traps is so large as to render the estimate virtually meaningless.

It will be difficult to link tributary monitoring to mainstem, estuarine, and marine sampling but this may be necessary to determine ultimate success/failure of the recovery program.

Facilities, Equipment, and Personnel: The facilities seem adequate, and the personnel are qualified.

Information Transfer: Plans for information transfer are adequate, and the proponents have a good track record for publications in the peer-reviewed literature. Annual reports and publications are mentioned, but there is no discussion of the disposition of meta-data.

Benefit to focal and non-focal species: The project could result in long-term benefits for lamprey if the deficiencies are dealt with adequately. It appears from results so far, that the greatest benefit is to be expected from improvements in passage. Habitat is not limiting, they say. Obstacles to passage have been identified in the mainstem and the Umatilla itself. The proposal should discuss the effect of lamprey sampling (trapping, electroshocking) on salmonids, non-salmonids and other biota.

Summary: Overall this is a comprehensive project generating good data on lamprey ecology in freshwater. However as with other anadromous species the estuarine and marine phases are probably as important. The proposal would benefit from more explanation of the success or failure of outplanting. Has this been attempted elsewhere? Have any results been published?

Other questions relate to statistical methods and degree of coordination, overlap, and consistency with other lamprey projects in the Columbia River Basin, as noted above.

The proposal should focus upon the central purpose of the proposed work, which is to increase adult returns. Major causes of low return rates of adults apparently are mortality and passage problems at mainstem dams, possible low flows and high temperatures, and low survival to the outmigrant stage, as indicated by large reductions in trapped outmigrants despite increasing larval abundance. The sponsors should focus their work on these problems. Pheromone research (Objective 2) should be discontinued as it is less relevant to the major problems at this point in time. A possibly critical issue seems to be survival from the larval to the outmigrant stage. The sponsors should carefully investigate the causes for low larval survival. Outmigrant abundance must be accurately determined. Every effort should be made to significantly increase flows in the lower river during the period of adult migration. Further discussion of this hindrance to passage seems necessary. It seems possible that monitoring upstream migrations and improving passage through barriers could improve upstream passage, but if low larval survival rates continue, any increase in abundance would still be limited by the low number of adults appearing at the river mouth.

The sponsors seem to be working under the assumption that lamprey do not home with fidelity (the small study in the lower Columbia cannot be considered to be conclusive) and that their genetic structure is not substantively different from other stocks (this topic needs a more thorough discussion). The sponsors do not present a convincing case in support of this assumption in the proposal, other than to record the fact that lamprey collected at John Day Dam did spawn successfully in the Umatilla. More thought should be given to this subject, particularly since other lamprey projects are being funded to conduct genetic analysis of lamprey. The focus in this proposal upon bile salts and pheromones seems questionable at best, and to be primarily of academic interest, particularly given the willingness to collect lamprey at a mainstem dam for introduction into the Umatilla. To date, obstacles to passage seem to explain the low abundance of lamprey in the Columbia Basin.

1. The past history should be revised. It is presented by year and not by objective. No supporting graphs or tables for the yearly data. Temporal trends are needed.
2. Examination of effects of dams on migrations of adults should focus upon questions such as: What are the physical characteristics of impediments to lamprey passage? Aspects of lamprey behavior and bioengineering need to be incorporated to identify what the actual passage problem(s) is or are.
3. Sponsors should refer to the ISRP programmatic comments on lamprey and respond to them.

198343600 - Umatilla Passage O&M

Sponsor: Westland Irrigation District

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$502,253 FY08: \$512,298 FY09: \$522,544

Short description: Westland Irrigation District, as contractor to Bonneville Power Administration, and West Extension Irrigation District, as subcontractor to Westland, provide labor, equipment, and material necessary for the operation, care, and maintenance of fish facility.

Recommendation: Response requested

A response is requested. See the comments under proposal 198802200 - Umatilla Fish Passage Operations for the three proposals involved with the Umatilla River tributary fish passage effort. For this proposal also see comments below.

Comments specific to this proposal:

The project provides maintenance and operation of screening and similar facilities within the Umatilla Subbasin and provides support for hatchery activities. Close coordination with these other projects is required, as the proposal describes on page 4 of the Narrative. Its continued funding depends upon justification provided in other proposals. For scientific review the proposal needs considerably more background regarding the need for and effectiveness of screening and passage related to the limiting factors in the subbasin. By itself, the proposal cannot be expected to show benefits to fish. The question is "How does the screening help (and how much)?"

A primary technical issue lies in unspecified operational criteria behind the flow augmentation strategy (pumping from the Columbia River into the Umatilla Basin). While this project is apparently not involved in the decisions, it obviously is dependent upon them.

This project appears to be essential for operation and maintenance of a set of projects. It is not a stand-alone project. It might be incorporated in another as a subcontract, where it can be justified based on benefits to fish. Better still, a single proposal, covering the Umatilla River tributary passage effort as a whole would be simpler to write and review. Such a proposal would include description with specific justification for the operation and maintenance of facilities included here. As it stands, this proposal has no tie-in with biological objectives of the Fish and Wildlife Program, is sparse in detail, and is over-inflated in terms of budget.

Response of the proponents should address the following issues identified during ISRP review:

Does operation and maintenance increase juvenile, adult, and natural spawner abundances and productivity? Some quantitative evaluation of biological effectiveness should be possible after 16 or more years of operation.

The EDT justification is very qualitative not quantitative. There needs to be a reporting of results from a broader evaluation (even though not part of this proposal). The testable assumption is that

passage benefits juvenile and adult migrants (p 3 of proposal). A response should show how they are working with the Umatilla Tribe and Oregon Department of Fish and Wildlife Monitoring and Evaluation programs to justify their results.

How are the fish moved around in the system? How do the screens and other facilities fit into the management system?

The project history is very cursory. It gives mostly budgetary history (albeit brief) and nothing on the history of how the project's activities have aided salmon. The sponsors point to other projects with this responsibility. While likely true, there needs to be an assessment here of gains (or losses) in fish population size and viability tied to these activities. The project has been in operation for 16 years or more (more than 3 salmon generations); therefore, data/results/outcomes are certainly available.

The methods and work elements are a list of ongoing tasks. While the scientific rationale for screens is fairly well established, no evaluation regarding their effectiveness is identified. The methods and rationale regarding support of the hatchery satellite facilities is not discussed well at all. How do the efforts tie in with the other groups (co-managers) and their activities?

The facilities that are maintained in this project should be called for in other projects that are referenced in this one. Justification for this project should be specifically provided in the group of individual projects that use the facilities maintained and operated by this one.

The proposal is too vague to determine what four and a half full time people will be doing and how nearly a half million dollars in supplies will be expended.

198802200 - Umatilla Fish Passage Operations

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$380,238 FY08: \$399,249 FY09: \$419,211

Short description: Increase survival of migrating juvenile and adult salmon and steelhead in the Umatilla Basin by operating passage facilities, flow enhancement measures, trapping facilities, and transport equipment to provide adequate passage conditions.

Recommendation: Response requested

Three projects are linked to comprise the Umatilla River tributary fish passage effort: Umatilla River Fish Passage Operations (198802200), Umatilla Basin Project Power Repay (198902700), and Umatilla Fish Passage Facilities O&M (198343600). Together these projects have a goal of improving instream conditions for passage of both adult and juvenile salmon in the Umatilla River. The river is dewatered in the lower 30 miles by irrigation diversions, these three projects pump water out of the Columbia River, store it in reservoirs within the Umatilla River watershed, and then permit instream replacement of Umatilla water "bucket-for-bucket". Umatilla Fish Passage Operations (198802200) provides coordination and some M&E for the overall effort. Umatilla Fish Passage Facilities O&M (198343600) maintains fish screens at

diversions, fish ladders, and hatchery acclimation ponds, and Umatilla Basin Project Power Repay (18902700) purchases power to pay for pumping Columbia River water into the Umatilla River watershed.

Individually the three projects are not amenable to evaluation of scientific justification, benefits to fish and wildlife, appropriate objectives, and adequacy of the monitoring and evaluation. They are more appropriately considered together.

The ISRP requests that project sponsors provide a joint response to the following general issues that apply to the set of Umatilla River tributary fish passage proposals.

1. It would help the ISRP to have more complete description of the Umatilla River tributary fish passage effort as a whole, with information on the individual strategies, hatchery, transportation, habitat improvement (including flow augmentation), monitoring and evaluation (a very important part of this initiative) and whatever else fits into the picture, along with analysis of specific past progress and future plans.
2. The Annual Operation Plan. The ISRP needs more information to understand the Annual Operation Plan. How is it determined what volume of water is to be pumped from the Columbia River, and how is it determined what volume and when it should be released into the Umatilla River?
3. The ISRP understanding is that project #198802200, is responsible for the decisions to request water for fish. “The project then allocates the release of this water using the timing and flow quantity prioritization guidelines outlined in the Annual Operation Plan” (Work element 2, page 8, 198802200). Is this correct? To whom is the request made? Which project does the accounting for the released water? The various methods used are adequately described, with the exception of the methods for determining, requesting, executing and accounting for the flow augmentation (pumping Columbia River water. It must be pumped to somewhere, presumably to one or more reservoirs, from whence it can be apportioned, if it is to be apportioned between irrigation and fish. Presumably, there is a cap to the volume of water available for sharing. What is the cap?
4. For the benefit of monitoring and evaluation, is it possible to obtain a measurement of the success of this water exchange in providing flows in the river for fish. Is it possible to obtain a measurement of any additional water on the success of juvenile downstream and adult upstream migration?
5. The Power Repay proposal (18902700) while it claims to justify the efforts (methods) as providing flows for anadromous fishes in the lower portion of the Umatilla River, gives no information on the amount of water pumped or, more importantly, its measured or observed effects on passage of salmonids. It provides information only on the cost of the electricity, and a general statement that it benefits fish. To provide that sort of information would require drawing the information on fish from all the subbasin projects.

6. Do the irrigation districts have water rights that at times include the full base flow of the Umatilla River?
7. Does this explain why the lower 30-50 mile reach of the river virtually dries up at certain times of year? And does the duration of this situation vary depending upon the base flow available in the particular year?
8. Is the water that is pumped from the Columbia River then shared on a 50:50 ("bucket for bucket") basis between the irrigation districts and the needs of fish as determined by this particular project?
9. If this is so, then is the correct interpretation of the situation that the irrigation districts obtain a supplemental volume of water (beyond base flow) equal to whatever is added for fish?

Additional Comments for this proposal:

It is not clear how all the pieces of the Umatilla River tributary fish passage effort fit together to make a logical program. More information should be provided in this section to justify the activities.

Careful study is required to distinguish between the responsibilities of 198802200 and 198343600. Perhaps it would be appropriate to combine them, as they seem to have been at one time. It appears that administrative factors might have encouraged their separation, once the irrigation district assumed primary responsibility for ensuring mechanical reliability of the facilities, as distinguished from operating criteria set by this project. On the other hand, it is not clear why a large portion of the budget for this project is to fund operation and maintenance of hatchery activities. Why is it included here rather than in the hatchery operation and maintenance proposal?

The proposal describes ties with other projects, but it needs a broader, overarching approach, particularly as to why some non-passage elements are included here.

The project is ongoing and has a history of activity. Missing is some evaluation of program effectiveness at returning adults to spawning grounds and increasing productivity. The presentation needs maps and a fuller explanation of activities to be able to comprehend how, why, and when which fish are moved around. Data should be presented on success of operations. The project history should report on past data collected for the project/program.

There cannot be adequate monitoring and evaluation without a clear specification of objectives and methods. In this case, the proposal focuses upon the mechanical methods for moving fish when there is inadequate water, which is fine. But there is a need to refine the monitoring and evaluation of the flow augmentation strategy. Other projects are said to be responsible for the actual M&E, but this one appears to be responsible for establishing the early phases of the

database, e.g., information on numbers of fish transported, decisions to augment flow by pumping. Does this include decisions on releases of pumped water from storage reservoirs? This proposal should clearly identify the individual proposals responsible for M&E of the specific objectives and methods.

198902700 - Power Repay Umatilla Basin Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$1,560,000 FY08: \$1,560,000 FY09: \$1,560,000

Short description: Provide reimbursement of power costs to Umatilla Electric Cooperative and Pacific Power & Light Company for the Umatilla Basin Project pumping plants that provide Columbia River water to irrigators in exchange for Umatilla River water left instream.

Recommendation: Response requested

A response is requested. See the comments under proposal 198802200 - Umatilla Fish Passage Operations for the three proposals involved with the Umatilla River tributary fish passage effort. For this proposal also see the comments below.

Comments specific to this proposal:

The objective states that the pumping of water from the Columbia River provides water to irrigators in exchange for Umatilla water left instream for fish. The first question that occurred to reviewers was "How much water is left in the river for fish?" The general answer appears on page 2 of the Narrative, where it is said that, "...for every portion of flow left instream that same amount is pumped to the irrigation districts." And later, on page 5, the narrative states, "The amount of water exchanged through the project, and the associated costs, vary from year to year depending on water availability in the Umatilla Basin. Both the natural flow and reservoir storage exchanges are directly related to annual flow conditions." While these statements clarify the criteria used for assignment of benefits of pumping, they raise more questions about how decisions are made to commence pumping, who makes those decisions on what basis, and who benefits from them. It is clear that the irrigators are made whole by the process. It remains unclear whether under conditions of low natural flow in the Umatilla, the irrigation districts make use of the pumping provision to supply holders of all water rights including junior water rights, in which case, the ultimate benefit to fish could be zero.

Question: Is there any adjustment in irrigation removals during years of low base flow in the Umatilla?

It appears, from the Narrative that, in spite of this pumping project, the lower 30-50 mile segment of the Umatilla River continues to run dry at times. We read that both adult and juvenile salmon must at certain times be captured and transported by truck to upper reaches of the river. The proposal to extend the duration of pumping to a longer portion of the year, and the Phase III proposal to pump additional water from the Columbia River is intended to address this problem. No doubt, specific data on volumes of water and expected benefits to fish will be used to justify

a request to fund Phase III. This same information would assist the ISRP in its review of the existing project.

While the Narrative asserts that water made available by the project "has led to a reduction of over 90% in the number of adults and juveniles trapped and hauled on an annual basis", and we assume the meaning is that it has reduced the necessity to transport those fish, rather than that fewer fish are available now than previously, our curiosity is aroused. What numbers (or percentage) of fish are able to transit the lower river as a result of water made available by the project, compared to numbers (or percentages) without that water?

Question: Can the proponents provide a graph or table showing the data used to arrive at this conclusion?

The proposal states that, "It is assumed that these efforts provide more adequate passage conditions and increase survival for both migrating juveniles and adults" (paragraph 2, page 2 of the Narrative). While we do not consider that this project needs to conduct its own M&E, other than to account for the volumes of water pumped and the schedule of pumping, it ought to refer to M&E projects underway in the Umatilla River that can evaluate the effects of the flow augmentation strategy.

Would fish be better served by using the money spent for electricity to purchase water rights in the Umatilla Basin? An annual expenditure of the same \$1.5 million should make possible a gradual accumulation of sufficient water to be able to measure the volume left in the river for fish.

In order to evaluate potential benefits to fish, reviewers need more information on the effects of water pumped on conditions in the 30-50 mile reach of river that is said to have flows at times low enough to restrict fish passage. Answers to the set of questions provided above should make this possible.

200202600 - Morrow County Riparian Buffers Umatilla County Riparian Buffers

Sponsor: Morrow County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$176,471 FY08: \$175,097 FY09: \$178,516

Short description: The Morrow County Riparian Buffers Initiative is requesting funding during fiscal years 2007 through 2009 in conjunction with the Columbia Basin F&W Program and addressed needs identified in the subbasin plan. The Morrow and Umatilla County Soil and Water Conservation Districts (SWCD's) jointly propose to implement riparian buffer systems throughout the Umatilla/Willow Subbasin.

Recommendation: Response requested

The project entails parallel efforts in Umatilla and Morrow Counties to enroll 80 new sections of riparian buffer systems (covering >2000 acres of lands and >100 miles of stream). The proposal identifies the disconnection of the streams with the land as a major ongoing habitat threat to fish

and wildlife due to runoff effects, temperature effects, sedimentation, and so on associated with agricultural land uses. The project is primarily an effort to coordinate efforts among agencies (including USDA through CRP and CREP), outreach and promotion with landowners, and implementation monitoring following enrollment. The project's history is relatively short (2002). The two counties involved have had differing success in enrolling landowners in the program, but there is some stated opportunity that has promise.

A response is needed to address ISRP questions posed on the set of SWCD riparian buffer proposals in Oregon below (also see comments on 200201900). Especially needed is reporting of past results in terms of benefit to fish and wildlife, which should show that enrollment is helping. Doing the actual habitat / fish response monitoring is not reasonable for a project like this considering the ongoing M&E effort in the basin by the co-managers. This project states that they will do some basic implementation monitoring; this should include photo-points.

This is a well-prepared proposal and thought-out project. The project is expected to improve habitat quality for bull trout and summer steelhead through watershed and in-channel improvements to water quality, temperature, reduced sedimentation, etc. Benefits to secondary focal species, especially wildlife, are expected from the creation of extra habitat complexity. Implementation will be a challenge depending on willingness of landowners and stability of USDA conservation programs, but population responses are expected.

Ultimately, favorable earlier review comments by ISRP still apply:

"Fundable. See comments below for this set of SWCD proposals. The cost effectiveness of this and similar projects for accelerating habitat restoration activities is impressive. The proposal is well prepared. Protection of riparian areas is an important part of watershed restoration. It is troublesome, however, that some potential participants in the program have declined. The reason offered was a lack of staff. However, there was a proven record of accomplishment and an experienced planner. They should pick at least one buffer site as a model or demonstration "show case" site. A hydro-geomorphological model of a fully buffered system might prove instructive, particularly when 50 or 100-yr flood events are considered. This seems like a worthwhile project to parlay one FTE of BPA funds to attain over \$2 million in other funds. The proposed work to foster riparian buffer protection and rehab is surely needed and in the regional plans. Drumming up landowner interest is a big job and one that seems to have slipped recently. Riparian buffers are good in their own right for fish and wildlife, but it would have been good to have the affected fish species listed. Better recognition of other BPA-funded projects in the area would have been useful. There is no M&E, but good riparian improvement may be judged without a specially funded study, or by using a modeling approach and/or demonstration sites. We applaud the partnership approach."

The proposed project directly addresses objectives in the Umatilla Subbasin Plan with regard to focal species and non-focal species (both fish and wildlife). The project directly addresses current limiting factors and also water quality issues.

The objectives are clearly presented. The primary overarching objective is to increase enrollment in USDA buffer programs. The objectives also include monitoring of plant species composition and implementation monitoring. The measures for these objectives are primarily in relation to enrollment and coverage, but are suitable for this kind of proposed project.

The methods are clearly stated, albeit not especially science-based -- planning, outreach, promotion, coordination, and implementation monitoring. That said, the project is based on needs identified in the subbasin plan from modeling (two modeling approaches were indicated without specific reference, this could be bolstered to strengthen the compelling need), but are based on long-standing scientific information about the benefits of riparian habitats.

Monitoring of plant species composition is included as work element as is implementation monitoring. By and large success of the program will be measured against ability to enroll the 80 systems (and associated coverage).

Missing is some coordination with fish and wildlife co-managers regarding the responses of the focal and non-focal species to these expected habitat improvements (these should show up as positive responses in the EDT and other models).

General Comment on Oregon SWCD Riparian Buffer Projects:

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment (although this proposal is notable for having included some discussion of this aspect in the rationale section) and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.
3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200732000 - Inventory and Assess Fish Passage and Screening Needs in the Willow Creek Watershed

Sponsor: Morrow County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$28,854 FY08: \$28,307 FY09: \$34,430

Short description: This project proposes to conduct an inventory and assessment of fish passage and screening needs in the Willow Creek watershed necessary to restore summer steelhead (extinct) access to historic spawning and rearing habitat and improve access and movement.

Recommendation: Fundable (Qualified)

The project proposal identifies an information need in the Willow Creek watershed -- fish screen needs/opportunities and passage opportunities for recovering steelhead and extant redband trout. This project would provide a finer scale assessment than accomplished in the subbasin plan. There are a number of primary relationships of this proposal with other work including the Morrow and Umatilla County riparian buffer projects. Future phases of this program (i.e., implementation) should complement those landowner habitat improvements very well for redband trout and perhaps, future recovery or reintroduction of summer steelhead into the watershed.

At present little interest exists within the watershed for recovering or restoring extinct steelhead. All of the land cover in the watershed is in private ownership (except for a small percentage under USDA Forest Service management). Therefore, a thorough assessment of the screening and passage opportunities is important.

The objectives are straightforward and focus on two primary elements. The first is outreach to watershed owners and stakeholder regarding the issues, merits, and difficulties with steelhead recovery (and related aquatic issues). Second is the amassing of information regarding extent and locations of passage impediments and screening opportunities. Implementation is projected during the next funding cycle.

This modest and inexpensive program (in collaboration with ODFW) is the first phase (assessment and inventory) for future habitat improvement. A possible next phase (implementation) will depend on outcome (full identification of passage and screening opportunities). The work elements are appropriate for the staff effort and funding level. Some expansion on future work elements (beyond FY2009) would be appropriate as a first cut scoping exercise beyond this information gathering phase.

The ISRP recommends that the sponsors address the following concerns to strengthen the proposal:

- 1) Project personnel need to provide evidence that experienced assistance will be available to them and provide evidence that the potential for introduction of exotics is not significant.

- 2) The proposal would benefit by including whatever data (and summary) regarding past steelhead and red-band or other species existed in the basin as well as whatever data regarding blocked passage in the basin.
- 3) A clearer connection of Willow Creek issues within a Subbasin Plan.
- 4) The project will necessitate input by biologists familiar with what does and what doesn't form a block to passage to migrating fish. Coordination between county and (and perhaps training by) ODFW is critical.
- 5) The proposal is not clear about the location where data will be stored. Production of maps and the inventory, if printed and made widely available, should suffice.
- 6) Potential exists to open a migration path to undesirable exotics. The proposal should address that potential.

200729300 - Umatilla River Basin Stream Temperature Monitoring

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$23,267 FY08: \$25,805 FY09: \$26,404

Short description: CTUIR Water Resources Program will monitor stream temperatures in the Umatilla River Basin at 31 long term monitoring sites.

Recommendation: Fundable (Qualified)

This modest project proposal is to secure 10 thermographs, the staff time to deploy them, and analyze data as part of a larger scale temperature monitoring project in the subbasin. Temperature is a key variable for watershed and habitat improvements in the subbasin. Elevated temperature is described as a limiting factor for fish (focal and non-focal species) productivity and survival.

While this is a modest project that ties in directly with a broader subbasin temperature M&E project and funding will likely be ongoing as part of a long term monitoring need, the priority of these gauges is not clearly justified.

The ISRP recommends the project sponsors better describe why these are the key locations for thermographs and how the information gained will address a key management activity.

Also, what is the statistical design for placement of these gauges - especially the ten new gauges? What is the rationale for distribution of these gauges and the intensity of the sampling? Why the 58 in the places they are? The proposal would be improved by a reporting of the data collected from the existing 58 gauges. Specifically, it is not clear why so many monitoring sites are needed. Has there been an effort to compare records to see whether some sites might be omitted? The clustering of thermographs suggests that potential problem areas have been identified, but

there is no discussion of this in the Narrative. The question is whether this placement is adequate for purposes that can be foreseen?

198710001 - Umatilla Anadromous Fish Habitat - CTUIR

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$372,245 FY08: \$385,085 FY09: \$405,960

Short description: Instream and riparian habitat restoration for fisheries and wildlife in the Umatilla River Basin.

Recommendation: Response requested

This proposal is an improvement over past proposals. Nonetheless, the proposal is deficient in a number of areas. The various tasks and objectives need to be considered individually. Not much priority to tasks is provided, and it is questionable whether these activities will have any benefit, especially compared to alternatives. Very little is presented to suggest activities will have benefit.

The proponents wisely report data and link up to the M&E projects in the basin, but they seem to not be adaptively managing based on the data. Other results suggest that limiting factors are outside of the basin (see figures 3-5 on project 198902401). Sponsors need to convince reviewers that the strategies employed here over the many years are worth continuing from the perspective of steelhead and chinook salmon benefits. They should provide smolt-per-spawner data (see 198902401). This is the key response variable for habitat work, when presented relative to spawner abundance, and is especially instructive when compared to untreated controls. Other possible designs for evaluation are possible.

Given alteration of stream characteristics in the Umatilla Basin, it is logical to assume that productivity of the system for salmonids is less than it once was. This project puts together actions and agreements in an attempt to recover some of that lost productivity. The approach, however, is always subject to questions regarding whether or not the "right" thing is being done from the perspective of the fish. The results of this work as found and described in project 20072009 show declining survival from egg to smolt over the past decade (Figs. 3-5). In light of these results, sponsors of this work need to provide a convincing case for continuing this work as presently outlined.

Among the objectives listed is "Develop alternative water source". The method described is to sink wells and pumps. Has any thought been given in the Umatilla Basin to purchase of water rights and/or lands with such rights with the objective of replacing the "Power Repay" project, which is extremely expensive and becoming more so? For \$1.5 million a year, which is the current cost of the electricity to pump Columbia River water, a considerable acreage might be purchased or otherwise put out of production, so as to reduce the need for irrigation removals, the volume of which obviously exceed the base flow of the Umatilla River.

See 198710002 - Umatilla Subbasin Fish Habitat Improvement Project - many comments there also apply here.

198710002 - Umatilla Subbasin Fish Habitat Improvement Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$321,767 FY08: \$335,282 FY09: \$349,395

Short description: The ongoing Umatilla Subbasin Fish Habitat Improvement Project (19871-100-02) is aimed at protecting (where possible) and enhancing/rehabilitating (where required), degraded fish habitat on private lands using passive and active restoration techniques.

Recommendation: Response requested

This and the CTUIR proposal 198710001 should be presented as a unified proposal, as requested in previous reviews. At the very least, this proposal should better demonstrate its link to the CTUIR habitat project. The proposal should better prioritize among the various habitat restoration strategies proposed. See the ISRP's programmatic comments on active restoration in Part 1 of this report.

Given results to date (declining survival rates), the sponsors need to provide convincing evidence that the project is providing enough fishery/ecosystem benefit that it is worth continuing. The text does reflect considerable study and thought by the participants regarding the need for restoration of dynamic stream processes. Actions should be limited to fencing, overcoming passage problems, restoration of the original hydrograph, and reduction of human-induced fine sediment introduction. Choice of activities should be limited to locations where there is high probability for regaining significant productivity for salmonids, and this must be clearly demonstrated by priority. After just under 20 years of work, i.e., since 1987, reviewers note that no results are presented. Furthermore, there is no clear identification of the key high priority habitat work as identified in the subbasin plan, nor demonstration of some benefit to fish.

Given alteration of stream characteristics in the Umatilla Basin, it is logical to assume that productivity of the system for salmonids is less than it once was. This project puts together actions and agreements in an attempt to recover some of that lost productivity. The approach, however, is always subject to questions regarding whether or not the "right" thing is being done from the perspective of the fish. The results of this work as found and described in project 20072009 show declining survival from egg to smolt over the past decade (Figs. 3-5). In light of these results, the sponsors of this work need to provide a convincing case for continuing this work as presently outlined.

The comments on 198710001 also apply here.

Walla Walla

200003800 - NEOH Walla Walla Hatchery - Three Step Master Planning Process

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$268,675 FY08: \$225,375 FY09: \$254,950

Short description: Complete 3-Step Master Planning process for NEOH Walla Walla Hatchery to produce spring chinook salmon for release in the Walla Walla River Basin.

Recommendation: Not fundable

This proposal is to develop the Master Plan for Walla Walla. More detailed review and evaluation would be encompassed in a Three-Step process, which the ISRP supports. A history of the Master Plan process is described. An adequate summary or review of the history of hatchery fish in the watershed would improve the presentation. Also missing was a discussion or model to demonstrate the likelihood of establishing a wild run from hatchery fish. Furthermore, this proposal offers no new "compelling" information (over the past reviews) to merit further consideration.

In brief, a major concern of the ISRP arising from the proposal was the immediate use of the Carson Stock. In the past, the ISRP commented that a scientifically sound justification was not given for construction of this facility to increase hatchery fish production with Carson stock. These comments still apply. It is a proposal to produce, as soon as possible, adult fish for harvest. Waters of the Walla Walla Basin are viewed, by the sponsors, as a production area that cannot produce the desired harvest, so a hatchery is needed to meet that harvest. Hatcheries can be useful tools in the production of fish for harvest, in general.

As stated previously, if the Walla Walla Basin and the hatchery is to be viewed as a fish-farming operation, there are few technical questions concerning the proposal. If, however, native stocks of Walla Walla salmonids are to be restored and protected, this proposal is not fundable. See programmatic comments related to supplementation as an experiment.

General comments:

No justification is included that addresses expected carrying capacity or other information from EDT or similar analyses.

The hatchery can be justified as mitigation for dams on the Columbia, to produce fish for harvest (this still requires a harvest plan that does not impact wild fish), but it does not fit well as a supplementation project or for re-building wild runs, and does not flow from the subbasin plan. The subbasin plan states that WDFW has no established goal for spring chinook in the basin, and it is difficult to assess status from EDT reports: "Managers will need to continue to refine the EDT outputs to clarify the balance between natural production and artificial production that will meet subbasin adult return expectations and needs."

Artificial propagation (out-of-system Carson stock) is recommended by the proponent to increase the parental base from which to build returns for natural production and harvest. What evidence is there that this would work? Wild production should be able to rebuild naturally. If not, why not, and why would (domestic brood) hatchery fish do any better? They very likely would not.

Artificial propagation is stated as a key element in the Walla Walla fisheries restoration program and required in order to achieve spring Chinook natural production, broodstock, and harvest objectives in the Walla Walla Subbasin. It is not clear that natural production will arise from the artificial production, but there could be hatchery broodstock and harvest products realized by the project. If natural production were to recruit from hatchery spawners, the natural production shall quickly copy the hatchery fish in character (genetic and otherwise), and eventually may eliminate wild fish. Replacement of wild fish by hatchery fish is the likely outcome of this proposed action – a result that is contrary to subbasin goals.

There remains a concern for impacts to non-focal or other species (e.g., steelhead), for which there is insufficient consideration in the proposal.

200002600 - Rainwater Wildlife Area Operations and Maintenance

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$304,926 FY08: \$304,926 FY09: \$304,926

Short description: Focus of project is to protect, enhance, maintain, and mitigate fish and wildlife impacted by the Federal Mainstem Columbia River Hydropower System. Project also contributes to anadromous fish (summer steelhead and bull) and habitat in the Walla Walla.

Recommendation: Fundable

This proposal meets the ISRP review criteria and benefits wildlife. The ISRP, however, suggests that the sponsor address the following comments to improve the project, but the ISRP does not need to see responses to these comments.

The authors could improve the wildlife monitoring portion of this work by more clearly identifying the variables they will use to measure progress. Specifically, the authors could improve the monitoring and evaluation section by more clearly describing the location and placement of vegetation transects, number of vegetation transects, and measurements they will take on these transects. The authors should more clearly identify which bird species (or will they focus only on bird species listed in proposal) that will be recorded on these transects. The authors should more clearly identify the history behind the selection of mitigation bird species (narrative, p.4) and whether or not the species will be monitored and evaluated.

The authors could improve their discussion of bird surveys by identifying why transects will be used only in grassland cover. The ISRP wondered why birds are not surveyed in other cover types. The authors could improve their presentation of monitoring and evaluation of weed

control efforts by quantifying weed distribution and abundance pre- and post-treatment with herbicides.

The authors could more directly communicate where past data are located.

199604601 - Walla Walla River Basin Fish Habitat Enhancement

Sponsor: Pacific Northwest Electric Power

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$321,373 FY08: \$337,443 FY09: \$354,315

Short description: The proposed project is a continued effort by the CTUIR to protect and restore habitat critical to the recovery of salmonid fish populations in the Walla Walla River Basin.

Recommendation: Response requested

This is a potentially important project that relates closely to the Walla Walla subbasin plan. The proposal, however, is not well-organized or well-written. The sponsors did not provide a quantitative assessment of the effectiveness of the project to date in terms of how well the overall project has met its objectives. The project has been funded for 10 years and abundant data on effectiveness should be available. However, few significant results were presented, especially those related to fish. Available data should have been analyzed and presented in a concise, convincing way in this proposal. As it stands, there is very little evidence upon which to evaluate project effectiveness. Moreover, the sponsors did not adequately describe the monitoring program other than to discuss the kinds of data that were being collected.

There is no clarity to the objectives of the proposal. Objectives for ongoing and new work are entangled, and there is a strong tendency to confuse actions with objectives. Adequacy of methods is difficult to assess because project objectives are not adequately presented. There is an over-reliance on tables to convey information. The sponsors should have followed the guide for proposal writing more closely.

Technical and scientific background: The background is well written and explains the logic for the project continuing. The proposal seeks to restore priority reaches in the Walla Walla and Touchet Rivers with high estimated restoration potential for spring Chinook and summer steelhead. The need is based on restoration priorities developed in the Walla Walla Subbasin plan.

The sponsors need to address a few issues related to the high priority designation of the reaches and their restoration potential. Considering the large number of factors limiting production in these two reaches, implying that recovering habitat would be very difficult, why were they designated as high priority for restoration? Are there areas of higher priority that have not received attention? It would be helpful if the sponsors provided their rationale for selecting restoration sites. Are they simply going down a list by order, or is there some other rationale?

Rationale and significance to subbasin plans and regional programs: One of the strongest elements of the proposal is its direct linkage to the Walla Walla Subbasin Plan. The proposed work addresses two of the reaches identified as high priority in the Plan and uses the limiting factors analysis provided by EDT to determine appropriate restoration activities. The proposed work also is consistent with the Fish and Wildlife Program, the 2000 Biological Opinion, and several other state plans.

The proposal lists a number of actions that will be taken to address limiting factors. How much of this work will be on private land? For work on private land, the sponsors need to indicate whether they have received landowners' permission to carry out the actions, what actions can take place without permission, and what the fall back position will be if permission is not granted.

Relationships to other projects: The project includes collaborative work with several other projects and groups. The sponsors would closely collaborate with Fish and Wildlife Program-funded fish habitat programs managed by CTUIR in other basins. They also would work with a Priority Projects Group composed of tribal, state, and private entities.

Project history: A central shortcoming of the proposal is a lack of clarity about what the actual project monitoring program is and how it relates to larger M&E efforts. The sponsors should clearly and concisely describe the monitoring program without solely referring to other documents and efforts. If the project M&E is part of the cooperative CTUIR Walla Walla Basin Natural Production Monitoring and Evaluation, WDFW, ODFW effort, then describe in sufficient detail what that monitoring program consists of. How will implementation and effectiveness monitoring be done? In the proposal, for example, the sponsors state that implementation monitoring will be conducted is with a BACI design. This statement provides little insight into the actual design of the program.

The sponsors apparently have been collecting monitoring data on habitat and fish since the inception of the project and they claim that the data show "measurable" benefits to fish habitat. The sponsors need to back up their statement by presenting a comprehensive synthesis (not just summary tables of data) of quantitative results and conclusions about project effectiveness to date. We recognize that, for some projects, measurable benefits from particular actions will be seen only after long time periods. This does not mean that the products of these actions should not be monitored. A careful and thorough analysis of project effectiveness is necessary to evaluate the progress of the project to date.

Objectives: The objectives section is a mix of what apparently are objectives related to continuation of established projects and actions related to new projects. The objectives are neither well defined nor measurable and consist largely of actions that are more appropriate for Methods. Objectives are scattered throughout the proposal (e.g., in the Objectives and Methods Section, and in Table 13) and need to be consolidated and focused.

Tasks (work elements) and methods: Methods are provided, but it is difficult to know how appropriate they are because quantifiable objectives are not given. The purpose of the section entitled “Project Objectives and Methods/Work Elements” is unclear, it is not well integrated with the rest of the proposal, and it has the appearance of an add-on.

Monitoring and evaluation: The proposal side-steps the issue of monitoring both in terms of clearly describing the general monitoring program (not just the data that will be collected) and specifically indicating how each project will be monitored.

Facilities, equipment, and personnel seem adequate. Information transfer is primarily by reports. Conveyance of results to stakeholders would seem to be particularly appropriate for this project but it is not mentioned.

Benefits to focal and non-focal species: Benefits are anticipated for all co-occurring focal species by removing or reducing limiting factors. Although benefits are likely, they are difficult to assess because of the lack of clear project objectives and a description of the monitoring protocol. Non-focal species were not addressed. If habitat rehabilitation is successful, non-focal species could benefit.

199601100 - Walla Walla Juvenile and Adult Passage Improvements

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$270,000 FY08: \$950,000 FY09: \$1,105,000

Short description: Provide safe passage for migrating juvenile and adult salmonids in the Walla Walla Subbasin by constructing and maintaining passage facilities at irrigation diversion dams and canals and other passage barriers.

Recommendation: Fundable (Qualified)

This is one of three closely linked passage proposals in the Walla Walla subbasin. Most of the proposal is well done. The proposal would be improved by reporting results from the subbasin level M&E project in summary format. The project needs to make the connection to biological data collected in the M&E project. This was a similar concern with previous ISRP reviews, and while there has been some improvement, it should be clear by now that projects must indicate results of past efforts clearly, particularly after 10 years of efforts. The efforts and results must be linked to subbasin plans, and this was not a strong area of the proposal. What data will be collected by other entities to evaluate success (or failure)? What are the key reference points from this data that will affect management decisions?

200003300 - Walla Walla River Fish Passage Operations

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$122,983 FY08: \$129,132 FY09: \$135,588

Short description: Increase survival of migrating salmonids in the Walla Walla Basin by coordinating the overall passage program including monitoring passage conditions and operation of passage facilities and transport equipment to provide adequate passage conditions.

Recommendation: Fundable (Qualified)

See comments on 199601100 - Walla Walla Juvenile and Adult Passage Improvements. Is there any evidence of improvement to fish numbers as a result of these efforts?

200721700 - Operation and Maintenance for Walla Walla Basin Passage Projects

Sponsor: Gardena Farms Irrigation Dist. and Hudson Bay Dist. Improvement Co.

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$182,725 FY08: \$182,725 FY09: \$182,725

Short description: Operation and maintenance of BPA-Constructed fish passage facilities in the Walla Walla Sub-basin.

Recommendation: Fundable (Qualified)

See comments on 199601100 - Walla Walla Juvenile and Adult Passage Improvements.

200203600 - Restore Walla Walla River Flow

Sponsor: Walla Walla Basin Watershed Council

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$469,458 FY08: \$469,458 FY09: \$469,458

Short description: Irrigation efficiency and shallow aquifer recharge will improve Walla Walla River flows on flow -impaired priority restoration reaches at times of the year that are critical for steelhead, spring Chinook, and bull trout passage and habitat use.

Recommendation: Response requested

This project is part of a major thrust by governmental and non-governmental entities to restore habitat and fish in the Walla Walla basin. The project addresses the very important problem of restoring flows to the streams in this basin. To date, the project appears to have been highly successful in enlisting private landowners in water conservation efforts. The approach used in this project should be widely adopted in the Columbia Basin. The sponsors need to discuss whether an effectiveness monitoring plan is in place that will evaluate quantitatively improvements in habitat attributes and fish use in the project reach following restoration actions. Such a plan would demonstrate the value of the fine effort to conserve water undertaken so far by the sponsors.

Technical and scientific background: The problem is well defined and technically justified. The project would ensure increased flow through a normally dewatered reach preventing stranding

and improving migratory and juvenile rearing habitat and replenishing subsurface water storage. The technical analysis has led to innovative approaches that have proven to be effective in restoring flows to the Walla Walla River. This should serve as a model for action throughout the Basin.

The sponsors need to provide information on run sizes in the river in which the project is located. They also need to explain why the EDT analysis did not rank the targeted springbrooks as high priority.

Rationale and significance to subbasin plans and regional programs: This project would be a part of an apparently successful restoration program for the Walla Walla basin with good cooperation from landowners. The project area is identified as a priority in the Walla Walla Subbasin Plan and the proposal addresses priority strategies. The project could benefit anadromous as well as resident ESA listed species. It also addresses objectives in the Fish and Wildlife Program.

Relationships to other projects: The project is related to several BPA funded project as well as to numerous other state, federal, and privately funded projects. A major strength of the proposal is the collaboration with private landowners who have worked closely with the sponsors to provide increased flow to benefit fish.

Project history: The project history documents the success of the approach used by this project but provides no data documenting improved instream flows relative to pre-project conditions.

Objectives: The project has one objective, which is to increase summer flows by 10-15%. Does this flow increase pertain to the three-mile reach north of Milton-Freewater? Is the percent increase over and above the 25 cfs already provided? Quantitatively (as well as possible), how much habitat improvement can be expected from such a small increase in flow? Should there be an objective for aquifer recharge?

This proposal should be linked to the Columbia Basin Water Transaction Program (proposal 200201301) and address the criteria for water transactions under that program that are relevant to the proposed actions.

Tasks (work elements) and methods: Strategies for accomplishing the objectives rather than specific methods are given. This is understandable given the nature of the project. The sponsors should explain the methods by which aquifer recharge will be accomplished.

Monitoring and evaluation: The major drawback of this proposal is the lack of a consolidated monitoring program to assess the effectiveness of the water conservation strategies in improving flows, aquifer recharge and springbrook flows, fish habitat characteristics (e.g. pool depth, stream temperature) and fish use. Some monitoring activities are discussed at various points in the proposal but the total program (design, methods, metrics, etc.) is not presented.

Facilities, equipment, and personnel: Facilities are adequate, and personnel are well qualified. Have the sponsors been receiving advice from a fisheries biologist?

Information transfer is not discussed.

Benefits to focal species: The benefits of increasing instream flow could be significant for a number of focal species, but the sponsors provide no estimate of how flow improvements will affect habitat attributes (other than flow and temperature) and fish use. Effectiveness monitoring would help to address these questions.

Benefits to non-focal species: The project could benefit non-focal species by improving habitat. The sponsors have already demonstrated an increase in macroinvertebrates, an important food resource for juvenile salmon.

200728800 - Touchet Eastside and Westside Irrigation District Piping

Sponsor: Walla Walla County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$16,852 FY08: \$492,830 FY09: \$490,318

Short description: Improve passage for adult mid-Columbia steelhead returning to the Touchet R. headwater spawning area by increasing instream flows in the lower mainstem. This will be accomplished by converting from open ditch to piped conveyance on 2 irrigation districts.

Recommendation: Response requested

This is an essentially good proposal. The central question about the proposed work is whether the amount of water returned to the stream is sufficient to positively affect fish and habitat. The sponsors need to provide some sort of estimate of the potential benefit to habitat and focal species. Is the proposed project part of a larger plan or project to restore flow in the Touchet?

Technical and scientific background: The problem is clearly defined. Instream flow in the Touchet River is considered to be limiting adult migration and juvenile rearing habitat. The Touchet is completely dewatered in the summer months over part of its length. The sponsors propose to install a pipe to carry irrigation water away from the stream. Installation of about three miles of pressure pipe will replace a seeping ditch used for irrigation withdrawal. Transport by pipe will reduce evaporative loss and so make additional water available to increase flow. This effort is estimated to return 1.5cfs of flow in trust for salmon. The total piping job will lead to a 4.5cfs increase in instream flow.

It would be useful for the sponsors to make a realistic estimate of the fishery benefits expected from the project including the basis for that estimate. For example, if the river is dewatered, will the flow increase from the pipe installation be sufficient to create high quality habitat and improve passage?

Rationale and significance to subbasin plans and regional programs: The project addresses the problem of dewatering the Touchet, which is identified in several plans including the Walla Walla subbasin plan.

Relationships to other projects: The project is a component of a large partnership including tribal, private, and state entities seeking to improve salmon runs in the Touchet River. The project is related to other projects associated with pump and passage construction at Hofer Dam.

Objectives: The objectives are straightforward and involve installation of 2.5 miles of pipe that will convey irrigation water and dedicate conserved water to instream flow. Conserved flows will remain in trust to state.

This proposal should be linked to the Columbia Basin Water Transaction Program (proposal 200201301) and address the criteria for water transactions under that program that are relevant to the proposed actions.

Tasks (work elements) and methods: The project entirely involves construction. The sponsors have already engaged consultants to plan the project and a timeline is set forth.

Monitoring and evaluation: There are no provisions for monitoring. The proposal needs a description of how flows will be monitored and how the water "savings" will benefit steelhead and salmon populations. The proposal would benefit from a quantitative estimate of expected fishery benefit.

Facilities, equipment, and personnel: Facilities seem adequate to manage the project. Construction equipment and personnel will be secured through contract.

Information transfer: No mention was made of how any water savings or population response data will be conveyed.

Benefits to focal and non-focal species: It is unclear how much benefit will be accrued from this project. The uncertainty derives from the lack of a clear explanation of how much habitat conditions for migration and rearing will be improved and how much those improvements might benefit fish. The flow increment increase seems small. The sponsors indicate that instream flow of the fully retrofitted (9+ miles) system will fall short of the 6 cfs minimum flow needed for salmon. There is no mention of where the other 1.5cfs needed to meet the 6 cfs flow minimum will come from or how the remaining six miles of pipe will be secured.

If the project was successful it could benefit non-focal species by improving habitat conditions.

200733000 - Gardena Farms Irrigation District Irrigation Efficiency and Instream Flow Project

Sponsor: Gardena Farms Irrigation District

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$362,084 FY08: \$362,083 FY09: \$362,333

Short description: The purpose of this proposal is to place open channel irrigation deliveries in closed pipe and return the savings to the Walla Walla River as instream flow. Conserved water would be returned to the Walla Walla River at the Gardena Farms diversion.

Recommendation: Response requested

The sponsors need to provide a better justification for the project. The justification in the proposal is general, expressed in terms of how the project meets broad objectives of various plans. A justification specific to the project area needs to be given. Is the area an important fish production area? Is there critical habitat? How much relative flow increase will be achieved? The sponsors also need to provide some sort of estimate of the potential benefit to habitat and focal species. Does EDT or any other analysis show how much water is needed to enhance fish populations and how the conserved flow from this project will contribute? Is the proposed project part of a larger plan or project to restore flow? Is this project a part of a concerted long-term effort to restore instream flows?

Technical and scientific background: The problem is relatively straightforward. The sponsors propose to install piping to convey irrigation water and the saved water from this more efficient practice would be used to enhance instream flows year round.

The sponsors need to provide an estimate of how much relative gain in flow will be achieved by the project. How much will fish habitat be enhanced by this flow increase and what life stages will be benefited? The proposal should include an estimate of what flows are needed to remove the threat to fish populations, attempt to show that the goal is possible and reasonable, and that this project helps to make a significant gain in meeting that goal.

The sponsors need to provide more background on the project area. Will flow be increased in a single stream or multiple streams? Is there evidence that reduced flows in this (these) specific reaches reduced fish production? A map clearly identifying the project area would be helpful.

Rationale and significance to subbasin plans and regional programs: The Walla Walla Subbasin Plan identifies dewatering and low flows as a limiting factor for fish. The proposal generally is consistent with Plan by providing improvement of instream flows.

Relationships to other projects: The project bears a direct relationship to one BPA funded project. Direct collaboration with this project was not discussed.

Objectives: The objective is straightforward. It is to provide increased instream flow using water saved by installing piping to convey irrigation water. Flows will be held in trust for salmon. In

some sections of the proposal the amount of water added to instream flow is given as 1.4 cfs, but in the objectives the amount is 4-5 cfs. Which is it?

This proposal should be linked to the Columbia Basin Water Transaction Program (proposal 200201301) and address the criteria for water transactions under that program that are relevant to the proposed actions.

Tasks (work elements) and methods: The project is for construction.

Monitoring and evaluation: No provisions are made for M&E. The proposal needs a description of how flows (and the hydrograph) will be monitored and how the water "savings" will benefit steelhead and salmon populations.

Facilities, equipment, and personnel: Construction equipment and personnel will be secured through contract.

Information transfer will be planned, if the proposal is funded.

Benefits to focal and non-focal species: The project could be of benefit to multiple focal species. It is difficult to assess the benefits, however, because the sponsors provide little background information relating to project location, pre-project flows and habitat conditions, fish use of the specific area of the project, etc. Most of the justification for the project is in general terms. Non-focal species were not discussed. Non-focal species could benefit if increased flows were substantive enough to provide significant improvements.

200003900 - Walla Walla Subbasin Collaborative Salmonid Monitoring & Evaluation Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$1,417,375 FY08: \$1,377,482 FY09: \$1,421,356

Short description: To provide ecological information and technical services to decision makers in support of adaptive management for restoration, conservation, and preservation of cultural, social, and economic salmonid resources.

Recommendation: Response requested

This project proposal is an omnibus collaboration for M&E in the Walla Walla basin by co-managers to address the 4 H's. As such it is exhaustive and identifies many elements for monitoring and evaluation.

In general this proposal was very difficult to review and evaluate as it lacks articulation of clear and prioritized monitoring objectives and clear purpose. While liberally peppered with algebraic expressions, it is not clear what was to be monitored and evaluated. Specifically, what management decisions are the sponsors tying this work to? Moreover, similar to the Umatilla

M&E projects, this project proposes to "measure everything" without some prioritization of activities tied to specific information needs.

We recommend a roadmap of sorts as to who is going to do what and when? That the many contributors and co-managers participated in the proposal is a refreshing and potential strength, it is a little unclear who will do what and the enormity of the enterprise. The project is a collaboration between ODFW, WDFW, and CTUIR. The project is closely related to several BPA funded projects and CTUIR projects. The sponsors provide a table and description of the roles of each agency in the project, but they do not provide adequate descriptions of what the roles actually are. What does "participation" mean functionally? What is the specific role of the "coordinating agency"? How will analyses be shared?

In many cases the descriptions are vague, confusing, and repetitive. The proposal needs to be better organized and more concise. For example, in the "Approach" section the approach is not described. Also, the discussion of the "Experimental Design" is vague and confusing. A clear picture of the design does not emerge from the description in this section nor does it make clear the integrative nature of the project.

Simple grammatical errors, figures located many pages away from the first text reference, and incorrect references to tables and figures hampered review and could easily have been corrected. For example, Table 2 (referred to as Table 6 in the text) does not describe a sampling design (significant details required of a sampling design are not considered) as the sponsors suggest. It is primarily a list of metrics and methods. Tables are incorrectly referred to in the text. Such mechanical errors in proposal preparation do not convey confidence that the work will be conducted with attention detail.

The project history is not organized according to the original objectives, and thus it is not possible to determine whether the objectives have been achieved. The sponsors provide information on what activities they engaged in and do not summarize the major findings of these actions. They mention development of an RM&E plan but do not describe the plan. The individual projects appear to have accomplished quite a bit. It is not clear, however, from the description of the project history why the collaborative effort is needed and what it will accomplish. Specific information regarding stock assessment is particularly important.

Description of the monitoring program should have been consolidated instead of discussed in pieces throughout the proposal. While detailed descriptions of some of the methods and analyses, others such as the habitat work were entirely omitted. The project history section needs to list findings (effectiveness) from previous work and not merely activities that have been instituted. Also, the proposal refers to tables and figures, but infrequently interprets the information within them.

What is it that is being monitored and evaluated, and why? As presented, this proposal is not an adaptive management experiment, but an attempt to provide complete assessment of all salmonids at every life stage. Essentially, we are not convinced of the feasibility of delivering

the enormity of the project and that information will be used in an adaptive management context. This is so large that as proposed it is difficult to see how they will accomplish their task and actually evaluate the data for management application.

Ultimately, the ISRP recommends that this project (and related ones) be the subject of site and program review within the next 2 years.

Below are some specific comments on individual work elements:

WE 1.1. Will the dam counts provide an estimate of adult returns for all important spawning areas? How will smolt/spawner ratios indicate whether in-basin factors are limiting?

WE 1.2. How will the redd and carcass counts be related to adult counts at dams?

WE 1.3. The sponsors do not appear to be aware of the problems associated with counting bull trout redds. The sponsors conclude there is no consistent trends in redd counts but then they go on to say that the time series is too short to conclude that there is no declining trend in one of the tributaries. You can't have it both ways. There is clearly a sharp declining trend in the North Fork Touchet. What does "collaborative analysis" mean? It is not possible to distinguish bull trout spawning areas in figure 10.

WE 1.4. How will coho redds be distinguished from Chinook redds?

WE 1.5. The sponsors provide no description of the methods for habitat monitoring and evaluation and how this data will be analyzed. The instead refer to a report. Proposals are supposed to be stand-alone documents and so habitat monitoring should have been described. If the sponsors can provide minute details on some sampling methods and data analysis, they should also provide a description of the habitat monitoring program including metrics, sampling scheme, etc.

WE 1.6. The sponsors refer to "spawning/holding/ and pre-spawn performance" of Chinook but do not explain what they mean by performance.

WE 1.7. The whole discussion of placement of the screw traps is unclear.

WE 2.3. The sponsors did not define "freshwater productivity". Is this work related to WE 1.7?

WE 2.4. How will "biomass accumulation" and "productivity" be determined?

Objective 4. The monitoring program should be described in more detail. How does it related to the work described in Objectives 1-3? What are the reference areas? Treatment areas? Will a BACI design be employed? How will the "hypothesis" that status and trends are related to management activities be tested? How does this program related to project-specific monitoring?

200734000 - Multidisciplinary collaborative approach to aquatic habitat monitoring & evaluation in the Walla Walla Subbasin

Sponsor: Walla Walla Basin Watershed Council

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$275,000 FY08: \$284,800 FY09: \$297,200

Short description: This project monitors and evaluates aquatic habitat conditions in the Walla Walla Subbasin using stream, surface water, and groundwater performance metrics. It complements BPA proposal: Walla Walla Subbasin Collaborative Salmonid Monitoring & Evaluation.

Recommendation: Response requested

The project proposes to monitor and evaluate stream, surface, and groundwater habitat conditions and trends in the Walla Walla Subbasin by the Walla Walla Basin Watershed Council as a complement to the Walla Walla Collaborative Salmonid M&E Project (200039000).

The problem statement is reasonably clear. Habitat in the Walla Walla basin has been seriously degraded. The sponsors propose a collaborative effort to develop an implementation and effectiveness monitoring program to evaluate habitat restoration basin. The proposal has the potential to provide a sound habitat monitoring program for the Walla Walla basin. Numerous methodological questions need to be addressed including a more detailed explanation of the EMAP protocol as it applies to the proposed work. The fish monitoring described in proposal 200039000 may be folded into this proposal to provide continuity and prioritization with the habitat work (but note the concerns of measuring everything absent prioritization based on adaptive management information needs).

While their intent is clear, the objectives are very general. Articulation of these as measurable objectives will strengthen the proposal.

Collaboration and cooperation are strong components of the project. The project is closely related to a number of ongoing BPA funded projects as well as numerous other projects funded by other agencies. The sponsors, however, need to better explain the nature of the collaboration (i.e., who will do what - the sponsors need to specifically define what is meant by “coordinate” and ‘participate’; (Table 5)).

The sponsors identify two projects that will be combined as part of the project. Why won't other projects such as the enhancement efforts (for effectiveness monitoring) or the OWEB surface-groundwater project? The sponsors should provide consolidated background information for the ongoing project such as its objectives and accomplishments to date.

The Work Elements (WE) are logically organized according to key limiting factors identified by EDT. Each WE addresses one of the key factors and much of the methodology appears to be scientifically sound. The ISRP notes the following to improve and clarify the protocols and methods, however.

WE 1.1. More needs to be said about the EMAP protocol. The sponsors first should outline the general sampling design (explain it, don't just simply refer to the EMAP method). What are the

priority reaches? How many sites will be sampled? How long will the sample reaches be? How long will sampling be done during the year and how often? What are the habitat metrics that will be measured (perhaps tabularize)? Isn't the Rankin-Reeves method inconsistent with the EMAP sampling protocol?

The sponsor make good use of the EDT analysis for setting the sampling program. They may, however, be relying too heavily on EDT output. The sponsors should not restrict themselves to measuring only those factors identified in the EDT analysis or for selecting priority areas. As the sponsors are aware, EDT is simply a planning tool employing many assumptions with little actual data to populate the model. It suggests possible limiting factors, etc. and should only play a part in the sampling program. Identification of priority reaches should not necessarily be based solely on EDT analysis. Experience of biologists familiar with the basin also could play a role in reach prioritization.

WE 2.4. Exactly how will the relationship between habitat actions and conditions be related? Will it be done at the individual project level? Will it be the aggregated impact for an entire reach? Will individual projects be evaluated?

There were no WE related to the key factors of large wood and key habitat (pools).

Yakima

200705900 - Abiotic and Biotic Factors Affecting the Success of Reintroductions of Anadromous Salmonids in Cle Elum Lake, Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$373,544 FY08: \$367,132 FY09: \$364,075

Short description: The goal of this project is to assess how abiotic and biotic factors may limit the production of sockeye salmon smolts from Cle Elum Lake, and recommend management actions that will reduce any production bottlenecks.

Recommendation: Not fundable

The ISRP cannot recommend funding for this project; there is inadequate justification and serious doubts regarding the feasibility for success. The benefit to focal species is highly uncertain, especially since the target is sockeye, but initial passage experiments are to be performed with coho. Moreover, there are likely to be negative impacts on non-target species, but this is not addressed.

Technical and scientific background: Although the broad goal of reestablishing salmon to Cle Elum Lake is certainly supportable, the fact that lake trout are present in this lake essentially eliminates this proposal from serious consideration. The authors apparently did not complete a

rigorous study of the literature or study of the existing knowledge of fish communities that include this voracious predator.

The technical and scientific background was rather sparse and was not presented in a way that logically set up the entire program. There are a number of technical issues remaining unresolved; the least of which was why such a large, ambitious project would be planned with so little knowledge of the aquatic community present.

Rationale and significance to subbasin plans and regional programs: The rationale for doing this project is not compelling, as a priority need.

Relationships to other projects: The proposed work fits with (but should come after) efforts of the Yakama Nation and others to net pen rear and release fish in the lake to assess passage success.

Objectives: "The goal of this proposal is to maximize salmon smolt production from Cle Elum Lake by: 1) assessing how abiotic and biotic factors may limit the production of sockeye salmon smolts released from net pens within Cle Elum Lake, and 2) recommending management actions that will reduce production bottlenecks, if they occur (Phase I)."

A shotgun approach costing \$1 million is outlined to try to anticipate the factors that might be important bottlenecks for salmon rearing. While that might succeed, it is much more indirect, risky and expensive than the alternate approach of waiting until salmon are indeed rearing and then assessing predation directly, and salmon food selection directly. In any case, initiation of this proposal should be contingent upon the successful demonstration that lake-river fish passage in both directions is adequate.

Tasks (work elements) and methods: Methods are adequately described but not necessarily appropriate, as mentioned above.

Monitoring and evaluation: There was very little information offered on how this aspect would really be conducted - at least on a whole experiment level - some data analysis methods were given, but they do not represent a substitute for real M&E planning.

Facilities, equipment, and personnel: It is unclear the likelihood for success would be good with existing facilities, equipment, and personnel.

Information transfer: There appears to be no clear information transfer.

198811525 - YKFP - Design & Construction (Nelson Springs replacement facility)

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$628,701 FY08: \$0 FY09: \$0

Short description: This proposal supports design and construction of replacement YKFP M&E facilities at Nelson Springs, WA.

Recommendation: Fundable (Qualified)

See overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this proposal:

The Nelson Springs project is a one-time project outlay for a capital construction and infrastructure improvement project for the YKFP ultimately seeking to replace dilapidated facilities office space on the Yakima Nation lands used by eight people. A central function of the facility is to warehouse data and serve as a field office for staff conducting M&E functions. Objectives and expected outcomes are sufficiently clear for the construction project.

The project is a component of the effort to improve M&E capabilities for the broader YKFP. Specifically as part of the broader YKFP, the proposed project addresses M&E facilities and data management warehousing needs; however, the relationship of need to Subbasin Plans and Regional Programs was a bit tenuous for this construction project. Sponsors need to better describe how the entire YKFP fits into the Subbasin Plan. Linkages to other YKFP related projects were presented briefly.

The project's history was adequately described including the reexamination of the kind of replacement facility to be used. This refinement has led to a lower overall cost and, presumably, more rapid replacement of facilities. The description of methods is non-biological and described in general detail. Greater specifics will be included in site and architectural plans.

198812025 - YKFP Management, Data, Habitat

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,237,239 FY08: \$1,268,041 FY09: \$2,284,582

Short description: Proposal provides for all YN management functions associated with the Yakima/Klickitat Fisheries Project including project planning, O&M, research, data management, and habitat improvement and acquisition actions in the Yakima Subbasin.

Recommendation: Fundable (Qualified)

Overall Comments for the five related Yakima/Klickitat Fishery Projects:

199506425 (YKFP Policy/Plan/Technical for ~\$724K);

199701325 (YKFP Operations and Maintenance for ~\$8,688K);

199506325 (YKFP Monitoring and Evaluation for ~\$13,781K);

198812025 (YKFP Management, Data, Habitat for ~\$4,790K);
198811525 (YKFP Design and Construction - Nelson Springs replacement facility for ~\$629K).

The ISRP rates the set as “Fundable (Qualified)” because we recommend that the broader YKFP program be the subject of an organized 2-3 day site and program review within the next 2 years.

The general YKFP is a broad subbasin-wide supplementation project coupled with habitat improvements. The supplementation program (199506425 -YKFP Policy/Plan/Technical; 199701325 -YKFP O&M; 199506325 -YKFP M&E; 198812025 -YKFP Management, Data, Habitat) will be aimed at a brief list of primary focal species (e.g., spring/summer Chinook, spring steelhead, etc.) and is intended to be temporary while habitats are improved. Benefits to focal species will be answerable only in the context of whether supplementation, habitat, and harvest programs are beneficial to the salmon. Little information (insufficient) is provided as to the impacts or risks to non-target organisms. This will be answerable only in the context of whether supplementation impacts non-focal species.

As largely a supplementation and harvest augmentation project, we urge the various cooperating co-managers to work together to provide a compelling logic path or set of evidence that it is justified in terms of benefit to the targeted populations and subbasins. It would be appropriate in a single place to describe the role(s) and activities of the various participants to provide a universal view of YKFP. The primary benefit of the current M&E program will be the examination of ongoing projects. A single robust stock assessment (with trend) would seem a critical element that is missing (or at least not obvious).

We direct sponsors to the ISRP and ISAB report on the need and role for supplementation research, monitoring and evaluation, which concludes with the following statements.

“Monitoring and evaluation of supplementation projects is critically important. For the monitoring to be effective, a very rigorous design is needed, and the scale and logistics of implementation will carry costs that are significant. The scientific issues underlying the definitions of performance metrics and the necessary controls in the design are genuinely complicated. Some of the scientific tools for measuring performance are new, and involve a level of knowledge of population and molecular genetics which until recently has not been part of the standard fisheries curriculum.

The consequences of not conducting these studies and continuing to assume no deleterious impacts from supplementation, and being wrong, are much greater than short-term changes in salmon abundance. The natural populations that may be lost if supplementation actually decreases their fitness are irreplaceable. On the other hand, if supplementation proves an aid to natural population during distress, further application may be warranted. Both outcomes remain uncertain without adequate monitoring and evaluation, which will likewise guide best management practice and cost effectiveness.” (ISRP & ISAB 2005-15, Monitoring and Evaluation of Supplementation Projects)

We also direct sponsors to the ISAB's Supplementation Report (ISAB 2003-3) for further presentation on the general absence of supporting data for the approach.

Comments specific to this proposal:

This ongoing project provides primary funds for fishery management of the YKFP including management oversight, policy development, coordination and planning, administration and support, data management, review, and reporting of all aspects of the broader YKFP, especially the habitat improvement or restoration.

While larger than the YKFP Policy/Plan/Technical proposal, many of the work elements are identical or similar. Sponsors need to provide further explanation as to how these proposals and work elements differ or plug in together. The short description of this proposal indicates that it would focus on elements for the YKFP programs and projects.

Rationale and significance to subbasin plans and regional programs: As part of the broader YKFP the Management, Data, Habitat project (MDH), provides for major project management of the other project elements with other activities of the Yakima Nation and external parties. This project also provides primary funding for 8 full time and 10 part time professionals to execute the YKFP.

A key objective of the YKFP is to examine the efficacy of supplementation as an effective management tool in the subbasin (and basin-wide) while habitats are repaired or improved to provide for adequate natural production. This project more specifically focuses on habitat restoration and projects associated with the YKFP. See above general comments.

Relationships to other projects: The project is the MDH component of the broader YKFP. As such YKFP is a large agency size program. Linkages to other YKFP related projects was demonstrated, but there needs to be universal document that ties in all of the current and proposed contracts among the co-managers. There appears on the surface duplication of effort; this could be addressed by such a document and through site and program review.

Project history: The project's history was adequately described. As the specific project's objectives are not directly biological, much of the results or performance metrics are whether or not the YKFP is managed, coordinated, and administered. Biological objectives of the YKFP are more closely examined in context of the M&E project.

Objectives: A series of ten management, coordination, and administration related primary objectives are presented. These objectives are non-biological and aimed at broader program execution. The expected outcomes are clear.

Tasks (work elements) and methods: Methods are more related to business and program management as opposed to biological. As such there is no real science to review here, although review is possible for the broader program. There is opportunity to explicitly set up hypotheses

regarding habitat improvement. Some additional focus on how much actual on the ground habitat work will be completed would be welcomed.

Monitoring and evaluation: As the stated objectives are non-biological for this specific project, M&E are not amenable unless there is some actual habitat work being conducted (which is not obvious). As such, there is no real science to review here, although review is possible for the broader program.

Facilities, equipment, and personnel: This is an ongoing project (with indefinite anticipated time horizon). There are numerous production, rearing, and monitoring facilities associated with the broader YKFP. There are also a goodly number of staff (full-time = 8 or partial time = 10) to be dedicated to the project management including business and administrative staff. It is a little unclear as to who will be doing data work and habitat work. Also, no specific habitat projects are actually described. Again here, a document describing the whole YKFP and a program review would be of great help in determining the appropriateness.

Information transfer: Information transfer needs to occur for biological data (as well as coordination and planning) within the broader YKFP context.

199506325 - Yakima Klickitat Fisheries Project - Monitoring And Evaluation

Sponsor: Yakama Nation and WDFW

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$4,529,256 FY08: \$4,548,515 FY09: \$4,703,475

Short description: Umbrella proposal for monitoring and evaluation of natural production, harvest, ecological and genetic impacts for spring chinook, fall chinook, and coho fisheries enhancement projects in the Yakima Basin. M&E results guide adaptive management decisions.

Recommendation: Fundable (Qualified)

See the overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this M&E proposal.

Technical and scientific background: The M&E project is the omnibus scientific component (a large share) of the broader YKFP and is the most amenable to scientific review. This project essentially provides the rigor and measurement to test the basic assumptions of supplementation within the Yakima subbasin. The background treatment is actually a bit light, instead, referring to previous efforts, e.g., "The YKFP monitoring program is built on a foundation laid in a number of earlier projects. The general elements of a monitoring plan were first outlined in the YKFP's 1993 Project Status Report (BPA 1993)."

Rationale and significance to subbasin plans and regional programs: This project is the key tool for comprehensively measuring assumptions and strategies long in place within the Yakima

subbasin regarding supplementation and other programs. These are expressly detailed in the Yakima Subbasin Plan and need to be better articulated within the proposal.

Relationships to other projects: This project is the umbrella or omnibus M&E activity for the others in the Yakima subbasin by both the Yakima Nation and the WDFW. It is designed to address the basic assumptions underlying the YKFP with intensive and explicit examination of the subcomponents of supplementation (and presumably habitat restoration and other H's).

Project history: The project history is extensive. The table is quite data heavy. This proposal represents a major leap forward in the monitoring and evaluation of supplementation as a restoration and mitigation strategy within not only the Yakima subbasin, but basinwide. It addresses many of the key risks long assumed to be negligible with artificial production, as well as other critical variables (uncertainties). As such, the information generated will be highly relevant to future decisions as to ongoing efforts in the basin and subbasin.

Objectives: The list of measurable biological objectives is quite lengthy. There needs to be some thought to prioritizing these such that “measure everything” philosophy yields to “measure critical variables”. These critical variables must address the key decision points in a logic path or decision tree. Non-biological objectives overlap somewhat with other proposals (e.g., unclear as to how NEPA for this project differs from NEPA for O&M project, etc.). Ultimately, while some individual hypotheses may be addressed rapidly, the timeline to gather information on the broader question of whether supplementation is “contributing to” versus “detracting from” natural reproduction may require a few generations (i.e., 10-15 years).

Tasks (work elements) and methods: The methods are extensively and adequately described. The sponsors appear to have responded well to earlier comments/critiques/suggestions by ISRP (specifically) and ISAB (more generally re: supplementation). The M&E component of YKFP should address the appropriateness and soundness of assumptions. The techniques are largely appropriate for each of the tasks and include some references/controls, as well as involvement of statistical and design expertise.

Monitoring and evaluation: This is a monitoring and evaluation component to the broader program. We look forward to a site and program review with summarized data and results of various activities ongoing in the Subbasin.

Facilities, equipment, and personnel: There will be a large staff associated with these efforts (50+ fulltime and numerous part time/seasonal). The large staff is commensurate with scale and scope of the undertaking.

Information transfer: The described intent is to make data (raw) available through various institutional means throughout the basin as well as to provide annual reporting and periodic evaluation. There is intent to produce high quality and credible summary in peer-reviewed outlets. There is also a web site with up-to-date fish counts, links to reports, cartoons (not skewering the ISRP) and swimming fish.

199506425 - YKFP Policy/Plan/Technical

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$234,101 FY08: \$241,404 FY09: \$248,877

Short description: This project provides the policy and technical support for WDFW participation in the Yakima/Klickitat Fisheries Project.

Recommendation: Fundable (Qualified)

See overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this Policy/Plan/Technical (PPT) proposal:

A key question is why this is a separate project from the 198812025 (YKFP Management, Data, Habitat). The work elements appear to be very similar if not identical (even including "Manage and Administer YKFP Activities). Because this is the WDFW portion of the administration component, it is likely relying on another counterpart proposal for some explanation. This points to the general need to have a broader program description regardless of sponsor.

This project identifies its primary biological objective as "Achieve the quantitative objectives of the YKFP." The strategies identified as part of the Yakima Subbasin Plan are duplicative of other projects submitted for the YKFP. Although unclear for this specific project element, the project history was provided for the broader YKFP, which is extensive, particularly when viewing the long list of publications and reports. The objectives are listed but unclear how they differ from other broader project elements. Methods are more related to business and program management as opposed to biological. As such there is no real science to review here, although review is doable for the broader program. There is opportunity to explicitly set up hypotheses regarding habitat improvement. Some additional focus on how much actual on the ground habitat work will be completed would be welcomed. As the stated objectives are non-biological for this specific project, M&E are not amenable unless there is some actual habitat work being conducted (which is not obvious).

199701325 - Yakima/Klickitat Fisheries Project Operations and Maintenance

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$2,823,155 FY08: \$2,865,761 FY09: \$2,999,028

Short description: The O & M sub-proposal currently covers the following YKFP fish production and research facilities: the Cle Elum Supplementation and Research Facility (CESRF), the Prosser Fish Facility, and the Marion Drain Fish Facility.

Recommendation: Fundable (Qualified)

See overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this O&M proposal:

This O&M project is identified as a crucial component of the broad YKFP project which mitigates for the federal power projects by supplementing populations and improving habitats. The YKFP O&M project specifically addresses the operation of three facilities critical to the YKFP's supplementation experiment (Cle Elum Facility [CEF], Prosser Fish Facility [PFF], and Marion Drain Facility [MDF]). These facilities handle the bulk of work associated with brood collection and husbandry, incubation and rearing, and acclimation and release for fall and spring Chinook and Coho. As specifically focused on CESRF, PFF, and MDF this project identifies its role within the broader YKFP. However, the broader rationale and significance needs to be described beyond the need for ongoing facilities O&M. More specifically, why the facilities need to be kept going is crucial in terms of the realized or potentially realized benefits of artificial production and supplementation.

The project history was mostly a listing of dollars spent.

The objectives are very brief, but this is all about simply producing fish. Lost are the overarching objectives about restoring wild runs and minimizing risks to native fish. Most of the Methods for the work elements are straightforward. While the earlier disagreements about specific wording in regard to 2x2 factorial breeding designs have been addressed in this version, the ISRP remains generally skeptical about the ability of a broad supplementation program at restoring or even maintaining population viability. That M&E is directly integrated will help to dispel this skepticism if natural productivity is demonstrated as a result of the program.

As the stated objectives are non-biological for this specific project, M&E are not amenable unless there is some actual habitat work being conducted (which is not obvious). As such there is no real science to review here, although review is doable for the broader program. Information transfer needs to occur for biological data (as well as coordination and planning) within the broader YKFP context.

While the facilities and personnel are appropriately large-scale (21+ personnel) at three major (+ satellite) facilities, the timeframe to reach some decisional nexus is not well described.

200703000 - Determination of steelhead smolt production and smoltification genes in the Yakima River

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$172,950 FY08: \$219,400 FY09: \$201,720

Short description: This study focuses on the use of neutral and quantitative genetic markers to evaluate population specific smolt production in the Yakima River and smoltification potential of resident rainbow trout to contribute to recovery of steelhead populations.

Recommendation: Not fundable

This is a basic research project. As written, it is exploratory and descriptive; however, the project proposal is premature, not well-supported by regional planning documents like the Subbasin Plan, and does an inadequate review and presentation of existing scientific literature and thinking on the resident / anadromy issue in *O. mykiss*. The proposal is not set in a hypothesis-testing framework. It would be improved if written or constructed to test a specific hypothesis. There are a number of assumptions and premises that probably need to be addressed before funding should be made available.

For example, in the first objective, five stream populations will be characterized and then Prosser Dam smolts surveyed for likely source of origin. This presumes there are divergent and stable gene assemblages that describe the populations. No data or evidence was presented to support this presumption. Moreover, temporal stability of assemblages for a population is a fundamental requirement for populations to serve as adequate reference populations for GSI (GSA, or MSA). See literature on GSI and MSA.

In the second objective, the Sponsor indicates that ocean-running versus resident life history is highly plastic; i.e., an individual or populations, at least, can go either way depending on environmental cues or some genetic predisposition. This would be more a convincing thread of research from a stronger line of reasoning with specific data or results from earlier work; it is not obvious at all. At first blush, the search for a "smoltification" gene seems a needle-in-a-haystack search and not a viable research hypothesis. Why do sponsors contend such a gene(s) exist?

Technical and scientific background: A brief background was presented, without reference to the rich scientific literature on the subject of anadromy versus residence on this species and others (e.g., Thorpe 1989). Under objective 1, sponsors will find that partitioning of the smolt population into tributary populations to be highly variable year on year, and a function of several factors, but mainly spawner density (density dependent rearing) and production characteristics (e.g., flow, nutrients, frequency of catastrophic events, predators, competitors). Thus, several years of study may be required to ascertain average and variance in yield and capacity. Under objective 2, three tributaries may not yield sufficient information but form a reasonable pilot study on this topic. Expansion to several more tributaries, in and out of the Yakima basin may provide more useful information on the life history strategies and tactics. In Atlantic salmon, for example, resident and anadromous forms can occur in populations that are very productive and in populations inhabiting very cold waters and unproductive. In the former case juveniles smolt at an early age and males may mature early. In the later case smolt age is advanced and some males mature instream after several years. Distance from the sea may also play a factor. What are the hypotheses to be tested here?

Rationale and significance to subbasin plans and regional programs: While the project addresses a key problem in the Yakima Subbasin Plan, the sponsors do not build a compelling case as to how this research will address a key uncertainty in the biology of salmon. Ultimately, if the numerous assumptions pan out, the research might make a contribution to understanding of life history tactics in salmonids and the potential role of resident fish in rebuilding anadromous populations.

This section was perhaps too concise and failed to capture the important linkage with potential population re-building with resident fish, if that is what the question is here -- not clear.

Relationships to other projects: The sponsors relate this project superficially to several other projects associated with kelt reconditioning and reproductive success. Ultimately, there is no explanation why this is important to other projects and efforts.

Objectives: Objectives and methods are briefly explained. It is not clear why kelts will be sampled in objective 1, and the accuracy of the smolt count at Prosser dam should be addressed, as well as presentation of the smolt data.

Tasks (work elements) and methods: The molecular and analytical methods for the first objective are relatively straightforward. The methods to address the second objective are a little more problematic. Without some analogous data for other species, this approach may have a limited likelihood for success.

Monitoring and evaluation: This is an exploratory research project from which future M&E may become possible for other projects.

Facilities, equipment, and personnel: Facilities and equipment are apparently available. The primary submitter is a late-stage Ph.D. candidate, who will likely finish; however, his record of independence and delivery absent the graduate program supervisor is unclear.

Information transfer is mostly through annual reporting (presume professional societies and publication as well -- not spelled out though).

200201400 - Sunnyside Wildlife Mitigation

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$375,540 FY08: \$363,884 FY09: \$316,590

Short description: Maintain funding for ongoing O&M and enhancement of floodplain and shrub-steppe focal habitats on the Sunnyside Wildlife Area. These subbasin plan priorities will partially meet BPA's Columbia River mitigation obligations.

Recommendation: Response requested

This proposal meets the ISRP review criteria and benefits wildlife. The ISRP, however, requests a response to the following comments before the ISRP makes its final recommendation.

1) The ISRP would like to see the details of how sites being restored will be monitored (techniques, measurements) so that restoration efforts can be evaluated and assessed.

2) A project to drain and dredge part of the lake in 2001 did not reach fruition due to “logistical issues and inadequate funds.” The ISRP would like to know more about the logistical issues that limited action in 2001 and how these will be addressed now to ensure that funding is well spent.

The ISRP applauds the work in multiple habitats--wetlands, riparian, and uplands.

200600400 - Wenas Wildlife Area O&M

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$482,857 FY08: \$529,755 FY09: \$533,300

Short description: Provide and enhance riparian and shrub-steppe habitats for focal species as partial mitigation for the habitat losses associated with the construction and inundation of the Grand Coulee, McNary and John Day hydroelectric dams.

Recommendation: Response requested

This proposal meets the ISRP review criteria and benefits wildlife. The ISRP, however, requests a response to the following comments to improve the project before the ISRP makes its final recommendation.

1) Acquisition of the perpetual timber rights on the WWA would allow management towards this large diameter open stand habitat type: what is the status of this effort? Is there precedence for these types of arrangements in this area? How many landowners have been contacted, and what has been their response?

2) The project needs a much fuller explanation of past monitoring actions (how, what, when, where) and a discussion of how monitoring will be used to evaluate progress towards objectives.

199200900 - Yakima Phase II/Huntsville Screen Operation & Maintenance

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$177,011 FY08: \$182,322 FY09: \$187,792

Short description: Continue to provide operation and maintenance to BPA's Phase II Fish Screen Facilities to ensure they provide maximum protection to all species and life stages of fish. This O&M function will include the addition of the Manastash basin facilities

Recommendation: Fundable

This ongoing project is necessary to protect the investment already made in screens to benefit fish. There is clearly an identified need to operate fish screens to avoid mortality from diversions. The review of the problem and references gives adequate technical background but could be improved by giving reviewers some details on many fish and what species are being saved from entrainment by the screening program. The information collected by the program, as it is currently set up, is not biological. This information is clearly essential to monitor the success/failure of the program.

It is not clear that the level of activity proposed in this project is optimal or if more or less activity would provide enhanced protection to all species and life stages of fish. The proposal would be strengthened if justification were provided for the level of effort identified.

In a previous review the ISRP requested a table of work to date by location. This is not included in this year's proposal or narrative. The proposal lists new screens by year but the proponents should provide such a table in the future, as it would be a valuable check on effort expended and required.

199206200 - Yakama Nation - Riparian/Wetlands Restoration

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,575,163 FY08: \$1,623,313 FY09: \$1,673,842

Short description: Continue implementation on YN Wetlands/Riparian Restoration Project by protecting and restoring native floodplain habitats along anadromous fish-bearing waterways in the agricultural area of the Yakama Reservation (~2,000 acres per year).

Recommendation: Response requested

This is an important project and the habitat conservation goals in some critical areas of the Yakima basin are being achieved. What is missing is evidence of a strong biological monitoring component. The proposal states that their website will be updated in FY 07 to include all the biological monitoring results, but reviewers would benefit from an interim product which covers 1992-2005. Seven years of data might reveal trends to determine if the restoration is working. A synthesis should be provided in summary form in a response to show benefits to focal species.

199405900 - Yakima Basin Environmental Education Program

Sponsor: Eco-Northwest

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$177,000 FY08: \$177,000 FY09: \$177,000

Short description: Educate teachers, students, and public about local watershed natural resources and involve them in positive action projects.

Recommendation: Fundable

This is a popular long-standing project with apparently good community buy-in. In-kind confirmed cost-share exceeds the BPA requested budget. There is a definite need for salmon-focused environmental education such as this in the Columbia Basin and other places in the Pacific Northwest that effect the Basin. The narrative states the biological objective "to help educate the public concerning fish and wildlife restoration, the importance of fish and wildlife to various segments of society, basic ecological process, and related subjects." The proposal would be improved by including more clearly defined measures of "helping educate" and provision of a perspective on how other educational processes in other places are contributing (e.g., a class in Seattle that learns about pollutants carried across the Cascades into the Yakima system). The project's website was well done and an asset to the program.

The surveys of teacher satisfaction provides one measure of effectiveness. Other evidence of project effectiveness should be developed and reported. It appears from previous ISRP reviews that the question of measuring effectiveness was raised earlier. The current proposal does not show a resolution of the problem and does not advance alternative approaches to performance measures. According to the proponent's narrative, the net result (of this project) is improved understanding of fish and wildlife restoration and management in the Yakima Basin. Measures to assess if this statement is correct or not need to be incorporated in the proposal. Numbers of teachers trained, student visitations, etc. alone are not sufficient.

Future proposals would be improved if they include a more systematic approach and documentation of what works and what doesn't. This was also an earlier ISRP comment.

199503300 - O&M Yakima Basin Fish Screens

Sponsor: Bureau of Reclamation

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$95,480 FY08: \$98,350 FY09: \$101,300

Short description: This proposal provides for continuation of funding for the existing comprehensive operation & maintenance program by the USBR of BPA owned Yakima Phase II fish screening and trapping facilities.

Recommendation: Fundable

This proposal would continue O & M on Yakima basin screens, clearly an essential, routine component of the process. The proponents seem to have shown consistent improvement over the history of the project and have a track record of success and monitoring. Proposal 198506200 provides monitoring data using up-to-date technology for the performance of the screens. "A thorough review of O&M activities at one-fourth of all sites each year" is the target for the program. More rationale is needed to support the 25% sample rate as well as information on how the sites are chosen. It is possible that some problem sites are going unattended until it is their turn in the cycle?

199603501 - Yakama Reservation Watersheds Project

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,074,742 FY08: \$1,140,151 FY09: \$1,211,446

Short description: The YRWP works to restore natural function to the Satus, Toppenish and Ahtanum Watersheds. Our restoration and monitoring efforts take a comprehensive approach to the restoration of habitat for fisheries resources including steelhead and bull trout.

Recommendation: Fundable

This ongoing project is very well described in the proposal. The sponsors are to be commended for the organization and presentation of the past and proposed work. A good qualitative summary of past results and actions with some data on fish abundance/trends based on snorkel surveys and redd counts is presented. Staff are to be commended for their insight, and their patient but

assertive approach. However, they are dealing with some fairly sophisticated rehabilitation on a large scale, the results of which should be further evaluated, summarized, and reported in peer reviewed literature such as Restoration Ecology.

199705100 - Yakima Basin Side Channels

Sponsor: Yakama Nation -YKFP

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,050,000 FY08: \$1,050,000 FY09: \$1,050,000

Short description: The Yakima Side Channels project strives to protect the most productive alluvial floodplains through acquisition. The upper watershed is experiencing unprecedented residential growth which threatens to seriously degrade watershed productivity.

Recommendation: Fundable

This project focuses on how the Yakima Side Channels project will complete protection of approximately 1,024 acres of high quality salmonid habitat using conservation easements and acquisition as the conservation tools. The sponsors have a history of success in this important effort.

The project history is well described. Principles that have guided project direction are clearly listed. The potential benefits to fish are clearly identified. Monitoring programs are in place by other agencies. It is not clear from this proposal where the data and meta data are stored. The responsibility for conveying results pertaining to fish seems to reside with others, but this is not well explained.

The protocol for land acquisition is described and seems reasonable, but no effort to tie the acquisition directly to fish/wildlife populations is provided. Evidence that upstream effects have been considered in prioritizing purchases should be more clearly provided in the future. The proposal would be strengthened if measurable objectives were presented in more detail rather than in general statements about recovery from impacts and land acquisition metrics.

Proposed information transfer is limited to communication with resource agencies, land trusts and other interested parties. It would be beneficial if successes and lessons learned concerning effective acquisition strategies could be shared with others in the region involved with protection of salmonid habitat.

200201800 - Tapteal Greenway Riparian Corridor Enhancement, Protection and Education Outreach--Phase II (Tapteal Bend and Horn Rapids)

Sponsor: Sunday & Associates, Inc for NPO Tapteal Greenway Association

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$300,813 FY08: \$43,785 FY09: \$43,785

Short description: Continued riparian restoration & erosion control and native tree plantings for shoreline enhancement and sources of LWD, continued salmon life cycle education for schools, and critical habitat purchase, conservation easements and research site monitoring.

Recommendation: Fundable (Qualified)

The proposed work in this highly visible location has the potential to impact future habitat enhancement efforts. This is essentially an oasis next to a relatively degraded area. The education outreach efforts should be applauded. There certainly is value as a demonstration area and Yakama fish stocks pass through this area.

The restoration of degraded habitat in urban areas is clearly an issue in the Yakima basin and elsewhere in the Columbia River Basin. The proposal gives thorough background and explains how the work would improve habitat. The proposal indicates association with the Yakima subbasin plan and high priority objectives. The relationship of this ongoing project with other projects in the lower Yakima is clearly described. Collaboration with other local government and school entities is a strong part of this project. The work is put in context of a myriad of agencies and groups and includes substantial collaboration with government and non-government organizations. Benefits would primarily be educational rather than to fish and wildlife.

The project history section of the proposal describes the original need and identifies tasks completed during the previous phase. Not all objectives were met, such as land purchase, so this element is included in this proposal. Past biological monitoring is not clearly described nor reported. Educational benefits are reported in terms of students involved rather than impact (presumably to maintain and foster a conservation ethic in this urban area).

In future reports the sponsors should identify monitoring efforts in more detail so success of the project can be documented. Reports should include more than number of feet of shoreline restored and trees planted but should also document tree survival, the effect of weed removal activities, baseline water temperature and temperature changes, etc. Methods are based on basic stream restoration principles but do not explicitly recognize that bioengineered solutions will require long-term maintenance. The project seems to rely on monitoring of some results (e.g., water quality) by citizens, students, and volunteers. The monitoring objective would be improved if it clearly identified what monitoring will be done, where, why, and how. Effort will be needed to maintain QA/QC of results and the proponents should have explained how they plan on doing this.

More details regarding information transfer should be provided. The method of transfer mentioned: "The resulting project data and information will be shared on-line (include hosting

website address), via surface mail and through verbal information transfers, presentations where required and media distribution." is too vague to evaluate. More details concerning information transfer should have been provided. Note: This is a three-year project scheduled to terminate in FY09.

200202501 - Yakima Tributary Access & Habitat Program

Sponsor: South Central Washington Resource Conservation and Development

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,008,500 FY08: \$1,054,300 FY09: \$1,105,000

Short description: The Yakima Tributary Access and Habitat Program intends to: a) screen diversion structures; b) provide for fish passage at man-made barriers; c) assist landowners improve stream habitat; and, d) coordinate the acquisition of riparian buffer easements.

Recommendation: Response requested

This project is in its early years and has the potential to produce some valuable information to guide further projects. The sponsors provide a good summary of passage work. However, there is no effort made in the proposal to translate the structural changes being made in these tributaries into biologic changes. The sponsors should provide the ISRP with biologically meaningful monitoring protocols of at least a subsample of the restoration program. This information might come from other projects such as the Yakama Nation's monitoring program, but this needs to be spelled out.

The project proposal does not contain an adequate description of benefits to fish populations; those should be summarized in the response.

200300100 - Manastash Creek Passage & Screening

Sponsor: Kittitas County Conservation District

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,181,220 FY08: \$492,290 FY09: \$445,190

Short description: The Manastash Creek Project will provide fish passage, diversion screening and seek instream flow to support fish recovery in the Yakima Basin. This proposal is for Phase 1: screening/passage. Phase 2: instream flow will be a second proposal.

Recommendation: Response requested

The proposal is well written and proposes to extend the scope of ongoing work. A response is needed regarding (a) benefits to fish, (b) fish monitoring and evaluation, and (c) the relationship to proposal 200702000 before the ISRP can make a final recommendation.

(a) Please provide a brief summary of current use of the project area by steelhead and resident trout species. What specific benefits for them are anticipated as a result of this project?

(b) There is inadequate mention of monitoring and evaluation. It is not likely that project personnel would provide the M&E but they should describe coverage from other projects or

agencies. The proponents should be thinking about baseline biological studies to measure project effectiveness.

(c) This proposal is directly related to the currently considered proposal 200702000 to increase flow, which would complement the screening work. To what extent do achieving substantial benefits to fish depend upon both issues (screening and flow enhancement) being addressed?

200702000 - Manastash Instream Flow Enhancement

Sponsor: Kittitas County Conservation District

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$529,950 FY08: \$666,195 FY09: \$496,750

Short description: This proposal seeks to enhance instream flow by working with water users to implement irrigation conveyance and on farm water use efficiency projects, to trust water to the creek and investigate diversion timing to assist steelhead migration.

Recommendation: Response requested

There are not enough details in the proposal to adequately justify the actions. At the very least, the proposal needs to describe approximately how much water will be conserved, and what, specifically, the benefits to fish and other aquatic resources will be. The proposal is aligned with the subbasin plan and addresses a critical habitat issue in a location that is significant to a listed Evolutionary Significant Unit (ESU). The response should include more justification for the project, and the monitoring component should be more fully described. The pulse flow concept should be approached as a testable hypothesis and an experiment designed to assess its effectiveness.

If this project were to be funded with the objective of improving flow for mid-Columbia steelhead then water saved by conservation measures should actually be trusted to instream flow, not considered for trusting to instream flow. The response should contain assurance that the water saved will be reserved for instream flows and not revert to others with junior water rights. The description of potential benefits for steelhead should include additional details about upstream habitat. Some specific information on the miles of upstream habitat made available with the improved flow, the quality of this habitat, and any plans to enhance or restore upstream habitat should be included.

As the primary purpose of augmenting flow is to increase upstream passage of steelhead, the number of adult steelhead reaching the upper watershed should be monitored. Water quality parameters may be influenced by the flow changes and can affect passage of fish; therefore, there should be some water quality monitoring. There also should be an experiment designed to assess the utility of the pulse flows for passing fish.

This proposal was a companion proposal to project 200300100 - a diversion screening project for the same area. To what extent do achieving substantial benefits to fish depend upon both issues (screening and flow enhancement) being addressed?

200707000 - Fish Passage Facility Final Design and Construction - Clear Lake Dam (NF Tieton R.)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$0 FY08: \$0 FY09: \$1,930,000

Short description: Complete value engineering study, final design, acquire environmental permits and construct a fish ladder and temperature control curtain at Clear Lake Dam; restore habitat diversity, productivity, and extend the range of bull trout. Cost share with USBR.

Recommendation: Response requested

If done, this project will open up 14 miles of potentially good habitat for bull trout in the upper North Fork Tieton River and in Clear Creek and should be highly beneficial to the bull trout population in the affected area.

The one factor potentially reducing the effectiveness of the project is the difficulty of implementing measures to control brook trout. The failure to reduce or eradicate brook trout from the areas made accessible by the ladder may negate some of the project benefits. Efforts to address this problem prior to completion of the ladder should be continued.

A mention that other resident trout species and mountain whitefish may benefit from the ladder was made, but no information was presented to indicate the extent to which these populations would benefit from the project.

This proposal requests no funding in 2007 and 2008, and then in 2009, requests \$1,930,000 for construction of a fish ladder and temperature control curtain. The proponents need to provide some details regarding the designs of the fish ladder and temperature control curtain for justification.

A response is also requested to summarize the pre-design report (BOR 2005a and 2005b) with specific details of the fish ladder and temperature curtain. It's hard to visualize the design of the temperature curtain and whether it would be effective. The response should provide illustrations and/or better descriptions.

A response should also describe plans for bull trout population M&E of ladder and habitat use.

Other comments:

Technical and scientific background: The background information for this proposal is very complete. A significant amount of pre-project investigation has been conducted. The problem regarding the barrier (Clear Lake Dam) for bull trout access to 14 miles of high quality habitat is adequately identified, and the current status of bull trout population which may benefit by this project if implemented, is described in detail and the proposal provides a convincing rationale for reconnecting the very small headwater population with the population that resides below the dam.

The risk from hybridization with brook trout is briefly mentioned, but some additional assessment of brook trout / bull trout interactions in the North Fork Tieton drainage is the only information lacking. The authors acknowledged this deficiency.

Rationale and significance to subbasin plans and regional programs: This section was also well documented, with references to the importance of providing adequate fish passage to federal bull trout recovery plans and tribal fisheries and habitat improvement plans: Bull Trout Recovery Plan (USFWS 2002), Yakima Subbasin Recovery Plan (2005), and the Yakima Subbasin Plan (2004).

Relationships to other projects: The proposal states that there are no other related projects, yet it seems that any habitat improvement projects in the upper Tieton watershed that would benefit bull trout (e.g., road decommissioning, in-stream habitat restoration, or reduction of recreational impacts to riparian areas) ought to be mentioned. Earlier, the proposal simply states that the upper watershed is in good condition, but much of this area is not designated wilderness, and there are surely a variety of human impacts. If almost \$3 million is to be spent on a functional fish ladder at Clear Lake Dam, a more detailed description of the upper watershed and other projects that lessen anthropogenic impacts on bull trout is needed.

Objectives: The biological objectives are explicit, quantitative, and tied to the Yakima Subbasin Recovery Plan. The timeline for completing this task, from Section 7 of the summary pages, is 2008-2009. Part of the biological objectives include a controversial brook trout removal effort for which funding is apparently not requested. Some of the material in the beginning of the proposal should have been shifted to this section in order to better understand the objectives.

Tasks (work elements) and methods: No methods were described.

Monitoring and evaluation: The population status of bull trout will be determined by redd surveys and snorkel surveys annually, post project completion. The proposal provided no detail of what criteria that the project would need to meet to reach passage objectives.

Facilities, equipment, and personnel: According to the proposal, the Bureau of Reclamation will provide office space for project management, the fish ladder construction itself will be contracted out, and the project will be overseen by WDFW. The project personnel appear well qualified.

Information transfer: The form indicates that project results will be shared with interested agencies and through conferences and in written form.

200707900 - Salmon & Steelhead Habitat Restoration and Protection in the Yakima Basin

Sponsor: Mid-Columbia Fisheries Enhancement Group

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$78,000 FY08: \$184,400 FY09: \$185,100

Short description: Implement a non-regulatory, basin-wide effort to involve landowners in restoration and protection projects in priority areas identified in Yakima Subbasin Plan. Work includes riparian planting, fencing, fish passage, and instream habitat improvements.

Recommendation: Not fundable

This proposal does not sufficiently describe how it would coordinate with other ongoing projects in the basin that are doing similar work, and there are no specifics on what projects would be implemented. In addition, the out-year activities and budget for the project are not adequately justified. The prioritizations from the subbasin plan are very general, and there is inadequate mention of the supplementation project. There are several organizations in the Yakima Subbasin that are currently prioritizing and implementing restoration projects. The establishment of another entity with similar responsibilities would seem to result in an unnecessary duplication of some administrative functions.

The ISRP questions why the prioritization and project development functions proposed here couldn't be handled by an existing organization, such as the Yakima Basin Fish and Wildlife Recovery Board? A better case should have been made to explain the gap that this new program would fill. Also, a detailed description of how this new program would coordinate with existing efforts and how restoration responsibilities would be allocated among the organizations should have been included.

200711200 - Teanaway Watershed - Protect critical habitat from development, reduce water temperatures and increase instream flows, restore habitat forming processes in the floodplain

Sponsor: Kittitas Conservation Trust

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$828,000 FY08: \$724,000 FY09: \$492,000

Short description: Teanaway watershed supports viable salmonid populations with complex spatial structure and diversity. Maximizing abundance and productivity of focal species requires protecting critical habitat, augmenting instream flows, & restoring floodplain functions.

Recommendation: Fundable (Qualified)

The project proposes to enlarge a system of floodplain protection along the North Fork Teanaway River. This is a worthy goal that is likely to benefit many species, especially if the alternative is urban development. The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

The proposal makes a generally good case for funding the conservation easement, but it is weak on details of the riparian, instream, and cattle exclusion work, and monitoring seemed to be mentioned primarily as an afterthought. Objectives were concisely stated in outline format, but with little additional explanation. Inclusion of timelines would have been very helpful (all the tasks seemed very open-ended). Although the list of steps involved in completing each work element was logical, who would accomplish each of these steps was not clear.

Setting aside the administrative and planning methods involved in securing the conservation easement and acquiring water rights, which will depend on local contacts and interest, there was insufficient description of the methods used to implement the restoration work. At least a few details would have been helpful, e.g., would native vegetation be used for riparian revegetation work? What would the instream structures look like and where would they be placed? How many cowboys would be needed to keep the cattle out of the stream and riparian areas and when would they be used?

The only places monitoring was mentioned was in regard to the riparian re-vegetation work and the effectiveness of off-channel watering facilities. Overall, monitoring did not appear to have been given high priority; there is no discussion of who would do the monitoring or how long it would be done.

Although the ISRP does not base its recommendations on budget issues, the budget request for some of the tasks seem high relative to the type of work involved. There are a number of work elements that seem to be much more costly than similar activities in other proposals. For example, providing for public access to the site is budgeted at \$42,000, cattle control is \$90,000, and the administrative cost for the easement is \$164,000. There is nothing in the proposal that explained why these costs are so high. If there is a justification, it should be provided.

200711300 - Cowiche Restoration and Protection Project (Easement/Fee Simple Acquisition)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$300,000 FY08: \$0 FY09: \$0

Short description: The goal of this project is to protect stream and riparian habitat, and floodplain functions along the Cowiche Creek. The project will acquire conservation easements protecting more than five miles of critical, high quality, steelhead and coho habitat.

Recommendation: Fundable

This proposal requests the majority of its funding for the acquisition of the conservation easement in 2007. This project is an important component of the effort to restore the Cowiche watershed. A combination of factors support funding: the area where the easements will be secured is a location where subdivision and more intensive land-use seems likely to occur, and this site is significant for the focal species. The project is one of the few easement/acquisition plans that has a strong biological justification.

Long-term benefits from the conservation easement should be significant for spring chinook, steelhead, and coho, if development is prohibited/deterred for a long time. The establishment of riparian reserves at the project site should offer positive benefits to riparian wildlife. Non-focal aquatic species also should benefit from the added habitat protection. There should be no negative impacts.

Monitoring is going to be done by others, but it appears adequate. Coordination with other efforts downstream looks good because several recently completed downstream projects have removed almost all of the passage obstructions.

Other Comments:

Technical and scientific background: The background information and description of the problem is fully described. The risk of subdivision of the project property and the consequent degradation of habitat quality would be unfortunate given the amount of effort that has gone into improving access for anadromous fishes to this watershed. This section of the proposal does a very good job in describing how this project/land acquisition in Cowiche Creek will fit in with other closely linked projects to help in the restoration and protection of high priority habitat for spring chinook, steelhead, and coho. Documentation is generally good but could be improved by describing the status of non-target focal species -- bull trout, westslope cutthroat, and coho -- that this project would impact, and documenting the current condition of the riparian zone in the area in question (and will it require a substantial restoration effort).

Rationale and significance to subbasin plans and regional programs: This project is closely linked to the Yakima Subbasin Plan and the Yakima Subbasin Salmon Recovery Plan objectives as indicated in the Background section (even though it doesn't do this in this section).

Relationships to other projects: The relationship to other projects in the Cowiche watershed are fully described and the degree of coordination among these efforts is impressive.

Objectives: The objectives are appropriate, and the rationale for attempting to achieve the primary objective (habitat protection) at this site is well substantiated.

Timelines are not given, but the budget section only requests funding for FY2007, so the easement would have to occur in the next fiscal year.

Tasks (work elements) and methods: The work elements are fairly simple and involve establishing the value of the easement or land purchase and negotiation with the landowner. The work elements are appropriate for the objective.

Monitoring and evaluation: The evaluation of project effectiveness will be included in a watershed-scale assessment. The fact that adult steelhead entering the watershed and smolts leaving are being monitored should provide a very good indication of the cumulative effect of all the projects being implemented in the watershed on this species. There is no indication that the

secondary focal species (coho, bull trout and cutthroat) will be monitored. Given that this effort is part of an integrated attempt to restore the watershed, these species also should be considered in the monitoring effort. There is no mention of habitat or water quality monitoring. More detail on the monitoring program would be required to fully assess the adequacy of the effort.

Facilities, equipment, and personnel appear to be appropriate, although no resumes for project PIs are provided.

Information transfer: There is a formal presentation "How to Restore a tributary watershed" to be made to Yakima F&W Board, local community, etc., to describe the Cowiche restoration effort. This should be a good tool for public outreach. Some of the monitoring work should be communicated through traditional scientific channels. There is no mention of this in the proposal.

200711800 - Protect & Restore Anadromous Fish Habitat in Little Naches River Watershed

Sponsor: US Forest Service (USFS) - Wenatchee National Forest

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$30,000 FY08: \$130,000 FY09: \$5,155,000

Short description: Purchase 2560 acres of Plum Creek Timber Company holdings in the Little Naches drainage to protect key spawning reaches of steelhead and salmon under federal management. Restore riparian habitat in Little Naches watershed.

Recommendation: Not fundable

This is a two-paragraph proposal to acquire 2560 acres of Plum Creek land with about 5.5 miles of streams. The narrative is incomplete, with only the section on Personnel being filled out, so there is insufficient information to evaluate it. The form provides some useful information, but even though this is primarily a simple land purchase, there needs to be some real background, justification, and estimates of potential benefits provided. Sponsors are directed to proposal 200719400 as a model proposal for a similar such land acquisition proposal in which the background and justification for the purchase is well done.

200719400 - Oak Flats Acquisition and Habitat Enhancement

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$620,800 FY08: \$23,500 FY09: \$7,770

Short description: Acquire a 357 acre multi-parcel site on the Naches River to protect from rural development and enhance 3.0 miles of streamside riparian habitat. Site supports Chinook salmon and Federally threatened mid-Columbia summer steelhead and bull trout.

Recommendation: Response requested

This is both a simple acquisition of land on the middle reaches of the Naches River, plus a riparian habitat restoration effort (3.0 miles of riparian and floodplain habitat) to remove

containment dikes, open side channels, plant vegetation (ponderosa pine and black cottonwood), and modify an unused diversion dam. The administrative form has far more pertinent data regarding the objectives, work elements, and methods than the narrative, which is very weak in describing these key elements of the proposal. A response is requested to include the information from the administration portion of the form in the narrative portion of the proposal.

The acquisition appears justified, but the restoration work is not adequately described. A response should also better describe the justification for the benefits of restoration work to fish and wildlife and the methods to be used. Also, a response is needed to better define project monitoring and evaluation. This may be done outside this project by others, but links to those other projects, conducting the monitoring, are needed.

Other comments:

Technical and scientific background: The technical background does an adequate job of describing habitat conditions at the Oak Flats site (the photographs were appreciated). Focal species using this area were mentioned but their current population status could have been better summarized. The proposal states that this is the last best chance to protect one of the last unprotected reaches of the Naches River system, and it would have been helpful to display on the map where other protected reaches were located so the spatial context of the project would have been clearer.

A good case is also made for several habitat restoration actions (i.e. restore access to side channels, restore viable ponderosa pine and cottonwood populations, remove parts of old diversion dam, and increase instream flow). The current habitat problems are clearly described.

Rationale and significance to subbasin plans and regional programs: The Yakima Subbasin Plan and an Oak Creeks Management Plan are referred to, but the relationship of this project to the priorities in these plans is poorly described. The subbasin plan does indicate that protection of riparian habitat is an important objective and that some reaches on the Naches River fall into a high priority category for restoration/protection based on the EDT analysis. However, it cannot be determined from the proposal whether or not this project falls into one of the high priority reaches on the Naches.

Relationships to other projects: A list of projects occurring in the vicinity of this project (and some not so close to the project location) is provided. The connection between these other projects and this project is not described in the narrative but is well done on the administrative form. A useful comment is made that this site would link WDFW wildlife areas north and south of the Naches River. This is an important consideration for wildlife habitat connectivity.

Objectives: In the narrative, the proposal has just a short list of objectives, but the administrative form has good detail regarding each specific objective giving clearly defined habitat improvements.

Tasks (work elements) and methods: There are one-sentence statements of work elements in Section 7 on the administrative form, but no details about habitat improvement methods were provided in the project narrative. The feasibility and biological potential of these efforts cannot be judged without considerably more information.

Monitoring and evaluation: The budget request in the administrative form actually includes "environmental survey" and "population monitoring" items, but no details are given in the narrative, and monitoring is not mentioned.

Facilities, equipment, and personnel appear to be adequate.

Information transfer: There is a brief mention of project data being available on the WDFW website. However, it is not clear what type of data will be collected at the project site. Interpretive signs will be installed at the site. No indication of other mechanisms of public education or transfer of scientific information through more traditional channels.

Benefits to focal and non-focal species: The project may provide some significant long-term benefits to spring chinook, steelhead, and bull trout by protection from development and several habitat restoration activities. However, the extent of this benefit cannot be determined from the information included in the proposal.

There should be no negative effect on non-focal species and riparian wildlife species should benefit.

200724100 - Well modifications to improve aquatic habitat for Toppenish/Simcoe Creeks

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,120,727 FY08: \$100,000 FY09: \$40,695

Short description: Well construction in the vicinity of Toppenish/Simcoe Creeks has resulted in the drainage of shallow groundwater to deeper "thief" zones. Modification of selected basalt wells in the region could restore groundwater levels and improve aquatic habitat.

Recommendation: Not fundable

This proposal does not clearly indicate that the reason for the lack of surface flow at the mouth of Toppenish Creek is due to leakage of shallow groundwater to deeper aquifer layers around poorly grouted well casings. Better evidence is needed that this is actually the cause of the problem. This proposal may be addressing an important issue, but there is not enough known about the nature and extent of the problem to launch into an expensive fix. Although plausible, leakage around well casings is conjectural, based primarily on experience in Arizona. An appropriate course for the authors would be to develop a proposal to better understand the problem (how much water is being lost, which wells are the most significant, which wells don't matter, etc.) and then, assuming the leakage is significant, submit a follow-up proposal to correct the wells causing the problem.

Technical and scientific background: The biological justification and benefits could have been more clearly explained. Specific details of how the project will benefit the focal species, Mid Columbia steelhead and spring chinook, should be presented.

Rationale and significance to subbasin plans and regional programs: The Yakima Subbasin Plan (SBP) is referred to generally as stating that Toppenish and Simcoe creeks are identified as currently used steelhead habitat and historically used habitat for spring Chinook, but there is not a clear link made to any specific objectives in the plan to improve groundwater flow conditions for steelhead or spring chinook habitat in these creeks. Other programs and plans were not mentioned.

Relationships to other projects: This proposal does a good job of describing its relationships to other projects. A detailed list of related BPA projects is given in the form plus a good description of how each relates to this project.

Objectives: Objectives and work elements are presented as a detailed list in outline form, which was not easy to read. The objectives are not stated in terms of benefits to target species of fish and wildlife except in a general way ("The proposed project is designed to increase groundwater discharge to Toppenish and Simcoe Creek. It is presumed that the increased groundwater discharge will improve habitat by moderating stream temperatures and providing nutrients."). No measurable benefits are predicted for the species of interest, and this objective cannot be tied to any specific strategy/action listed in the SBP for these creeks.

The flow objectives are not fully stated. How much additional flow can be expected? How much water is currently lost around the leaky wells? The lack of specific flow objectives is due to the fact that the importance of the problem this proposal is intended to correct is not well understood.

Methods: This proposal appears to be very weak in this area. Descriptions of methods were not provided. This section of the proposal had the appearance of a budget summary, not an explanation of how the work would be done. In part 10B.3 of the background section, some information on procedures for the well modifications are provided. But this information is not complete enough to judge the adequacy of the approach.

A greater problem is that there is no information presented that indicates that leakage around the well casings is actually the cause of the flow problem in the creek. Rather than attempting to regROUT every well in the White Swan area, it would seem prudent to first identify how much shallow ground water is actually being lost around wells and which of the wells are the major culprits. It may be that the elimination of leakage at a few key wells may substantially correct the problem. Until some basic information on the extent and nature of this problem has been collected, applying the proposed corrective measures is not appropriate.

Monitoring and evaluation: There is some monitoring work proposed for flow in the channel, groundwater monitoring, some water quality evaluation and weather monitoring, pre and post project. Few details were provided about these monitoring efforts. The length of pre-project monitoring (a few months) may not be sufficient to assess response to the proposed treatment.

M&E work to better define the problem needs to be done before implementing a corrective treatment.

Facilities, equipment, and personnel: Contractors will do most of the sealing work. Project administration and technical support seems reasonable for the job.

Information transfer: Only progress reports are mentioned. There was no description of data management.

Benefits to focal and non-focal species: Given the issue with failure to fully define the nature and extent of the problem, it is difficult to determine what the impact on the focal species might be. If the problem hypothesized in the proposal is the cause of the lack of flow in the creek and if the proposed solution is effective and future wells are installed properly, the benefits to the focal species should be significant and long lasting. Nonetheless, without a better definition of the problem, the likelihood of success cannot be estimated. This proposal did not discuss non-focal species. Nonetheless, given the concerns expressed above, any claims regarding the response of non-target species would be very speculative.

200725900 - Wilson Creek Relocation and Rehabilitation

Sponsor: Central Washington University

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$2,725,000 FY08: \$0 FY09: \$0

Short description: The project would daylight and rehabilitate Wilson Creek to increase the creek's habitat value for anadromous and resident fish, waterfowl, and other riparian plants and wildlife, and control flooding to reduce strain on the Creek.

Recommendation: Not fundable

This project is not fundable under the Fish and Wildlife Program (FWP). The proposal is to fund construction of an engineered channel approximately 1,300 ft. long by relocating part of Wilson Creek that runs under a campus parking lot. It is possible that native species could benefit from this work, but more information about access for salmonids to the site and what else is being done in the watershed to assure long-term improvements are really necessary before this project can be considered for BPA funding as part of the F&W Program. The project is very expensive (\$2.7 million to restore only 0.25 mi of creek) and appears more as a landscaping project than a legitimate fisheries enhancement project.

There is a fundamental question raised by this project that should be addressed at a basin level. Restoration of severely degraded systems, like Wilson Creek, tends to be extremely expensive for the biological benefit obtained. Spending the money required to restore such a system on

watersheds with much lower levels of human impact would have much greater benefits to the species of interest in the Columbia Basin. These "urban stream: projects do have value from an educational standpoint but if this is the goal of these projects, this should be identified as a primary objective.

Technical and scientific background: The proposal is presented as though this project will benefit native salmonids; however, no data are presented to indicate what fish species (if any) currently inhabit Wilson Creek. Steelhead and bull trout, in particular, are mentioned, but the nearest steelhead sightings in Wilson Creek were about 10 miles downstream and the channel apparently contains numerous migration barriers between current steelhead distribution limits and the project site (not the least of which is the culvert under Ellensburg through which Wilson Creek flows).

Additionally, given the agricultural setting of Ellensburg, it seems likely that summer temperatures may be prohibitive for bull trout. Overall, this project will affect about a quarter mile of what is apparently a heavily altered channel throughout much of its length, and restoration of native salmonids will require substantial, and unlikely, land-use changes.

Rationale and significance to subbasin plans and regional programs: The proposal describes its relationship to the Yakima subbasin plan. Four goals are mentioned, but only three are discussed, and only two (items 2 and 3) seem relevant here. The generic elements of aquatic and riparian habitat that the proposal intends to address are included in the Subbasin Plan. However, Wilson Creek is mentioned only in passing in the plan and is not highlighted as a priority for restoration in the Yakima watershed. The plan does indicate that Wilson Creek has severe water quality problems. This proposal does not address these problems.

Relationships to other projects: Other improvement projects have apparently taken place elsewhere in Wilson Creek and the Kittitas County Conservation District is completing a study on the stream. Details of these projects are not provided and the interaction between this project and other efforts in the Wilson Creek watershed is not addressed. There are no other BPA-funded projects in the Wilson Creek watershed.

Objectives: The objectives are very generic and are never presented in a quantitative manner. The objectives are to (1) provide natural conditions for native fish (steelhead), wildlife, and plants, (2) reduce flooding of adjacent areas, and (3) provide green space and educational opportunities. The objective to improve anadromous fish habitat is puzzling as the proposal indicates anadromous fishes cannot access the project area. No discussion of resident fish populations is presented. Wildlife objectives are not specific.

Tasks (work elements) and methods: The work elements are described in only a general manner (e.g., construct a new channel, plant riparian vegetation, etc.). The proposal calls for the actual project design and implementation to be conducted by a contractor to be identified upon approval of the grant. Methods for engineering the new channel are not detailed, except for an indication that rocks, logs, and rootwads will be placed in the channel. More significantly, the proposal

fails to indicate how problems impacting Wilson Creek beyond the project area will be addressed. The biological goals of this project cannot be achieved unless impaired processes affecting the system are addressed at a watershed scale. There is no indication in the proposal that such an integrated effort is being mounted.

Monitoring and evaluation: The only mention of monitoring is that the CWU maintenance crew will be responsible for maintaining the riparian plantings. Essentially, no discussion of monitoring or evaluation are include in the plan, although surely there will be some in this university setting.

Facilities, equipment, and personnel: The work will be subcontracted to the lowest bidder, who was unspecified. It was impossible to judge the adequacy of the facilities, equipment, and personnel.

Information transfer: Educational opportunities afforded by the project for CWU students are mentioned. No formal process for disseminating information generated by the project is included in the proposal. However, without a monitoring and evaluation component, this project would not generate much in the way of information to share.

Benefits to focal and non-focal species: The description of Wilson Creek provided in the proposal suggests that this project is not likely to benefit focal species (steelhead or bull trout) until other environmental problems in the watershed are addressed. Non-focal species are not discussed but impacts are not likely to be negative. The green space along the new channel may provide habitat for riparian-associated wildlife.

200710200 - Subbasin Scale Monitoring and Plan Implementation Monitoring for the Yakima Subbasin Plan

Sponsor: Yakima Subbasin Fish and Wildlife Planning Board

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$288,500 FY08: \$146,500 FY09: \$130,000

Short description: Provide the Planning Board, with tools to contribute to the NPCC's Fish and Wildlife Program, the Project Proposal /Review Process, meet the goals of the Power Act, the and move toward "normative" conditions in the Yakima Subbasin.

Recommendation: Not fundable

The proposal fell short of justifying the project's need; i.e., what aspects of the current restoration tracking systems are not working and how will this project help correct these deficiencies? Although it would be good to have a central clearinghouse for information in the Yakima Basin, this proposal does not provide enough information to clarify what this activity would entail.

The suggestion that this project would become responsible for reviewing proposed restoration projects and selecting those that are most appropriate seems to duplicate the processes currently being handled by the Council's review activities and other Yakima subbasin planning efforts. If

the project proposed here is to assume these responsibilities, some indication of how this authority would be transferred and the method that will be used to conduct the scientific reviews of proposals should have been fully described. Although the title of the proposal implies otherwise, this project will not actually do any monitoring.

Blue Mountain

Asotin

200600500 - Asotin Creek Wildlife Area O&M (Schlee Acquisitions)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$150,532 FY08: \$106,147 FY09: \$109,049

Short description: The Asotin Creek Wildlife Area (Schlee Acquisitions) provide habitat for salmonid species residing in George Creek and Asotin Creek as well as upland wildlife as mitigation for losses of wildlife habitat due to dams on the lower Snake and Columbia rivers.

Recommendation: Fundable

This proposal meets the ISRP review criteria and benefits wildlife. However, the ISRP suggests that the sponsor address the following comments to improve the project. The ISRP does not need to see a response to these comments but suggests them as material that could improve the proposal for implementation and subsequent review.

The proposal could be improved by a fuller treatment of biological objectives, and monitoring and evaluation of these objectives. In the future, the authors could improve their proposal by showing data in tables or figures. Photographs can be a powerful tool for showing progress on habitat changes (riparian, upland, crop fields). The ISRP suggests that upland habitats be monitored for vegetation and bird responses; this will likely require survey sites independent of the BBS route used currently. Weed control efforts present an opportunity to monitor and evaluate management activities. The ISRP also suggests that the authors include more background information about big game target populations.

The ISRP has additional reservations about the conversion of the smooth brome fields on the Smoothing Iron Ridge parcel as sharp-tailed grouse habitat management. This conversion will be very expensive. The ISRP believes it may be less costly and more beneficial to manage this parcel as big game wintering habitat. Managing these fields as sharp-tail habitat is risky given that no sharp-tails have been seen in the area for decades, and it is a relatively small field.

199401805 - Continued Implementation of Prioritized Asotin Creek Watershed Habitat Projects

Sponsor: Asotin County Conservation District (ACCD)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$275,000 FY08: \$275,000 FY09: \$275,000

Short description: On-going project for prioritizing & implementing on-the-ground habitat projects for wild steelhead & Chinook salmon in Asotin watershed. Bull trout also benefit from this ridge-top-to-ridge-top approach with match from private landowners & other grants.

Recommendation: Response requested

This is a good proposal showing progress toward overall goals and is tied into the subbasin plan. A response needs to provide more detail on M&E, provide basic results on fish response to habitat improvements to date, and describe the need to introduce greater sinuosity back into the stream system as a vehicle for reconnecting with the flood plain.

The proposal describes a project designed to implement procedures without adequately describing the problems to be solved. The causative problems have probably been analyzed to greater extent than the proposal indicates, and the proposal should be revised to show this -- and to show where genuine watershed analysis is still needed. Adequate watershed analysis should precede application of techniques.

Technical and scientific background: This is an ongoing project for prioritizing and implementing on-the-ground habitat projects for wild steelhead and Chinook salmon in Asotin watershed. Bull trout also benefit from this ridge-top-to-ridge-top approach with match from private landowners and other grants.

Channel degradation, due in part to one hundred years of livestock impacts on riparian vegetation in combination with damaging flood events, has resulted in the current habitat problems in Asotin County. Wide, shallow channels, shortage of pools, and lack of healthy riparian plant communities, particularly the shortage of wood components all contribute to water quality and quantity problems. Most of these problems can be solved with long-term riparian buffer systems.

Buffers filter sediment and nutrients, stabilize streambanks, improve fish habitat and provide food sources, nesting cover and shelter for wildlife. Buffers provide shade, reducing summer water temperatures, and over time are expected to help narrow degraded stream channels. More details on buffers and their effects can be found at the Washington State Conservation Commission website: <http://www.scc.wa.gov/> or at the NRCS website: <http://www.wa.nrcs.usda.gov/>.

The problem the proposal attempts to address is not really defined. The Technical and Scientific background is focused on the target fish populations (good information) and on some generalities about limiting factors in terms of instream habitat. However, no background information is provided which defines the problems in terms of their causes, which are human activities

throughout the watershed(s), although the project's title bears the word, watershed. This sections' inattention to watershed processes could indicate flawed approach (or flawed problem analysis leading to project approach). It is also ironic because, elsewhere in the proposal, the watershed concept is alluded to, as is the idea of working with landowners. Indeed, the project personnel bear primary responsibility to a watershed-focused agency. Exactly what are the human or human-generated activities that have damaged the streams, and what will be the approaches for eliminating or reducing these causative processes? Logging, grazing, land tillage, road building/operation, and whatever other watershed-disrupting processes are not described. Watershed analysis should have shown where and to what extent such processes are problems.

Later, the proposal mentions that the project will follow subbasin plan strategies involving protecting riparian vegetation by livestock fencing and by promoting livestock BMP's such as alternative grazing rotations and alternative watering facilities; restoring native vegetation in upland areas; improving upland water infiltration by direct seeding; and developing and implementing TMDL's and other watershed scale assessments to remedy local factors negatively influencing temperature regimes. The justification for doing all this should be described in the technical and scientific background section, in other words, the causative, human-generated causes that exist -- the underlying problems -- as well as the instream limiting factors.

This proposal is directly related directly to Asotin Subbasin Plan. Relationships to other projects are described in detail.

Project history: The proposal is over-generalized, vague, and lacking in specifics on physical and biological results from the project's 11 years of existence. For example, a series of results statements is as follow: "Expected benefits of instream projects were met in the short-term with immediate pool habitat and expectation of long-term results such as increased smolt-to-adult survival and instream structures continuing to function as designed for increased complex pool habitat for all life stages of salmonids is also being realized. Riparian planting and fencing projects with alternative water developments for domestic stock have also seen measurable gains in riparian function, diversity and recovery." The statistical evidence for all this should appear in the project history section. It does not.

Objectives: The proposal provides a full set of objectives; however, restoration of sinuosity (+ width:depth ration, + stream:floodplain connectivity) is missing as a means to reduce embeddedness.

Tasks (work elements) and methods: There are a full set of elements to complement objectives. Methods are stated, usually in general terms and look appropriate in intent. The underpinning information to support their selection was not provided in the Technical and Scientific section. Sponsors need to provide more detail on this.

Monitoring and evaluation is inadequately described. For example, Objective 1 and subtask listing do not provide adequate detail for review. (Under Monitoring and Evaluation Phase), Planning, coordinating and implementing project assessments and monitoring:

Task a. Fund priority monitoring projects outside Asotin Creek.

Task b. Expand WDFW pre- and post-habitat assessments on half the instream structures outside Asotin Creek.

Task c. Continue WDFW steelhead spawner utilization and summer-time juvenile densities on Couse and Tenmile Creeks.

Task d. Complete and submit reports describing assessments and monitoring results.

Facilities, equipment, and personnel appear adequate. The ACCD works in concert with NRCS State Office and Field Staff. The local NRCS Field Office provides the District with in-kind services including technical assistance, office space, office equipment, field equipment, phone and fax lines. Having the partnership with the NRCS allows ACCD to focus 75% of funding for prioritize on the ground protection and restoration projects.

Information transfer is adequate and has resulted in prioritized projects being completed within upland, riparian and instream areas throughout the subbasin and supported with recent EDT priority analysis during Subbasin Planning.

200205000 - Continued Riparian Buffer Projects on Couse/Tenmile and other Salmonid Bearing Streams in Asotin County

Sponsor: Asotin County Conservation District (ACCD)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$240,000 FY08: \$240,000 FY09: \$240,000

Short description: On-going project to continue implementation of prioritized habitat protection on private property for ESA listed steelhead, Chinook salmon and bull trout as identified in the Asotin Subbasin Plan. Cost share provided by private landowners & other sources.

Recommendation: Response requested

This is a good proposal showing progress toward overall goals and tied into subbasin plan. A response needs to provide more detail on M&E, provide basic results on fish response to habitat improvements to date, and describe the need to introduce greater sinuosity back into the stream system as a vehicle for reconnecting with the flood plain.

The proposal describes a project designed to implement procedures without adequately describing the problems to be solved. The causative problems have probably been analyzed to greater extent than the proposal indicates, and the proposal should be revised to show this -- and to show where genuine watershed analysis is still needed. Adequate watershed analysis should precede application of techniques.

None of the strategies described are likely to "Reduce [embeddedness] within the area to 10%." If the existing imbrication is to be removed, the stream's width:depth ratio, sinuosity and connectivity with the floodplain need to be restored in order to enable the stream to re-work its gravels and sort them, leaving the fines on the downstream end of point bars.

A watershed analysis is not presented as part of technical and scientific section. Therefore, the problem analyses may be deficient, despite the probable ability of project personnel to identify various obvious ones.

Technical and scientific background: This project, a spin-off of the Asotin Creek Implementation Project, added partnerships with new landowners and built on the trust and credibility gained by funding sources and local agencies for complex ESA habitat issues. The Asotin Subbasin Plan includes Couse and Tenmile Creeks and other streams within Asotin County that have salmonids and implementation of the actions on private property is the main goal of this ongoing project. Momentum is building and projects are being completed with new ones identified for protection of prioritized habitat. Specific results of watershed analysis need to be described in the response.

Rationale and significance to subbasin plans and regional programs: The portion of the proposal for developing buffers and implement CRP / CREP riparian buffer plans directly supports many of the goals, objectives and strategies identified in the Asotin Subbasin Plan. Riparian buffer systems address several specific fish and wildlife needs cited in the Asotin Creek Subbasin Summary under Goals, Objectives, Strategies, and Recommended Actions include: (a) NPT's Habitat Objectives 2 and 3 (b) WDFW's Strategies 1, 2, and 3 (c) ACCD Objectives 1, 2, and 3 specifically off-stream watering systems, riparian fencing and protection and enhancement of riparian areas.

Relationships to other projects: This project proposal is to continue ongoing restoration activities and will coordinate and integrate the Asotin Subbasin Plan, Strategy and Continue Coordination, and Implementation of Asotin Creek Watershed funding. These work together to protect fish habitat in the Asotin County. This proposal will continue to help bridge the gap between landowners and agency representatives on sensitive resource issues on Asotin County streams. The Asotin Subbasin Plan provides the framework for such recovery efforts.

Project history: The project has not existed long, so detailed results can't be expected. But there is good recounting of progress to date. Some of the material in this section should have been in the technical section. Riparian Projects completed for water and grazing.

Comprehensive objectives are provided that are tied to Asotin Subbasin Plan. The facilities, equipment, personnel, and information transfer are adequate.

200205400 - Protect & Restore Asotin Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$392,575 FY08: \$399,703 FY09: \$376,783

Short description: Continuation and enhancement of cooperative project to protect and restore critical riparian/stream habitat in the Asotin Creek Subbasin thru road decommissioning, streambank stabilization and fish passage restoration.

Recommendation: Response requested

This project, a spin-off of the Asotin Creek Implementation Project, added partnerships with new landowners and built on the trust and credibility gained by funding sources and local agencies for complex ESA habitat issues. The Asotin Subbasin Plan includes Couse and Tenmile Creeks and other streams within Asotin County that have salmonids and implementation of the actions on private property is the main goal of this ongoing project. Momentum is building and projects are being completed with new ones identified for protection of prioritized habitat. Specific results of watershed analysis need were not included in the proposal and need to be described in the sponsor's response.

Reviewers are concerned that achieving an embeddedness of 10% is unlikely to be achieved using the proposed methods. Alternative methods, such as those proposed in Montgomery and Buffington (1997: GSA Bulletin May 1997 - Channel-reach morphology in mountain drainage basins) should be considered. Connectivity with the floodplain and sinuosity should be maintained or restored in order to achieve the desired objectives.

Technical and scientific background: A watershed analysis is not presented as part of this section. Therefore, the problem analyses may be deficient, despite the probable ability of project personnel to identify various obvious ones.

None of the strategies described are likely to "Reduce [embeddedness] within the area to 10%." If the existing imbrication is to be removed, the stream's width:depth ratio, sinuosity and connectivity with the floodplain need to be restored in order to enable the stream to re-work its gravels and sort them, leaving the fines on the downstream end of point bars.

Rationale and significance to subbasin plans and regional programs: The portion of the proposal for developing buffers and implement CRP / CREP riparian buffer plans directly supports many of the goals, objectives and strategies identified in the Asotin Subbasin Plan.

Relationships to other projects: This project proposal is to continue ongoing restoration activities and will coordinate and integrate the Asotin Subbasin Plan, Strategy and Continue Coordination and Implementation of Asotin Creek Watershed funding. These work together to protect fish habitat in the Asotin County. This proposal will continue to help bridge the gap between landowners and agency representatives on sensitive resource issues on Asotin County streams. The Asotin Subbasin Plan provides the framework for such recovery efforts.

Project history: This project has not existed long, so detailed results can't be expected. There is a good general recounting of progress to date. Some of the material in this section should have been in the technical and scientific section. Riparian Projects completed for water and grazing.

Comprehensive objectives are provided that are tied to Asotin Subbasin Plan. The facilities, equipment, personnel, and information transfer are adequate.

200205300 - Assess Salmonids Asotin Creek Watershed

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$320,516 FY08: \$213,711 FY09: \$221,572

Short description: The goal of this project is to assess the status of anadromous salmonid populations in the Asotin Creek watershed. This project implements the RM&E criteria in the Asotin Subbasin Plan for ESA-listed species, primarily steelhead trout, and Chinook salmon.

Recommendation: Fundable

The proposal is excellent, especially the reporting of progress to date. The installation of the resistivity counter is a positive step and should help enumerate adult Chinook and steelhead escapements, particularly in combination with the juvenile PIT tag effort.

Technical and scientific background: The goal of this project is to assess the status of anadromous salmonid populations in the Asotin Creek watershed. Much of Asotin Creek and its tributaries have been straightened, diked or relocated. Many habitat restoration projects have been completed or are ongoing in the Asotin Creek watershed with state (Salmon Recovery Funding Board, Washington Conservation Commission) and federal (BPA) funding. More than \$1.5 million has been spent on habitat restoration projects in the Asotin Creek Subbasin.

The data suggests that Asotin Creek – above eight FCRPS dams on the Snake and Columbia Rivers – has a highly productive and resilient population of naturally-producing summer steelhead, which may be an important nursery of the Snake River steelhead ESU.

Fish management in Asotin Creek, directed by Washington's Wild Salmonid Policy (WSP 1997), is focused on the protection and restoration of wild steelhead (lower Snake River ESU) and bull trout. The Washington Department of Fish and Wildlife (WDFW) designated the Asotin Creek Subbasin a wild steelhead refuge in 1997 and has planted no hatchery fish since 1998. Limited efforts have been made to assess the salmonid populations in the subbasin. Most of the data used by the co-managers for fish management are from limited research, monitoring, and evaluation (RM&E) activities conducted with funds from the Lower Snake River Compensation Plan (LSRCP).

Rationale and significance to subbasin plans and regional programs: This project implements the research, monitoring and evaluation (RM&E) criteria specified in the Asotin Subbasin Plan by providing estimates of abundance, productivity, survival rates, and temporal and spatial distribution of ESA-listed species, primarily summer steelhead (*Oncorhynchus mykiss*) and secondarily spring Chinook salmon (*O. tshawytscha*). The project also implements reasonable and prudent alternative (RPA) 180 in the NMFS 2000 and 2004 Federal Columbia River Power System (FCRPS) Biological Opinions (BiOp) for population status monitoring and review of status change over time. This project is designed to enumerate adult salmonids entering Asotin Creek to spawn and to estimate the juvenile migrant population and emigration patterns

Relationships to other projects: As a result of the several associated projects in the Asotin subbasin, a sizeable investment has now been made toward understanding salmonids in Asotin Creek. Allowing the project to continue until relevant metrics can be described for a small system with a relatively large steelhead population has significant potential value. This is underscored by early project data that show substantially more adults and juvenile out-migrants in the system than were expected (ASP 2004, p5. 15; 45). Understanding the population dynamics of the Asotin Creek steelhead population can be instructive for understanding small-river summer steelhead biology throughout the Interior Columbia basin and the potential of these smaller systems to contribute to recovery.

Project history: A detailed and thorough recounting of project history and accomplishments is provided.

Objectives: Five objectives clearly defined and linked to Asotin Subbasin Plan

Tasks (work elements) and methods: Detailed methods with sound scientific principles and explained and referenced.

Facilities, equipment, and personnel: The basic infrastructure needed to complete the proposed work elements is already in place.

Information transfer: An Annual Report will be submitted to BPA as a deliverable work product, which will include an abstract, introduction, description, methods, results, discussion, summary, and list of expenditures, in the Pisces format. Quarterly status reports will also be submitted to BPA in Pisces. Written or oral summaries will be provided to co-managers, subbasin planners and other interested parties, as necessary/requested, for inclusion in Asotin Subbasin planning efforts. The data from this project will also be submitted to the StreamNet database, if possible.

Benefit to focal and non-focal species: For the steelhead Snake River ESU, this assessment work should provide benefits including improved knowledge of species/habitat relationship. The baseline data collected for each focal species under this project is needed to refine fish return and management goals, and to assist in the establishment of future numeric fish population goals as outlined in the Asotin Subbasin Plan (ASP 2004, p. 160). In addition, assessing the Asotin Creek steelhead population may provide a better understanding of limiting factors that affect similar or adjacent populations. Moreover, data from this project could be used to help determine if regional recovery efforts to stabilize and rebuild steelhead populations would be best spent on within-subbasin projects or out-of subbasin actions (i.e., FCRPS modifications).

Rebuilding the bull trout population and eventually reintroducing spring Chinook are goals for the Subbasin. Understanding the steelhead population trend may allow managers to initiate recovery actions directed toward these populations at the appropriate time.

Grande Ronde

199801001 - Grande Ronde Captive Brood O&M

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$829,250 FY08: \$867,556 FY09: \$907,684

Short description: Captive rearing and spawning of threatened spring Chinook salmon from Catherine Creek, upper Grande Ronde River and Lostine River. Research to evaluate the effectiveness of rearing protocols and treatment and prevention of bacterial kidney disease.

Recommendation: Response requested

The Grande Ronde Captive Broodstock Operations and Maintenance project collects natural parr from Catherine Creek, the Grande Ronde River, and the Lostine River, rears these individuals to adulthood in either freshwater or saltwater, spawns them, and then rears their progeny to the smolt stage for release back into the three natal streams. The smolts are intended to migrate to the ocean and then return as adults and then finally reproduce. The project has achieved modest success at rearing the natural parr to adults, but has fallen short of the goal of releasing 150,000 smolts into each stream because of BKD mortality. There have also been modest returns of the hatchery produced smolts as adults to the three treatment streams.

The historical description in the proposal was helpful, particularly the presentation of past findings. The summary of the project and the returns of adult fish are welcome. The summary indicates that returning adult fish have exceeded projections for 1998 and 1999 cohorts, but no breakdown by sex is given. If these encouraging results are largely male jacks, the outcome is not as favorable as the raw number would suggest. The report that > 95% of the adults in the Grande Ronde River in 2004 and 2005 are from the Captive Broodstock program would support the need for this type of action, but this also raises concern about inbreeding in the population. The program had better returns in the first years than later, and the release of 200,000 smolts from the 2001 spawn year produced only 58 adults whereas a release of 151,000 from the 2000 spawn year produced 546 adults. This suggests that some potential to reduce the risk of demographic collapse is possible, but even with a captive brood program, the populations can fall to quite low numbers.

Most of the methods used to produce the fish are adequately described in the proposal. There are experiments imbedded in the work elements 1) assess and compare the effects of the natural and accelerated pre-smolt rearing; 2) assess and compare the effects of the freshwater and saltwater post-smolt rearing; 6) assess the effectiveness of matrix spawning protocols and success at meeting performance benchmarks. Project monitoring and evaluation is performed under the Lower Snake River Compensation Plan (LSRCP). Specific details are not presented, but the general framework appears adequate. The sponsors have a long history of collecting data on juvenile and adult salmon so there is no reason to question the reliability of the data. The project sponsors have produced useful reports in the past, and it is likely they will in the future.

On this basis this it is reasonable to consider continuation of this project; however, there are several elements that need clarification, so the ISRP recommends a response.

First, a number of statements in the technical and scientific background raise questions for the ISRP.

Sponsors state that "Program success is dependent on achievement of adequate survival, growth, maturation, gamete viability, smolt-to-adult survival and reproductive success," this is followed by eight assumptions that the project operates under, followed by "These became the benchmarks for success of the Captive Broodstock Program and are the targets against which we have been and will evaluate the program." The next sentence states "The Grande Ronde Basin Chinook Salmon Captive Broodstock Program was developed to achieve a sustained annual return of at least 150 wild Chinook salmon to each program stream (150,000 smolts and a smolt-to-adult return rate, SAR, of 0.1%)."

It is not clear from the first statement and eight assumptions that an increase in the abundance of natural-origin adult Chinook is a goal of this project, and the ISRP believes it should be. The second statement implies that a sustained production of wild fish is a goal; however, since the 150,000 smolts with an SAR of 0.1% is a goal from fish production, it is not clear how these are being called wild Chinook salmon.

The critical benefit to the focal species would be an increase in the numbers of natural-origin adults in the treatment stream, not just increases in the numbers of hatchery-origin adults. So, sponsors need to:

1. Identify the method by which they will determine the demographic benefit to the focal species – in terms of an increase in the numbers of natural-origin adults.

Second, in the December 19, 2003 Review of Blue Mountain and Mountain Snake Province Captive Propagation Programs: Response to the Northwest Power and Conservation Council, the sponsors of the Grande Ronde project identified that they planned 5 generations of captive broodstock that would take 19 years to complete a full data collection and analysis. The sponsors, however, both in explicitly that document, and implicitly in their current proposal by failing to identify a termination date, indicate they will continue to use captive broodstock technology until they return sufficient adults to the treatment streams. The ISRP recommended in the review of the December 19, 2003 document that they should adhere to the 19-year experimental design.

Consequently, sponsors need to:

2. Outline the 19 year experiment identified in the December 19, 2003 document and clarify when juvenile (parr) collections are no longer needed to support that experiment;
3. If that time frame is already passed provide justification for additional collections;
4. Identify the timeframe for providing a reasonable demographic benefit to the focal species or the technology would be judged ineffective.

199801006 - Captive Broodstock Artificial Propagation

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$182,861 FY08: \$187,940 FY09: \$193,173

Short description: Implements the captive broodstock project through the collection of juvenile salmon from the wild and maintaining them in captivity. The founding generation is spawned at maturity and the resulting F1 generation is released back to the parental stream.

Recommendation: Response requested

This project is a subcomponent of 199801001. The proposal is not clearly written because it is hard to determine what is being done by 199801006 and 19801001. A response is requested that clarifies the tasks performed by each of these projects. Further, on page 17 of the narrative sub-objective 2.2, Monitor and evaluate captive broodstock post smolts reared at Bonneville Hatchery and Manchester Research Station; it is not clear whether this task is performed by NPT, ODFW, or NOAA Fisheries, this should be identified in a response.

The project summary includes work done by this project and others – it is hard to tell who did what. No results are presented on adult returns, which are the penultimate goal, the ultimate goal being naturally-produced smolts from the spawning of adults produced by the captive reared parents. Since at least some data was presented by 1998010001, some should have been presented here. The ISRP wishes to communicate to the project sponsors that the results of fish culture efforts alone are not sufficient reporting, also needed are the results following release to the natural environment.

The high proportions of fish in the Grande Ronde River that originated from the captive program provide a compelling argument for this type of program. However, the genetic consequences from reliance on captive broodstock or supplementation remains unknown. Consequently, any near-term demographic benefit is likely to persist only during the duration of the management intervention. Long-term, deleterious genetic effects likely occur that could outweigh the near-term demographic benefit. Adverse effects from this and other artificial production on other species, such as bull trout, are not considered, but could be significant.

198805301 - Grande Ronde/Imnaha Endemic Spring Chinook Supplementation - Northeast Oregon Hatchery

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$9,809,858 FY08: \$3,478,059 FY09: \$1,014,268

Short description: Co-managers are utilizing this project to plan and develop salmon conservation and recovery programs, and the facilities necessary for implementation, in the Imnaha and Grande Ronde River subbasins. These programs are aimed at preventing extinction and restoring spring/summer Chinook salmon native to the subbasins.

Recommendation: Response requested

General Comments on the NEOH Program:

These general comments apply to the suite of NEOH projects (198805301, 200713200, 198805305). The sponsors for these proposals should develop a coordinated response to these general comments and address specific comments on individual proposals.

We direct sponsors to our report on the need and role for supplementation research, monitoring and evaluation (ISRP & ISAB 2005-15; Monitoring and Evaluation of Supplementation Projects), which concludes with the following statements.

“Monitoring and evaluation of supplementation projects is critically important. For the monitoring to be effective, a very rigorous design is needed, and the scale and logistics of implementation will carry costs that are significant. The scientific issues underlying the definitions of performance metrics and the necessary controls in the design are genuinely complicated. Some of the scientific tools for measuring performance are new, and involve a level of knowledge of population and molecular genetics which until recently has not been part of the standard fisheries curriculum.

The consequences of not conducting these studies and continuing to assume no deleterious impacts from supplementation, and being wrong, are much greater than short-term changes in salmon abundance. The natural populations that may be lost if supplementation actually decreases their fitness are irreplaceable. On the other hand, if supplementation proves an aid to natural population during distress, further application may be warranted. Both outcomes remain uncertain without adequate monitoring and evaluation, which will likewise guide best management practice and cost effectiveness.”

We also direct sponsors to the ISAB’s Supplementation Report (ISAB 2003-3) for further presentation on the general absence of supporting data for the approach.

Much of the comment and concern raised in the most recent review of the Master Plan (ISRP 2004-10) remain relevant through this and related proposals (including the specific M&E proposal):

- * more thorough prioritization of monitoring and evaluation efforts – what are the key uncertainties requiring monitoring both before and after ramp up of the proposed construction and supplementation program?
- * further scoping of the power and resolution that can be expected for the metrics that are to be measured, given constraints of sampling and inherent variance, and use of this information to inform decisions as to sampling intensity and the priority of evaluation metrics. If the population responds, are the measurements sufficiently sensitive to detect this?
- * consideration of full use of the suite of descriptors of outcomes (e.g., reports of primary data and thorough statistical description of derived summary metrics), rather than simply hypothesis tests at $p = 0.05$;
- * assurance that sample sizes are adequate for the metrics that comprise the core evaluation of the final Plan;

- * development of a clear plan for integrating evaluation metrics into adaptive management of the program, including a decision tree or other representation of clearly stated decision triggers and actions that would result in program modification (or even termination, if warranted);
- * development of procedures and protocols for implementing the plan

ISRP also recommends that the broader NEOH program be the subject of an organized two to three day site visit and program review within the next two years. The project describes a five-year horizon before a workshop or symposium on the data would be undertaken; this needs to be sooner.

Comments specific to this proposal:

The sponsors should note the general ISRP comments above on the NEOH projects, as they apply to all NEOH projects. The remaining comments below are specific to this proposal. This proposal deals specifically with the construction of new propagation facilities.

The short description of this proposal indicates that it would focus on the development and planning for the Endemic Spring Chinook Salmon Program for the Grande Ronde and Imnaha associated with the NEOH. As one of several project proposals tiered to the NEOH, much of our detailed comments regarding the science behind the NEOH programs are identified within the associated M&E proposal for the Grande Ronde Endemic Spring Chinook Salmon Program and the NEOH Master Plan Three-step Reviews, especially in regard to supplementation and captive brood approaches. In our judgment the proposal does not provide a compelling logic path or set of evidence that it is justified in terms of benefit to the targeted endemic spring Chinook populations. Ultimately, the ISRP does not judge that construction of yet another facility in the basin is warranted until some of the data and evaluation demonstrate that supplementation can achieve its objectives at rebuilding wild production. The proposal fails to do this.

Technical and scientific background: Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (NEOH) project is proposed to address the decline in and restoration and recovery of spring Chinook salmon endemic (locally native and ESA-listed) to the Grande Ronde and Imnaha subbasins through increased capacity for release of artificially propagated smolts. As this proposal is specifically a capital construction project (then shifting to O&M), it is not really amenable to scientific review, per se. This is probably best suited to continue within the context of the Master Plan 3 Step Review process, where all of the pieces of the program are considered together.

Rationale and significance to subbasin plans and regional programs: The sponsors need to provide considerably more clarity in regard to the rationale for embarking on this program and constructing a facility that will require long-term O&M support. While not unique to this proposal or the NEOH in general, a repeated theme throughout the Columbia Basin is how supplementation could achieve restoration goals without creating other problems and risk. Here specifically, sponsors indicate that declines in the ESU are largely the result of downstream variables and mortality. While we do not quibble with the gravity of the declines or the

mitigation requirements for lost populations, it is not transparent as to how supplementation can overcome such downriver effects.

For example, Figure 36 indicates no increases in wild escapement that could be attributed to hatchery releases. Wild and hatchery fish abundances appear to vary according to out-of-basin factors (see Fig. 44). Juvenile densities of wild fish also appear relatively high already, and recruits per spawner are >1 . These and other data suggest that while an expanded program might well lead to greater absolute numbers of returning adults (depending on the nuances of downriver and oceanic variables), there is little relationship of returning adults with future natural production.

Relationships to other projects: Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (NEOH) is a large component of the broader NEOH spring Chinook Master Plan along with NEOH Outplanting facilities, operations, and M&E projects. The effort is collaborative among Nez Perce and Umatilla tribal authorities, State of Oregon, and the federal managers. Largely, it is a construction project to build/add breeding, rearing, and releasing facilities.

There are some linkages discussed regarding local efforts to secure and repair important habitats, but much of negative impacts to the salmon comes from downstream sources beyond the scope of the projects.

Project history: The Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (NEOH) history and evolving focus are described. As a construction project, the past actions are not described within the context of the program's goals and objectives. The success or outcome of previous fish releases is not overtly described as to generate a realistic prediction that the broader supplementation program will succeed or fail. While an anticipated and enhanced M&E project will occur hand-in-hand with the project to address these critical uncertainties, there are data available to realistically, robustly, and objectively evaluate program performance. Also, the original justification and need for the project is tied to captive broodstock development, which is in direct conflict with the proposed supplementation goal. Further explanation of broodstock plans is required, surely there are no plans to try and rebuild wild fish abundance and productivity based on a domestic brood stock or a small endemic stock.

Objectives: On a broader scale, the larger Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (and NEOH) program has potentially measurable outcomes; however, because this specific project is a construction and O&M project, biological objectives are not quite possible. Broader project objectives are linked to the Grande Ronde and Imnaha subbasin plans. Objectives of the broader program are to return several hundred spring Chinook to the basin by first increasing hatchery releases and then through natural production. An additional goal is to ultimately provide a sufficient production surplus to provide for harvest.

While much of the goals and predictions (on p 15 of the narrative) regarding abundance and productivity are expressed as point values, in reality, what we see are salmon populations

fluctuating markedly. The statements of objectives should be altered to take expected fluctuation into account by presenting ranges of values, rather than point values.

The proposal also does not include an objective regarding terminating the project if and when M&E determines either that it is successful enough that it is no longer needed or that it is not meeting its intended targets.

Tasks (work elements) and methods: Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (NEOH) is a construction project that is not amenable to scientific review. The broader and resulting projects have the capacity to have a scientific basis if implementation integrates a strong M&E basis (as described in the NEOH Supplementation M&E project).

The ISRP compliments the authors for being among the first to bring the modern EMAP probabilistic sampling procedures into the Columbia Basin. For example, in so far as we are aware, this plan is to be the first use in the Columbia Basin of a rotating panel design to balance the needs of status (more random sites) and trend (more repeat sites) monitoring. The ISRP strongly endorses the authors' development of the EMAP-type probabilistic sampling scheme for redd counts to complement current surveys. The plan appropriately calls for selection of random sites outside the traditional survey areas to be surveyed for redds in each subbasin. In summary, although the ISRP raises several yet-to-be-fully-resolved issues and offers other comments for consideration, this Plan provides a good example of a monitoring program that could be used as a model for program development throughout the basin.

Monitoring and evaluation: The bulk of M&E is integrated and extensive through NEOH Monitoring and Evaluation Implementation project #200713200. The longer term effectiveness of the project will need to be addressed in the future following completion of construction (~5 to 10 years hence). While the description here lists M&E as a component, the entire budget reflects only construction and the O&M costs.

Facilities, equipment, and personnel: Facilities will be modified or constructed to increase production capacities. Staff and equipment are available already or are accessible.

Information transfer: Described in NEOH M&E Implementation

Benefits to focal and non-focal species: Project will focus on spring Chinook salmon as a targeted focal species. There is no real discussion of impacts or benefits to non-focal species either within Subbasin or out.

200713200 - NEOH Monitoring & Evaluation Implementation (Formerly a component of 198805301)

Sponsor: Tribe: Nez Perce Tribe, State: Oregon Department of Fish and Wildlife

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$1,806,428 FY08: \$1,770,842 FY09: \$1,892,140

Short description: Implement the ISRP-reviewed NEOH M&E Plan. It will guide evaluation of the NEOH production program, give empirical evidence of effects and fill knowledge gaps regarding supplementation and its uncertainty as an enhancement tool.

Recommendation: Response requested

The ISRP requests that the sponsors for the set of NEOH proposals develop a coordinated response to the general comments on the NEOH program provided under proposal 198805301 and address specific comments on individual proposals.

Comments specific to this proposal:

The short description of this proposal indicates that it would focus on the M&E for the NEOH programs and projects. While we commend the sponsors for compiling a large and extensive M&E program associated with the NEOH, we urge the various cooperating co-managers to work together to provide a compelling logic path or set of evidence that it is justified in terms of benefit to the targeted populations and subbasins. It would be appropriate in a single place to describe the role(s) and activities of the various participants to provide a universal view of the overall NEOH program. The primary benefit of the current M&E program will be the examination of ongoing projects. Under separate review, the ISRP did not judge that construction of a new facility in the basin would be warranted until some of the data and evaluation demonstrate that supplementation can achieve its objectives at rebuilding wild production. A single robust stock assessment (with trend) would seem a critical element that is missing (or at least not obvious).

Technical and scientific background: Review for project 200713200 - NEOH Monitoring & Evaluation Implementation addresses a key need previously and repeatedly identified by Council's scientific groups not only for the NEOH supplementation projects, but all supplementation throughout the basin to meet robust scientific requirements for adaptive management. Moreover, the ISAB and ISRP have stressed the need for clearly identifying appropriate hypothesis testing, objectives, performance standards, sampling strategies (including randomized designs with comparative reference streams), analysis and interpretation, and reporting.

The NEOH M&E Implementation proposal clearly is designed to address a "problem related to fish and wildlife in the Basin" by not only formalizing an M&E approach, but by mapping out an ambitiously robust and regional implementation approach that is consistent with Council's advice and state of the science. A key side benefit of the approach outlined is that it can be transferred to other regions and the results broadly instructive to the supplementation approach to maintaining and ultimately rebuilding depressed Chinook salmon populations basinwide.

Rationale and significance to subbasin plans and regional programs: The NEOH Monitoring and Evaluation Implementation project is highly consistent with the Fish and Wildlife Program as it provides the basic methods and information needed for broad adaptive management decisions. The need and rationale for M&E has been repeatedly identified in Council's advice for the Fish and Wildlife Program and is expressly outlined in the Imnaha and Grande Ronde subbasin plans and NEOH master plans. At a broader scale, however, there continues to be a need to justify the NEOH production and release programs in terms of stock sizes and expected contribution of released fish to the natural/wild populations in the Subbasin.

Relationships to other projects: NEOH Monitoring & Evaluation Implementation is directly tied to other NEOH and subbasin projects as a broad, umbrella project to collect fundamentally important data and analysis of the effectiveness of supplementation. The project benefits from cooperation between the Nez Perce and Umatilla Tribal authorities and the State of Oregon (although some depiction of roles and responsibilities would be helpful).

Project history: This proposal is described as being new, but it takes advantage of several ongoing efforts by elevating and recognizing the importance of an integrated and robust M&E. As such, there should be results from past evaluation and monitoring activities that can be analyzed and summarized.

Objectives: This proposal is designed initially as a five-year effort. The time frame is appropriate to generate information on a single Chinook salmon generation as a logical first step to longer-term monitoring. The four primary objectives are further broken down and addressed by sets of performance measures and are linked to Imnaha and Grande Ronde subbasin plan elements and more broadly to the basin's Fish and Wildlife Program. Upon closer examination, many of the objectives are really tasks not measurable objectives and need some examination and refinement so they are.

Tasks (work elements) and methods: NEOH Monitoring & Evaluation Implementation has an ambitious and robust experimental design that includes reference streams where no direct supplementation shall occur and takes advantage of randomized EMAP-type sampling. There is also some opportunity to communicate with others in the basin to avoid unnecessary duplication of certain kinds of experimental monitoring (e.g., parentage analysis – there are several throughout the basin ongoing).

Monitoring and evaluation: This proposal is a broad M&E project entirely scoped out to address information needs for other NEOH projects. It would be helpful not only to ISRP, but also the sponsors if they were to construct a basic decision tree linking the M&E tasks, objectives, and findings to management (this was requested in the Three-Step Review). There is a tendency to “measure everything.” The sponsors need to carefully choose some key integrative indicators to monitor to evaluate success towards each objective and demonstrate how the results will plug back into the decision process (i.e., adaptive management).

Facilities, equipment, and personnel: This proposal recognizes the need to intensify sampling directed at comparing hatchery and wild fish throughout the region. These are identified.

Information transfer: This proposal identifies several methods and approaches for information transfer. While the sponsors include key staff from co-managers, the project identifies the opportunity to analyze, interpret, and share information more broadly through programmed "symposia" or workshops, as well as through presently available data warehouses in the basin.

Though not explicitly described, there will be enormous opportunities to more formally publish results through peer-reviewed outlets. The importance of this latter cannot be overstressed as it provides a more generally available and distributed record, but also provides for an additional layer of independent peer review and thus credibility.

Benefits to focal and non-focal species: NEOH Monitoring & Evaluation Implementation focuses primarily on Chinook salmon population(s) response to supplementation within the targeted subbasins. The informational benefits for adaptive management are critical with long-lasting benefits both within the targeted subbasins but also potentially basinwide.

There is a potential for interference from other activities if the reference stream framework is not maintained or if activities such as harvest or supplementation (mostly downstream) are not accounted for or controlled.

The proposal does not specifically address the issue of impacts on non-focal species, but the issue is reasonably irrelevant as an M&E project.

198805305 - Northeast Oregon (NEOH) Outplanting Facilities Master Plan

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$18,870 FY08: \$18,870 FY09: \$18,870

Short description: The Oregon Department of Fish and Wildlife (ODFW) is collaborating on preliminary design of new hatchery facilities and modifications to Lookingglass Hatchery with the Nez Perce and Umatilla Tribes and federal partners.

Recommendation: Response requested

The ISRP requests that the sponsors for the set of NEOH proposals develop a coordinated response to the general comments on the NEOH program provided under proposal 198805301 as well as addressing specific comments on individual proposals.

Comments specific to this proposal:

The short description of this proposal indicates that it would focus on the planning and construction for outplanting facilities associated with NEOH programs and projects. We urge the various cooperating co-managers to work together to provide a compelling logic path or set of evidence that it is justified in terms of benefit to the targeted populations and subbasins.

Under separate review, the ISRP did not judge that construction of a new production facility in the basin would be warranted until some of the data and evaluation demonstrate that supplementation can achieve its objectives at rebuilding wild production. A single robust stock assessment (with trend) would seem a critical element that is missing (or at least not obvious).

Technical and scientific background: NEOH Outplanting Facilities Master Plan is not amenable to scientific review, per se except within the larger context of NEOH. The larger integrated project Master Plan (NEOH supplementation) has gone through several stages of a 3-step review and issues identified there need to be addressed. There remain a number of issues that may ultimately need to be considered over the longer-term depending on the outcome of the M&E enterprise.

Rationale and significance to subbasin plans and regional programs: The sponsors need to provide considerably more clarity in regard to the rationale for embarking on this program and constructing a facility that will require long-term O&M support. While not unique to this proposal or NEOH in general, a repeated theme throughout the Columbia Basin is how supplementation could achieve restoration goals without creating other problems and risk. Here specifically, sponsors indicate that declines in the ESU are largely the result of downstream variables and mortality. While we do not quibble with the gravity of the declines or the mitigation requirements for lost populations, it is not transparent as to how supplementation can overcome such downriver effects.

Relationships to other projects: NEOH Outplanting Facilities Master Plan is a large component of the broader NEOH spring Chinook Master Plan along with other NEOH facilities, operations, and M&E projects. The effort is collaborative among Nez Perce and Umatilla tribal authorities, State of Oregon, and the federal managers. This relationship might be better described under separate cover to depict roles and responsibilities for various co-managers.

There are some linkages discussed regarding local efforts to secure and repair important habitats, but much of negative impacts to the salmon comes from downstream sources and beyond the scope of the projects. Therefore, it is uncertain where gains will come from as the downstream effects are expected to hit released fish as well.

Project history: The Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (NEOH) program history and evolving focus are described. As a construction project, however, the past actions are not described. Previous releases are not overly described as to generate a realistic prediction that the broader program will succeed or fail. Fortunately, an enhanced M&E project will occur hand in hand with the project to address these critical uncertainties.

Objectives: This is a construction project so biological objectives are not quite possible. Moreover, the objectives provided are tasks or even cut and past headings from other documents. For example, the "Biological Objective" on the outline form says: "Artificial Production: Current." This is just a section heading from the subbasin plan, not a biological objective. The box for full description contains: "To alleviate the burden at Lookingglass Hatchery and correct

facility problems, co-managers proposed new production facilities and modifications at Lookingglass in the Grande Ronde and Imnaha Spring Chinook Master Plan submitted to the NPPC in 2000. NPPC approved the plan and authorized preliminary design and NEPA analysis." This sounds like part of the project history. It is not expressed as a biological objective.

Tasks (work elements) and methods: NEOH Outplanting Facilities Master Plan has specific construction and planning activities, none are specifically biological. Moreover, the planning method is not spelled out beyond the proposal that there will be meetings.

M&E is integrated and extensive through NEOH Monitoring and Evaluation Implementation project #200713200. The longer-term effectiveness of the project will need to be addressed in the future following completion of construction (~5 to 10 years hence). There are, however, data from other related NEOH projects that should be brought to bear on the need/rationale for this project.

Facilities, equipment, and personnel: Facilities will be modified or constructed to increase production capacities. Staff and equipment are available already or are accessible.

Information transfer is described in NEOH M&E Implementation proposal.

Benefits to focal and non-focal species: The project will address condition of spring Chinook salmon as a targeted focal species. This project is a critical infrastructure need for the expanded supplementation program described in the NEOH spring Chinook supplementation project. There is no real discussion of impacts or benefits to non-focal species either within Subbasin or out.

199800702 - Grand Ronde Supplementation - Lostine O&M/M&E

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$622,578 FY08: \$640,219 FY09: \$657,320

Short description: Supplementation and concurrent monitoring and evaluation of Lostine River spring Chinook salmon are accomplished by this project. O&M activities acclimate smolts, trap adults, and spawn adults. M&E provides abundance and life history performance measures.

Recommendation: Response requested

This project conducts supplementation of Lostine River spring Chinook salmon toward avoiding extinction of this much-reduced stock and, in the longer term, achieving its recovery. It is one of several projects that compose the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESOSP). This project operates a smolt acclimation facility and an adult trapping station on the Lostine River tributary of the Grand Ronde River. Adults are spawned at the station; the fertilized eggs are then transferred to hatcheries elsewhere for raising until the young are brought back to the Lostine smolt acclimation site. The project monitors and evaluates the results in terms of population abundance and life history performance. There will be side benefits to other species such as steelhead via monitoring at weirs.

The proposal makes a strong case for continuation and funding as part of the GRESCSP. The authors are to be complimented on a clear, well-organized presentation that is thorough in most details. Much of this proposal could serve as an example for other projects in the future. Project history and summary results to date are well-presented. The proposal gives well-warranted recognition that long-term prospects for the population depend on the remediation of habitat problems by related projects in the watershed.

This is one proposal that states its project's biological objects truly as biological objectives. Biological objectives are described with well-articulated and designed hypotheses to permit robust adaptive management. It would be logical to add an objective of terminating the project when M&E determines either that it is not working or that the target population recovers. A response is needed that describes such a decision tree. See comments on the main ODFW and NPT M&E project.

The proposal adequately reports results to date, but future proposals for this project need to show more results in terms of return rates. There is no evidence so far that benefit from supplementation is occurring.

199800703 - Grande Ronde Supplementation Operations and Maintenance

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$766,699 FY08: \$637,577 FY09: \$676,840

Short description: This project conducts O and M for a supplementation program in the upper Grande Ronde River and Catherine Creek. CTUIR operates an acclimation facility and an adult broodstock capture facility on each tributary.

Recommendation: Response requested

As one of several projects that compose the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESCSP), this particular project covers the Confederated Tribes of the Umatilla Indian Nation's role through operating adult capture facilities and juvenile acclimation and release facilities in the upper Grande Ronde River and Catherine Creek. The project will provide side benefits to other species such as steelhead through monitoring at weirs.

The proposal presents a strong case for continuation and funding as part of the GRESCSP. The project appears to be well integrated with the ODFW proposal 199800704 on spring Chinook in the Grande Ronde, both of which are needed to accomplish program goals. The proposal has been refined to clarify objectives and methods more than in submission of previous years.

The proposal relates clearly to priorities and objectives outlined in the GRESCSP. As a "conservation" project it meets the ISRP review criteria. The requested funds are solidly matched with cost-shared funds from other sources. The stated objectives are operational.

A history of project activities, budgets, and results is presented in detail. In the narrative, unnecessarily repetitive data shown in the accompanying tables created confusion. Tables enable better overview of statistics than does narrative text. Moreover, many of the statistics stated in the narrative do not seem to match the values shown in the tables. This project's future proposals should summarize the quantitative results in tables or graphs, and should devote the project history narrative mainly to interpreting the biological significance of those results.

Some of the proposal's "biological objectives" for the project are just tasks (activity objectives). Overall, the project is being run as a performance of operations, which are not explicitly laid out as a strategy toward a desired outcome. The hoped-for outcome(s) should form the project's biological objectives but are not stated explicitly.

The proposal should include the objective of terminating the project when M&E determines that its supplementation either is not working or has been successful enough that it is no longer needed. The project is designed to provide emergency risk management of spring/summer Chinook in the subbasin and ultimately to recover self-sustaining populations as out-of-subbasin stressors are addressed. If those stressors are not remedied, the long-term viability of the spring/summer Chinook is uncertain. In coordination with the other GRESCSP proposals, a response is needed showing a decision tree detailing criteria for termination based on results, whether positive or negative.

Methods are described in great detail. Design is reasonable. Most M&E is covered under a separate project that has been tied in.

199800704 - Grande Ronde Basin Endemic Spring Chinook Supplementation Project: Northeast Oregon hatcheries implementation-ODFW

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$222,041 FY08: \$232,878 FY09: \$244,321

Short description: This proposal augments Northeast Oregon spring Chinook programs with funds for Artificial production, fish health, and Redd count surveys to implement the Grande Ronde Basin Spring Chinook Supplementation Project.

Recommendation: Response requested

As one of several projects that compose the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESCSP), this particular project covers the ODFW role of operating the Lookingglass Hatchery and rearing a projected 900,000 smolts for release throughout the subbasin. It is the GRESCSP's production element, and the proposal presents a strong case for its continuation and funding. The proposal details operations involving fish health, spawning, rearing, transport to release raceways, and coordination with co-managers.

Also included as monitoring and evaluation (M&E) is in-stream monitoring for redd counts as indices of adult return. More comprehensive M&E is covered under a separate proposal for Project 200713200. Please refer to that project and to programmatic comments on M&E projects.

This proposal lays out its project well. Hoped-for benefits are stated. The proposal relates clearly to priorities and objectives outlined in the GRESCSP. As a “conservation” project it meets the ISRP criteria. The funds requested are solidly matched with funds from other sources. The stated objectives are operational.

The proposal should include the objective of terminating the project when M&E determines either that it is not working or that it becomes successful enough that it is no longer needed. The project is designed to provide emergency risk management of spring/summer Chinook in the subbasin and ultimately to recover self-sustaining populations as out-of-subbasin stressors are addressed. If those stressors are not remedied, the long-term viability of the spring/summer Chinook is uncertain. In coordination with the other GRESCSP proposals, a response is needed showing a decision tree detailing criteria for termination based on results, whether positive or negative.

199202604 - Investigate Life History Of Spring Chinook Salmon and Summer Steelhead in the Grande Ronde River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$861,203 FY08: \$900,222 FY09: \$941,130

Short description: Investigate the abundance, migration patterns, survival, and life history characteristics of spring Chinook salmon and summer steelhead from supplemented and natural populations in the Grande Ronde River Subbasin.

Recommendation: Fundable

This proposal is for ongoing studies focused on the early life stages of naturally and hatchery-produced spring Chinook salmon and summer steelhead in the Grande Ronde River system. The proposal is clearly written and very detailed. The statements of the project relationship to regional management questions are especially helpful in clarifying the project purpose.

The thorough project history indicates that studies of habitat conditions have been done which should meet the ISRP concerns expressed in the previous review cycle. The ISRP expects that the project will be able to examine for possible relation of egg-to-smolt survival to those conditions. Results from this project have been used in recommendations for protection and enhancement of Grande Ronde subbasin spring Chinook salmon populations and their rearing habitats.

The project has a long history of effective population monitoring and habitat analysis. However, it is unclear how the results will be evaluated. For future proposals it would be helpful to state performance measures and indications of how success will be determined. Additionally, it is not clear if or when study effort could be reduced because the needs for additional information decline.

The ISRP encourages the sponsors to share successes and lessons learned to others in and out of the region via professional publications.

200708300 - Grande Ronde Cooperative Salmonid Monitoring and Evaluation Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$455,000 FY08: \$477,750 FY09: \$501,642

Short description: This is a continuation of an ongoing O&M/RM&E program. It has been separated from its O&M component for this solicitation. Monitor status and detect changes in salmonid abundance, productivity, diversity, and spatial structure in the Grande Ronde Subbasin.

Recommendation: Fundable (Qualified)

The proposed project is for the Confederated Tribes of the Umatilla Indian Reservation to participate with co-managers on a subbasin-wide monitoring and evaluation (M&E) program in the Grande Ronde subbasin. Previously part of the operation and maintenance (O&M) project, the project is an expanded M&E effort. The need for monitoring and evaluation is clear. The proposal provides details for many M&E activities for Spring/Summer Chinook, Bull trout, and Steelhead.

The project addresses critical needs for information identified in the Grande Ronde subbasin plan and connects to various other plans and projects. However, the primary thrust of this project is aimed at assessing natural productivity in the subbasin. The relationships to other projects in the subbasin and in the region are clearly described. Collaboration is an important element of the work proposed in the project. The project has the potential to provide information that will benefit spring/summer Chinook, steelhead, bull trout and fall chinook. Ultimately, it is fairly extensive in its coverage.

The project defines several biological objectives, plus several programmatic objectives. Objectives include assessing status and trends of salmonids in subbasin, assessing salmonid productivity, assessing both life history and genetic salmonid diversity, assessing related program effectiveness, coordination, and reporting/disseminating findings. There is a need to separate the monitoring from the evaluations, and from research. Some monitoring of population dynamics at a few key sites may be useful for management. Evaluation of management actions experimentally is warranted to assess effectiveness where possible, but not everywhere.

The work proposed here should prioritize the data collection, analysis, and interpretation activities. Priorities by species, life stage, and geography would help ensure efficiency of this extensive project.

Most methods are adequately described. The proposal contains much variation in the level of sophistication and validity of statistical methods proposed. Some statistical methods are not appropriate such as using Scheffe's method for multiple comparisons only after the ANOVA shows significant differences or using Spearman's correlation for relating scale loss to season.

The claim that cause-effect relationships can be inferred from an observational study is not scientifically sound without additional justification. These issues indicate that the sponsors should engage additional personnel to assist with data analysis and interpretation. A statistician should be involved with the project to provide advice on appropriate analysis methods and to provide support during analysis and report writing.

Facilities appear to be adequate. Personnel know the subbasin well based on previous work in the area. Information transfer is described and has an entire objective associated with reporting, analyzing, and disseminating information and data. It is unclear if the current personnel will be able to adequately process the data generated to provide peer reviewed publications.

200734500 - Grande Ronde Coho Restoration

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$154,375 FY08: \$413,123 FY09: \$263,239

Short description: This proposal is to initiate the Council 3-Step Review Process for “new production initiatives” for the Northeast Oregon Hatchery Coho Salmon Master Plan Grande Ronde River.

Recommendation: Fundable in part

This proposal is designed to initiate a Three-Step Review, and is fundable for Year 1 - FY2007 to perform Step 1 of the Three-Step Review. Year 2 and subsequent funding should be contingent upon successful completion of Step 1.

199608000 - NE Oregon Wildlife Project (NPT) Precious Lands

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$431,426 FY08: \$492,872 FY09: \$499,203

Short description: This project provides an estimated 20,015 Habitat Units for mitigation credits for the Lower Snake Dam complex. It provides 16,286 acres of wildlife habitat and protects 16.6 miles of listed steelhead habitat within the lower Grande Ronde Subbasin.

Recommendation: Fundable

This proposal is for continuing management of a large tract of land acquired for wildlife mitigation and also supplies benefits to fish. The project history is adequate, but focused on mitigation, not the goals of management, though much active management is included, and monitoring efforts are not presented clearly in the proposal itself. The ISRP in the past has expressed concern that proposals to support this project did not adequately present biological goals, objectives, and M&E. It appears that progress has been made, e.g., specific channel habitat objectives, objectives for riparian conditions (including some data), bird counts underway (though no bird count data were presented), etc.

However, the proposal repeatedly references a Management Plan that is available on the web (a long document of 129 pages that is labeled as a 2002 draft plan). The proposal itself still lacks

incorporation of important details that can only be found by searching the online draft Management Plan. For instance, the list of target species in the proposal appears generic, not site specific. And, what are the goals for managing this landscape as important elk winter range? Methods for work elements are not described with enough detail. For instance, the size, number, and location of permanent plots that will be used to monitor vegetation (including weed control) should be stated, as should the key measurements that will be taken (are being taken?). Future proposals should directly summarize the technical and scientific background for managing this specific landscape and should state methods to be applied in adequate detail to facilitate scientific evaluation. Additionally, future proposals for continuation of this project must present results of M&E in order to justify the value of management expenses.

200002100 - Securing Wildlife Mitigation Sites - Oregon Ladd Marsh WMA and Grande Ronde Subbasin Wetlands

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$95,551 FY08: \$97,650 FY09: \$100,691

Short description: Maintain wetland restoration projects on Ladd Marsh WMA. Identify, prioritize, implement and maintain other potential wetland restoration projects in the Grande Ronde subbasin.

Recommendation: Response requested

The location and goals of the project are appropriate, and the project appears to be of value. The ISRP has in the past noted that the Ladd Marsh/Grande Ronde Wetlands projects need to develop and state clear objectives and M&E. However, while some of the objectives have been explicitly included, methods remain too poorly described for review. Additionally, the ISRP found that M&E is still only developing. The technical and scientific background are adequate, but the proposal still needs a better description of M&E techniques (including sample sizes, etc.) to be used for monitoring and evaluation of vegetation and wildlife to evaluate habitat management activities.

200733700 - Oregon Plan Monitoring of Steelhead Status, Trend, and Habitat in the Grande Ronde River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$372,361 FY08: \$388,549 FY09: \$405,339

Short description: Implementation of Oregon Plan, EMAP monitoring for basin-wide steelhead status and trend.

Recommendation: Fundable (Qualified)

The proposal is straight forward, to monitor steelhead populations and their habitat and thereby provide much needed quantitative data on status and trends of abundance, survival, and productivity. There is a definite need for a steelhead monitoring program in the Grande Ronde basin. This proposed work has the potential to provide such a program, but methodological

questions need to be carefully considered. The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments.

The proposed program could be sufficient for subbasin-wide monitoring, but monitoring must also be targeted specifically at individual tributaries. As the sponsors are aware, habitat quality and fish abundance vary significantly among tributaries in the subbasin. Habitat factors and fish population parameters in tributaries need to be assessed quantitatively with a rigorous sampling design, as will be done at the subbasin scale. Monitoring at the tributary scale will allow assessment of effectiveness of restoration projects within each tributary to accompany overall basin-scale monitoring.

The proposal directly addresses needs identified in the Grande Ronde Subbasin Plan, the Fish and Wildlife Program, and the Oregon Plan. It also incorporates monitoring recommendations made by the ISRP.

The sponsors indicate that they will cooperate closely with personnel working under other BPA funded projects. They also say they will cooperate closely with landowners and managers, a necessity if the work is to be successfully implemented. The sponsors indicate they will cooperate with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). What about with the Collaborative Systemwide Monitoring and Evaluation Program (CSMEP)? Aren't both important?

The objectives are sentence fragments and could be stated more clearly. The intent of the objectives, however, is reasonably clear. In the Rationale section the sponsors say they will determine productivity, but they do not have an objective or methods for this work.

Each objective statement should have been a sentence specifying a desired outcome, not just a phrase denoting an operation. An Objective 2 is missing. Was this just mis-numbering or was an intended objective actually left out?

The methods are poorly explained. Numerous questions need to be considered by the sponsors: Objective 1-spawner surveys. How will the initial 50 sites be selected? How was the level of precision of the redd count estimate determined? With such a large error (40%), the actual estimate may not have much value. What can be done to reduce error? The method of transitioning between indexed redds and probabilistic sampling needs to be more thoroughly considered. Doesn't the method for redd count expansion assume that redds will be spread throughout the range of fish distribution rather than patchily distributed in spawning areas?

Objective 3-habitat surveys. How often will habitat surveys be conducted and at what time of year? The sponsors should consider thoroughly how sample size was determined. Approximately how much of the basin will be snorkelable? The presence, size, and depth of thermal refugia should be determined as it has been shown to influence fish distribution in the upper Grande Ronde (see Ebersole et al. 2003, CJFAS). Width-depth ratio should be determined (see Ebersole). The sponsors say that water quality and quantity will not be measured. What does this

mean? Does this include metrics such as temperature, a factor that has been shown to impact salmon in the upper Grande Ronde? The sponsors will assess habitat only in snorkelable areas. Some important habitat measures such as temperature can be taken in larger mainstem areas that may not be snorkelable. These estimates may be important because high temperatures may create a barrier to salmonid movement, reduce holding areas for adults (see Torgerson et al. 1999), provide excellent habitat for non-natives, and force cold-water fishes into thermal refugia.

Objective 4-juvenile salmon surveys. Why won't the snorkel survey technique be cross-validated with electroshocking in some areas? Data analysis should involve all fish species, not just salmonids. The Grande Ronde has a relatively rich fish community composed of both cold- and cool/warm water species (e.g., pikeminnow, suckers, etc). The presence of cool/warm water species could serve as an indicator of habitat change. For example, cool/warm water species may have expanded their distribution upstream in tributaries as tributary temperatures increased due to riparian alteration, water withdrawal, etc. An indication of habitat recovery would be contraction of the distribution to more downstream, warmer reaches. Furthermore, some cool/warm water species such as pikeminnow could prey on juveniles and others such as redbreasted shiners, a non-native, may be competitors (see Reeves et al. 1987). Assessment of the fish community probably would require some sampling of faster waters to detect species such as speckled dace.

198402500 - ODFW Blue Mountain Oregon Fish Habitat Improvement

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$377,900 FY08: \$391,600 FY09: \$410,300

Short description: This project works with landowners, and other government and quasi-governmental agencies to protect and enhance habitat for federal ESA listed fish in the Blue Mountain Province of Oregon.

Recommendation: Response requested

The proposal seeks to continue restoration activities in the Grande Ronde basin where the need for these activities is well documented. The project has a long history of success at implementing habitat actions. A particularly positive aspect of the work is the cooperative relationships that have been established with landowners. The central drawback is the lack of a clear monitoring protocol for projects.

Numerous and diverse projects have been implemented since the project's inception. The actual benefits to focal species, however, can only be inferred because the sponsors provided no direct evidence of how fish utilization had increased in project areas or how it will be assessed in the future. Past projects may have resulted in positive habitat changes, and these changes are likely to benefit fish.

A response is requested to address the effectiveness monitoring. There does not seem to be a standard protocol, and the sponsors presented no solid, quantitative evidence that the projects actually benefit fish. The effectiveness monitoring conducted by the sponsors, or other projects

should be identified. The sponsors have adequately documented implementation. Additionally, evidence of management implications is sparse. The earlier ISRP review emphasized the need to assess and evaluate the stockpile of data collected by the project, and this advice does not seem to have been translated into action. It would be appropriate for the sponsors to indicate how their nearly 20 years of experience has transformed their approach to habitat restoration. Are there activities that they did years ago that have been abandoned because they do not believe it is beneficial, or other activities that they have expanded because their impression is that these treatments are useful? More rigorous, quantitative documentation of improvements in riparian function, channel characteristics and flow, and fish use would be beneficial to clearly demonstrate the benefits to fish of the projects. This project is integral to the Grande Ronde Model Watershed Program, where the Council has identified the need to coordinate an effort within a subbasin. The Council should use all avenues available to try to get adequate data collected on these projects and an evaluation of the efficacy of the efforts.

A response should describe provisions for biological monitoring and evaluation (measurable, objective, and hypothesis driven). M&E could be accomplished by other projects, but needs to be detailed and address which project and entities will be doing it ... hypotheses, etc. for each site or suite of habitat actions. The sponsor is undoubtedly accomplishing habitat modification. Effects on the target species need to be measured in order to justify this and similar projects. Work element 3.1.1 WE 175 - Collect/Generate/Validate field and lab data: 30 miles of spawning ground surveys are identified in this work element. Is this new? If not, why is none of this data included in the project history. If it is not new, some methods should be provided and a framework for the analysis and interpretation of the data. The implementation monitoring using wells, temperature recorders, and photopoints is fine. Some analysis of this data is needed. It may be in the annual reports, but that is not clear from the proposal.

199202601 - Grand Ronde Model Watershed Program Habitat Restoration - Planning, Coordination and Implementation

Sponsor: Grande Ronde Model Watershed Foundation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$1,346,055 FY08: \$1,349,369 FY09: \$1,352,869

Short description: The project coordinates BPA funded restoration activities in the Grande Ronde and Imnaha Subbasins working with tribes, agencies and landowners. The project annually implements 10-20 habitat restoration projects.

Recommendation: Response requested

There is every indication that the project has been a success so far. An impressive number of enhancement projects have been undertaken, and the record of cooperative work among government and private entities is excellent. Nevertheless, there are several issues that the sponsors need to address. The proposal lacks a comprehensive assessment of the progress of each enhancement project to date, in terms of how well the projects are achieving their objectives (see Project History comments).

While implementation and effectiveness monitoring of individual restoration projects is required, the sponsors have not attempted monitoring on larger spatial scales (e.g., stream reach, tributary, subbasin) to assess the cumulative effect of multiple restoration projects on habitat and population responses. They discuss the real problems involved with monitoring action effectiveness at large spatial scales and over the long time periods that may be required to clearly see results. Unfortunately, the sponsors leave the impression that they do not know whether habitat and populations have benefited from the expenditure of \$22 million (\$6 million from BPA) since 1992. The sponsors seem to be focused on why large-scale monitoring can't be done rather than making a serious effort to address the problem. The sponsors need to make a serious effort to develop a meaningful strategy for effectiveness monitoring at larger spatial scales. Communication with other projects addressing similar issues such as the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and the NOAA-Fisheries ISEMP could provide a starting point. A workshop also could be beneficial.

Have the sponsors considered the project's function in adaptive management of the Grande Ronde basin? Could the sponsors provide a more detailed description of their proposal review procedure (review criteria, expertise involved, etc.)?

Technical and scientific background: The problem is well defined. Salmon have declined precipitously in the Grande Ronde and Imnaha watersheds. The sponsors propose to coordinate habitat restoration actions to recover declining stocks. EDT was used to examine possible restoration scenarios.

Rationale and significance to subbasin plans and regional programs: The Grand Ronde and Imnaha subbasin plans serve as the guiding documents for the diverse projects coordinated by the Grande Ronde Model Watershed Project (GRMWP). The proposal is linked to the Snake River Recovery Plan and the Oregon Plan. A major strength of the sponsors program is that it is a partnership that includes tribes, elected officials, state and federal natural resource management agencies, a state university, environmental groups, agricultural groups and economic development.

Relationships to other projects: The sponsors work with the Confederated Tribes of the Umatilla Indian Reservation and various key state and federal. The proposed work is closely related to four projects funded through the Fish and Wildlife Program.

Project history: The sponsors have completed an impressive number of enhancement projects primarily targeting priority watersheds as identified in the Grande Ronde subbasin plan. They have received substantial funding for this work not only from BPA but also from numerous state, federal, and private entities. Their success is due in part to the excellent working relationships they appear to have established with government and private entities.

A concern is that the sponsors provide little documentation of the progress of the projects under their direction. Because this project has been funded by BPA for a long period and considerable monitoring data should have accrued, some documentation of project progress is essential above

and beyond a listing of actions taken such as the number of projects undertaken and the number of instream structures installed. Detailed documentation of the progress of individual projects in this proposal is unrealistic because of the large number of projects. As an alternative, for each project, the sponsors could indicate the priority watershed in which it is located, project objectives, limiting factors and the priority restoration actions (Table 6) that have been undertaken, and metrics for evaluation. Table 9 provides a template for this summary. The sponsors could provide an indication of the changes that have occurred at the project site (e.g., increased pool frequency and depth, reestablishment of willow, increased number of fish using pools, increased spawning habitat, no change as yet, etc.) and an overall, objective assessment of the progress of the project relative to the information provided above. Finally, they should provide an objective evaluation of the status of data analysis for each project. The sponsors point out the problems in measuring fish population responses to habitat improvement. It may not take as long to see population trends as the sponsors think (maybe 5 to 10 years rather than the "many years" that is written).

Objectives: The objectives-strategies section is clear and logical for the most part. The sponsors provide priority strategies, geographic priorities, an explanation of the process for project selection, and a table of projects under development. The objectives section could be improved by analyzing needs (watershed analysis) before launching into treatments. Apparently some (perhaps much) of this has been done, but it is not clear where in the sequence the watershed analysis is supposed to take place.

Tasks (work elements) and methods: The methods are generally but sufficiently described for a project of this type. The sponsors will employ both well-established passive (preferred) and active enhancement strategies, and they provide a reasonable discussion of the kinds of conditions for which each of these strategies will be employed. In objectives and strategies, the sponsors made thoughtful distinction between long-term recovery (curing of human-generated causes of problems) and short-term, symptomatic treatment (fixes) of habitat deficiencies. The proposal would be improved if the tables (Tables 8 and 9) and other statements of methods were to distinguish explicitly between remedies of causes and fixing of symptoms. This distinction would help to keep program's personnel more mindful of this important aspect as the program progresses.

Monitoring and evaluation: Project-specific implementation and basic effectiveness monitoring is required of each project coordinated by the GRMWP. The project has deferred monitoring of the cumulative effectiveness of multiple projects at larger spatial scales such as the stream reach, tributary, or subbasin. It would seem that the GRMWP should be the focal point for development of an adaptive management program.

Facilities, equipment, and personnel: Facilities are sufficient to allow the sponsors to meet project objectives. The personnel have demonstrated their ability to manage the project.

Information transfer: The sponsors do not provide a concise discussion of how information will be transferred but, because of the cooperative nature of the project, there is every reason to believe it will be transferred adequately, at least locally. Reports are required for each project.

Benefits to focal and non-focal species: The projects should benefit focal species but the sponsors did not give detailed information on the actual benefits accrued to this point. The projects are primarily relate to habitat improvement and should benefit non-focal species.

199608300 - CTUIR Grande Ronde Subbasin Restoration Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$190,000 FY08: \$200,000 FY09: \$200,000

Short description: The CTUIR Grande Ronde Subbasin Restoration Project plans, designs, implements, maintains, and monitors habitat enhancement and restoration projects in the Grande Ronde Subbasin. Planned FY 2007-09 projects include Meadow Creek, End Creek, Ladd Creek, and main Grande Ronde.

Recommendation: Response requested

This is a good proposal, but it needs to display biological results that demonstrate effectiveness of past restoration activities. The sponsors need to provide better documentation of the success of individual projects to date and to better explain the monitoring program so that it is clear that monitoring will be adequate to assess progress toward the project's goal.

Technical and scientific background: The problem is well documented by the Grande Ronde Subbasin Plan and other reports. The sponsors propose to continue habitat restoration action to recover declining stocks.

Rationale and significance to subbasin plans and regional programs: The project is closely linked to the Grande Ronde Subbasin Plan and generally addresses objectives in the Fish and Wildlife Program. The proposed projects are sited within the three highest priority watersheds identified by the Grande Ronde Plan.

Relationships to other projects: The project has an excellent history of collaboration in the Grande Ronde basin. The sponsors are members of the Board of Directors of the Grande Ronde Model Watershed Program. They collaborate with numerous state, federal, and private entities and involve some of these entities in project design and implementation.

Project history: The project has been in existence for 14 years or so. The results in terms of target fish population responses to habitat change should be available, but these results do not appear in this proposal.

While a broad overview of project history is both helpful and necessary, a project-by-project summary also is necessary to determine how well the individual projects are progressing relative to their objectives. We suggest one way of summarizing this information. For each project, the

sponsors could indicate the priority watershed in which it is located, project objectives, limiting factors, the priority restoration actions that have been undertaken, and metrics for evaluation. They could provide an indication of the changes that have occurred at the project site following enhancement actions much as they have done in a general way in the proposal, and an overall, objective assessment of the progress of the project relative to the information provided above. Finally, they could provide an objective evaluation of the status of data analysis for each project.

Objectives: The general objectives of the project and Work Elements are well defined. The projects have been identified. Specific objectives for individual projects have not yet been formulated because the projects are still in a developmental stage.

Tasks (work elements) and methods: The sponsors describe the process they use in developing and implementing a project. The process is logical; it is tied to the subbasin plan and can involve landowners in development of project goals. The enhancement actions the sponsors employ are well established, and they are experienced in their use.

Monitoring and evaluation: The sponsor's provide a broad overview of the monitoring program. The monitoring plans in terms of questions to be addressed are presented. These plans imply that habitat and fish population variables will be measured, but often in vague terms. The M&E design and methods were not described. The project has been in existence for 14 years or so. M&E should have been fully developed by this time, and the results should have been presented in the Project History section of the proposal. The sponsors need to clarify what project-specific monitoring will occur and who will do it. Will both implementation and effectiveness monitoring take place for each project? What entity will be responsible for each? Will habitat surveys be conducted on a regular basis at each project? Will fish surveys be regularly conducted at each project? Will the fish performance measures appropriate for the project be selected from those in Table 9? The response should explain the BACI design.

Facilities, equipment, and personnel: Facilities are adequate. No information on project personnel was provided.

Information transfer: The proposal provides for means of information dissemination including reports and outreach programs.

Benefits to focal and non-focal species: The projects should benefit focal species by improving their habitat. The level of benefit that can be expected is unknown at this point because the projects are currently being developed

The project should provide improvements in stream, wetland, and riparian habitat and should have multiple benefits for many non-focal species.

200710500 - Protect & Restore Wallowa River Watershed

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$881,762 FY08: \$897,291 FY09: \$926,487

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

Recommendation: Response requested

Overview Comments on the following proposals, which should be considered as a set:

200710500 - Protecting & Restoring the Wallowa River Watershed;

200711600 - Lostine River Watershed Restoration;

200724500 - Protect and Restore the Joseph Creek Watershed; &

200725700 - Protect and Restore the Imnaha Subbasin

Each of these project proposals is essentially identical. The following general comments apply to all four and should be addressed in a response. Specific comments for each proposal/watershed are provided after the general comments.

Each project has a large budget, is overly general, vaguely justified, and is presented with an overly ambitious "do everything" approach. We are concerned that these qualities will only intensify the potential for failing to deliver on the project's goals and biological objectives.

As each proposes to do an enormous amount of work, they primarily fail in presenting the details of what and how much will be done, where, in what order, and how effectiveness will be monitored. Essentially, this group of proposals needs a priori prioritization, in terms of which watersheds and the activities therein will offer the greatest effectiveness or potential within a broader context of the Subbasin and especially with the Grande Ronde Model Watershed Project and the role it plays in the basin. Ultimately, this begs a basic question as to "why this project not 'approved' by GRMWP" – apparently GRMWP has authority to approve and there is no indication of this?

Each project proposal has the same basic set of "prescriptions" regardless of watershed conditions. Each needs to be integrated within a watershed assessment context (which should be part of the Subbasin Plan). We are concerned the uniform prescription approach does not reflect true diagnosis of limiting factors, in a quantitative (versus qualitative) sense within each watershed specifically regardless of their commonalities.

Ultimately, we recommend potentially a phased-in schedule or approach. First, we conclude that it is appropriate to provide rather leaner funding to demonstrate that the sponsors can accomplish this kind of work. Second, sponsors need to develop a sufficiently robust M&E methodology and treatment to be integrated across project - perhaps as a group – with non-treated reference streams. We do not imply that every variable must be monitored, but rather that some effort must be included to define basic hypotheses and response variables. Third, from this M&E, the

sponsors should be able to demonstrate (or not) that the approach has a measurable response (i.e., the approach works). Finally, that expansion of these projects to other places (and more of them within the watersheds) will have a cumulative benefit (population-level response).

Other general issues:

- Aside from habitat treatments, the projects propose to complete “roads” assessments. Were not these done as part of the Subbasin Plan?
- The linkages to other projects are not well described. An obvious example is the Grande Ronde Model Watershed Project. There are likely others.
- There is a need for some basic analyses (are there data in the watersheds that define the limiting factors in a quantitative v. qualitative way) to better justify the projects, indicating whether they are affecting habitat in significant fish production areas (or will the restoration action have a measurable impact on habitat and fish), and the extent of impact on these areas (how much damage has been done to habitat and fish that would warrant a restoration/protection action).

Technical and Scientific Sections: All four of these projects were submitted by the Nez Perce Tribe, by the same PI, using a common narrative template. All propose similar (though not identical) landscape treatments - culvert removal, fish migration barrier mitigation, riparian habitat improvement, and in-stream flow measures.

The technical and scientific background is not effective at communicating how the projects implemented by the proposals will address the problems in these respective watersheds. There is much background text that is not essential to the proposal, for example, the background on Nez Perce ceded lands. This provides some context but makes it harder to find out exactly what the sponsors want to do and why. Similarly, the discussion about how culverts and other barriers effect fish populations is not necessary. Simply presenting the results from the various assessments that establish this as a limiting factor in the watersheds is sufficient.

Rationale and significance to subbasin plans and regional programs: While the proposals qualitatively and loosely address limiting factors in the Grande Ronde Subbasin Plan, the 2000 Biological Opinion, and the tribal recovery plan (CRITFC), the proposals do not adequately connect the actions proposed in the methods and work elements with locations identified in the subbasin plan or federal recovery documents as high priorities for action.

As an example, on page 15 of the Lostine River proposal is a table (1) listing strategy recommendations from the Grande Ronde subbasin plan. These strategies need to be connected to watershed segments identified in the subbasin plan and then these proposals need to identify that the projects they are choosing are high priorities.

Relationships to other projects: The proposed work involves state, federal, and private entities in a cooperative venture. It is related to several BPA funded provincial and subbasin projects, but the sponsors do not sufficiently explain these relationships within the context of the proposed project.

We specifically identify a known entity with authority for coordinating projects – i.e., the GRMWP has several projects that have been executed in these watersheds. How have the sponsors ensure they are not duplicating work from other projects or not undoing the benefits from others?

Objectives: These projects have far too many objectives (and work elements) to be effective without prioritization as to which will have the greatest benefit to salmon or more specific details about what actions will be taken where.

As such, each of these proposals has a "do everything" kind of feel to it without any sense of whether everything (or anything) is doable and will be effective.

Also, sponsor must approach objectives as measurable (expected biological response in terms of fish and wildlife). Treatments then serve as the basis of hypotheses and through basic population monitoring can help determine response and effectiveness. This needs to go beyond simply providing tables that refer to prioritized strategies in the subbasin plan. Proposals are stand-alone documents and the objectives should be stated explicitly, not simply referred to by number in another document.

Tasks (work elements) and methods: Methods are only generally described with some methodological details presented in the appendix. In all four proposals there are a series of tables (for example table 2 in the Lostine Proposal) that provide objectives, links to strategies in the subbasin plan, and work element numbers for the proposal. Under each of the work elements there needs to be a short paragraph explaining the approach used to finish the task, not just state that the task exists.

The sponsors assert that restoration will occur on the reach/segment scale, but they do not explicitly describe how this scale of work will be accomplished, in what order or priority, or if it is even possible.

For example, the sponsors need to provide better justification and prioritization for the proposed culvert replacements. Here, they need to explain how culvert replacements locations were prioritized, whether the blocked areas were once (or should be) productive for fish based on habitat assessment, and the conditions and extent of the habitat that will be opened by culvert replacement.

Moreover, the work elements related to sedimentation and channel reconstruction are simply too general and represents little more than a vague promise at this point to do something good. Possible locations, methods of prioritization, and explanations of how sediment sources will be identified and their contribution to the total sediment load are not provided. The methods largely consist of a list of actions that might reduce sediment loads. In all four proposals (under sedimentation and channel-reconstruction in the Lostine proposal) 1/8 mile of stream per year is to be treated. How can this short reconstruction effectively improve the habitat-forming processes in the watersheds?

The sponsor needs to justify the 160 acres for weed control. Where will the effort be located in the basin? How were the sites selected? What was the process of prioritization? What is the specific impact of noxious weeds on terrestrial and aquatic habitat at the project sites? What is the expected benefit and impact to salmon or wildlife populations?

Monitoring and evaluation: The M&E approach is not well defined. The sponsors say they will rely on the NEOH project for monitoring. But, as described, the M&E is too vague to be judged appropriate in a scientific light. Descriptions appear to be materials "cut" from other documents and did not link to these proposals. Rather, monitoring for these proposals should use the same methods and format as used by the CTUIR, GRMWP, and ODFW projects for consistency within the Grande Ronde and Imnaha subbasins.

Facilities, equipment, and personnel: Until a more succinct proposal with clear tasks is provided, it is difficult to determine if the personnel and equipment are sufficient.

Comments specific to this proposal:

Technical and scientific background: The problem is clearly identified. The need to address the problem is clear: the Wallowa River was once a productive stream but has been severely degraded by land use activities that have occurred over long periods of time. The sponsors propose to address the problem through habitat restoration actions.

A rather lengthy list of active and passive restoration techniques will be applied to improve fish and wildlife habitat. The background is overly general and the proposed actions somewhat grandiose without some set of identified priority places throughout watershed. These need to be specified and tied to the objectives a bit more.

This technical and scientific background could be much shorter and succinct. Sponsors might wish to look at the CTUIR proposal 199608300 or the Grande Ronde Model Watershed 199202601 for examples of using the loss of fish and the EDT analysis from the subbasin plan to provide an effective background, as well as for potential linkages.

200711600 - Lostine River Watershed Restoration

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$1,077,679 FY08: \$1,102,253 FY09: \$1,132,926

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

Recommendation: Response requested

Under proposal 200710500, extensive general comments and concerns on this set of four related proposals are given that need to be addressed in the sponsor's response to the ISRP. The sponsor should also address the specific comments on each proposal.

Comments specific to this proposal:

A big activity of this project is putting an open irrigation ditch into a closed pipe. Yet there seems only vague buy-in by the owners of the ditch. Has this been addressed and cooperation secured?

200724500 - Protect & Restore Joseph Creek Watershed

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$834,666 FY08: \$859,236 FY09: \$889,872

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

Recommendation: Response requested

Under proposal 200710500, extensive general comments and concerns on this set of four related proposals are given that need to be addressed in the sponsor's response to the ISRP. The sponsor should also address the specific comments on each proposal.

Imnaha

199701501 - Imnaha River Smolt to Adult Return Rate and Smolt Monitoring Project

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Imnaha

Budgets: FY07: \$324,987 FY08: \$340,062 FY09: \$355,135

Short description: This project will estimate total juvenile emigrant abundance, smolt survival and smolt-to-adult return rates (SAR) of wild/natural chinook salmon and steelhead at Lower Granite and McNary Dams and support the Smolt Monitoring Program and NEOH M&E Projects.

Recommendation: Response requested

This proposal adequately outlines a project for several fish collection activities potentially useful in monitoring and evaluation. The proposal was not clear on how the six objectives – really tasks – under F explicitly link with aquatic objectives. As the proposal is drafted, the "Objectives:" under F are tasks to be undertaken, not objectives, in the sense that counting fish through traps, tagging fish, and getting counts at dams are not objectives, but methods. A response is requested that establishes a linkage between what is proposed to be done and how these actions relate to

the overall objectives. The project history and accomplishments in measurable terms are documented in the proposal. However, evaluation of results and their management implications are not clear. A response should address this issue.

200714100 - Bull Trout Effective Population Size in Isolated Populations

Sponsor: Columbia River Fisheries Program Office

Province: Blue Mountain **Subbasin:** Imnaha

Budgets: FY07: \$302,000 FY08: \$238,000 FY09: \$253,000

Short description: Estimate population abundance, effective population size and within/among population genetic variability in isolated populations to provide empirical data toward defining minimum viable population size and restoration and recovery of bull trout.

Recommendation: Not fundable

The authors attempt to develop an approach for a very restricted area that will have broad applicability throughout the basin; however, it is not clear how results obtained in this study will necessarily have broad applicability in the basin. The project will only describe movement and habitats in a limited area. Making the larger, region-wide inference that these habitats and movements are requirements for bull trout does not seem justified. The sponsors do not demonstrate how their data will be used to infer what bull trout requirements are.

It is not clear that management has many options to act on the information gained to make substantial improvements in bull trout recovery. It is not clear what will be done differently based on the information gained.

The effective population sizes of 50 to prevent inbreeding and 500 for long-term sustainability are commonly used in the literature, but are not established theoretically or empirically in conservation biology. The minimum genetically effective population sizes for short and long-term persistence remain speculative. Sponsors indicate that the goal of the work is to provide empirical data toward defining minimum viable population objectives for restoration and recovery of bull trout. The task is to estimate effective population size from demographic and genetic data. The step from these estimates to making the decision on defining minimum population sizes is inadequate. The second step, using management tools to address increasing effective population size in populations where it would be deemed too low is absent from the background.

The detail on evaluating bull trout movements is adequate, but the detail on determining the abundance of bull trout is not adequate. Several alternative methods are identified but none has yet been selected. No criteria are given for how this selection will take place. Preliminary fieldwork should have been performed so this could have been addressed in this proposal. No purpose is identified for evaluating within and between genetic variability for this project. What is the purpose of these estimates? What will they be used for? More information is needed on the methods to estimate effective population size. Particularly, how will a standardized variance in reproductive success be estimated? In the habitat analysis - how will a weak and strong bull

trout population be defined? Is a habitat comparison between the locations where strong and weak populations found really a valid method to determine habitat requirements?

This proposal has a need for a map of the study area in order to describe the potential problems created for the bull trout populations by the irrigation canal and to help the reader follow the study design. This is evident throughout the proposal.

200725700 - Protect & Restore Imnaha Subbasin

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Imnaha

Budgets: FY07: \$1,143,967 FY08: \$1,162,474 FY09: \$1,195,208

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

Recommendation: Response requested

Under proposal 200710500, extensive general comments and concerns on this set of four related proposals are given that need to be addressed in the sponsor's response to the ISRP. The sponsor should also address the specific comments on each proposal.

Comments specific to this proposal:

In this Imnaha proposal, five miles of road are going to be decommissioned each year for a total price tag of \$154,649. This seems unrealistically low, particularly since maintaining existing roads at 1.0 mile per year costs \$225,000. Is cost estimate based on experience or recent bids?

Snake Hells Canyon

199801004 - Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Fall Chinook Acclimation Facilities

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$371,780 FY08: \$365,467 FY09: \$373,361

Short description: Monitor post-release performance and survival of yearling and subyearling fall Chinook from the Fall Chinook Acclimation Project (FCAP) facilities to evaluate success of the fall Chinook supplementation program above Lower Granite Dam.

Recommendation: Response requested

The ISRP is concerned that the metrics used for evaluating fish health (e.g., condition) are not adequate. Condition is not an effective measure per se of fish health. Bigger fish and fatter fish are not necessarily healthier fish; they don't explain optimal size and condition. This is a post hoc

analysis. A response should consider what are the best metrics for evaluating these fish? This should be based on a more thorough assessment of studied metrics of fish health.

Methods have been employed since 1996, but it is not clear what has come out of this long-term effort. What has been learned? The response needs to summarize the results/synthesis of the data collected to date. Sponsors report actions, but not the biological results.

Objectives for a project like this need to be in biological outcomes, rather than tasks accomplished. The objectives listed are really tasks, not objectives. The response also needs to better describe how the different objectives and tasks integrate with each other.

199801005 - Pittsburg Landing Fall Chinook Acclimation Project (FCAP)

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$760,629 FY08: \$786,486 FY09: \$809,565

Short description: Supplement natural production of Snake River fall Chinook above Lower Granite Dam through acclimation and final rearing of Lyons Ferry Hatchery yearling and sub-yearlings at two sites on the Snake River and one site on the Clearwater River.

Recommendation: Response requested

Funding for continuation of this project is contingent on submittal of an adequate response coordinated with the monitoring and evaluation proposal 199801004. As an O & M proposal for fish rearing, this proposal has enough information for review, but its technical merit is tied to the M & E proposal. Therefore, evaluation and adaptive management of this project is contingent on successful execution of project 199801004. This is a major activity. There should be better structuring of the relationships of exactly how the proposed actions will accomplish objectives.

199801003 - Spawning distribution of Snake River fall Chinook salmon

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$52,000 FY08: \$52,000 FY09: \$52,000

Short description: Monitor the status and distribution of fall Chinook in the Snake River using redd counts. Report results of all redd searches in the Snake River basin each year.

Recommendation: Fundable (Qualified)

The ISRP is not requesting a response, but qualifies this fundable recommendation because this is such a small activity or component of the Fish and Wildlife Program. It would be better if it was more clearly integrated into a larger project. Furthermore, sponsors do not justify sufficiently why this project is critical and how it fits into and relates to other projects. At a regional scale, it is not clear why this project should continue. How is this used and related to other projects? Does this project have application beyond this site? Can this approach be applied some other places at low cost?

Besides the usefulness of the method in this particular case, the method may have potential application elsewhere. A key factor would be to develop the ability to see redds in places not easily accessible. The project should not only emphasize current usage of the method but look for ways to improve the method so that the application could be more widespread. The project history was brief, with little development of past findings. The budget seems reasonable given the scope and potential value of the work.

Lower Snake Multiprovince

199706000 - Focus Watershed Coordinator - Nez Perce Tribe

Sponsor: Nez Perce Tribe

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$411,315 FY08: \$431,469 FY09: \$459,510

Short description: Manage and implement a comprehensive system to coordinate multiple jurisdictions, agencies, and private landowners within the Nez Perce Tribe's Treaty Territory. These efforts work toward protecting, restoring, and enhancing watersheds.

Recommendation: Admin (see comments)

Although the ISRP places this proposal in the administrative category, this proposal is not justified as presented. This proposal provides similar functions as the Soil and Water Conservation Districts' coordinator, proposal 199608600, and the ISRP comments for both projects apply to each. This project may be an essential element of stewardship for the subbasin. But based on the proposal, it is not clear that this project is showing results in the basin for restoration and evaluation.

This project is supposed to provide vital services, but it is not clear what essential functions this individual provides, and what would happen regarding Clearwater subbasin integration and facilitation of other Council Fish and Wildlife Program proposals if this coordination was not available. Almost all the proposals covered under this focus coordination project also request FTE and funding to perform the same tasks. It does not appear that critical monitoring and evaluation or watershed assessment coordination is being performed under this project. The projects under the NPT Focus watershed auspices from the Clearwater and Grand Ronde subbasins need substantial improvement. So it is unclear how the supervision provided by this project is informing those efforts. Further evidence of essential functions being provided by this coordination is needed. The ISRP's province review recommendation included the statement: "This project should demonstrate performance by the next review cycle otherwise it should be terminated."

As with other watershed coordinator proposals, the proposed effort would be better integrated into a proposal that is directed toward management based on science including on-the-ground work and monitoring.

Technical and scientific background: The details of the essential functions this project provides to the various subbasins in the Nez Perce ceded lands is not clear from the technical and scientific background. Coordination across the subbasins in developing standards for conducting habitat and fish inventories, watershed assessments, decision matrices for picking projects, and evaluating the efficacy of habitat restoration is not sufficiently described.

Rationale and significance to subbasin plans and regional programs: There is identification throughout this section that the Fish and Wildlife Program and NOAA recovery programs call for integration and coordination. What is not clear is that the tasks executed through this project actually accomplish that integration and coordination.

Relationships to other projects: There are a number of important projects listed. What is missing is the actual tasks this project performed for these other projects. Each of these other projects request time and funds for their own coordination and integration and BPA and NEPA permitting. It is not clear what functions this project adds to those.

Project history: A short history of the origin of the Focus Watershed Coordinator for the Nez Perce tribe is given. The history does not provide evidence of implications for management, i.e., that management actions have been influenced by the outcome of the coordination.

Objectives: The objectives are laudable. Note, however, that the project history does not contain results in terms of the stated objectives. There are some measurable objectives identified, for example, "Continue riparian recovery to achieve at least 75% riparian function (Tucannon River)." For other objectives, like "Coordinate with groups and the public when developing and implementing fish and wildlife activities in the subbasin" (Imnaha), it is more difficult to define measurable objectives. The coordination objectives are quite vague in almost all cases.

Tasks (work elements) and methods: The exact work elements are vague. For example, page 19: Identify and select highest priority watershed restoration projects with the treaty territory based on the respective subbasin management plans. This does not tell reviewers what decision and analytical framework is employed in establishing the priority list.

Monitoring and evaluation: Coordinating monitoring and evaluation is not formally discussed.

Facilities, equipment, and personnel: 3.3 FTEs are requested. The specific tasks these individuals perform and the time allocated is not adequately described.

Information transfer: Information will be provided upon request and in quarterly and annual BPA reports. The documentation is not likely to provide easy evaluation of the need for the coordination.

200718300 - Restoration of Historical Salmonid Habitat in South West Idaho

Sponsor: Southwest Idaho RC&D

Province: Multiprovince **Subbasin:** Multiprovince

Budgets: FY07: \$382,000 FY08: \$336,000 FY09: \$338,000

Short description: Fish passage at road crossings throughout Southwest Idaho has greatly reduced historical anadromous & resident salmonid habitat and migratory routes. This project, culvert barrier replacement in cooperation with tribal governments will restore salmonids.

Recommendation: Not fundable

This proposal needs further work to satisfy most of the ISRP criteria. Spending over \$1 million for accessing 13.8 miles of stream, with no geomorphological assessment and only 60% spent on (design and?) construction, should be supported by a more complete proposal. This culvert project should be part of watershed rehabilitation and guided by the subbasin plan and watershed assessments. It is not linked to subbasin plans, and not identified as an activity having high priority.

The technical aspects are not well articulated and there are no data on fish presence. The main objective is to prioritize culvert replacement according to:

"The Boise and Sawtooth National Forests also asked the following questions to verify that these crossings were located in areas considered to be priorities for restoration.

- Is the project in a high priority subwatershed as determined by the Watershed Aquatic Recovery Strategy and/or Aquatic Conservation Strategy?
- How many listed fish or other aquatic species would benefit from upgrading the barrier?
- Does critical habitat occur above the culvert?
- How many miles would be made accessible if passage was restored?
- Will correction of this barrier make the stream more accessible to introduced species?"

However, directly after quoting the above, the attached fish barrier report claims to have used the following criteria for Table 4: "The order within Table 4 is not necessarily firm, but is listed in order according to the amount of suitable habitat upstream. Also, note that the miles of perennial stream above each culvert varies greatly. Some perennial stream miles may not necessarily provide suitable fisheries habitat, but may provide habitat for other aquatic-dependent species."

Attached to Table 4 is the following: "Criteria for ranking culverts are weighted mainly on the miles of habitat that will be accessible after replacement. However, our criteria included the inventory priority for species, the aquatic conservation strategy, the watershed and aquatic recovery strategy, the benefit to listed species, and the accessibility to introduced species."

No process for using these criteria is explained; what is one supposed to conclude from this jumble of supposed criteria? This is indicative of poor science, particularly when it is the basis for spending \$1 million.

The cookie-cutter diagrams showing how a hanging culvert is replaced are dangerous in situations where the morphological dynamics of the stream are unknown, as in this case apparently -- again, not good science.

The method statement is brief and vague. No mention of culvert replacement design (clear-span bridge or bottomless culvert) is given based on geomorphic analysis, including possible incision or aggradation processes and sediment sources, and the need for the capacity to pass a chosen-probability flood (and sediment without concentrating flow and increasing the velocity/unit width ratio that will likely cause erosion immediately downstream).

Monitoring and evaluation are mentioned twice in the entire proposal but are not adequately described. Facilities, equipment and personnel are not very specific and without mention of the necessary fluvial geomorphology expertise needed for this proposal. No information transfer is mentioned.

There is insufficient explanation of benefits to focal species and other activities in the watershed. The proposal indicates non-focal species as "All Wildlife, Brown Trout, Bull Trout, Cutthroat Trout, Freshwater Mussels, Rainbow Trout, Westslope Cutthroat, river otter & mink", but makes no further mention of the benefits to these species.

Mountain Snake

Clearwater

199005500 - Idaho Steelhead Monitoring and Evaluation Studies

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$810,260 FY08: \$830,638 FY09: \$759,695

Short description: This project collects and monitors life history, genetic, and abundance data from wild steelhead populations in Idaho.

Recommendation: Response requested

This project seems to be oriented to routine monitoring. The proposal is not framed strongly in terms of the real objectives of the project for better understanding and consequently better management of steelhead. The response needs to include more detailed reporting of the results or describe immediate plans to synthesize the results. Although the tasks for monitoring are appropriate, the response should also provide greater detail of how the tasks are tied to overall biological objectives. The response should include greater coverage and summary of the published literature. Doing this would help the sponsors to look at this in a broader, more meaningful context.

Sponsors state on page 2 of the proposal narrative: "Age structure of steelhead smolts should be considered in recovery planning as it could explain productivity differences among streams. A stream with older smolts most likely will produce less smolts per female due to the increase in natural mortality from an "extra" year of freshwater rearing before smoltification occurs." This is not unexpected. Smolts per spawner as a comparative metric among streams is only relevant if subsequent survival is the same for the different smolt ages. It could be that some streams will produce more adults by a life-history strategy of older aged smolts, even with fewer of them, than if they produced younger aged smolts that experienced higher marine mortality.

There was a summary of the tasks completed including a short summary of a lack of response from supplementation in the Salmon River upstream from Sawtooth Hatchery and in Red River. The project history shows that data have been generated on various attributes of Idaho steelhead but there is little explanation of why the work was done and how it was (or will be) used to benefit fish. It would improve the proposal if management changes were identified that emerged from the data that were collected. If the project has settled into an automatic routine of gathering the same data at the same sites then perhaps it is time to either identify a focus or discontinue. The response should explain why the work was done and how it will be used to benefit fish.

There are clearly defined objectives, but their utility and priority are questionable. In response, please explain how the tasks are tied to assessing natural production bottlenecks or evaluating important hypotheses.

A more in-depth consideration of the potential to measure more than HWE , F_{st} , r_{xy} , and assignment tests should be added and considered. Pritchard et al. 2000 is cited. It may be possible to assess the number of subpopulations in a watershed, the interbreeding of the subpopulations, and effective numbers of breeders, etc., using the genetic data. It may also be a useful method to estimate the effective size of the breeding population. The sponsors should include in response how this type of analyses might facilitate their work.

The response should provide greater detail regarding INPMEP and probabilistic site selection. Also, please clarify the statement that this project (ISMED) will complete snorkel surveys at a finer scale with greater precision than INPMEP.

The proposal repeatedly mentions the value of publishing results, but after 15 years nothing has been completed. The information has been useful for establishing the status of steelhead, but the primary product has been "gray" literature. The response should describe progress in developing journal publications to disseminate project results.

There could potentially be adverse effect from traps and other activities in the streams, and this is not addressed. The information on other species could provide an ancillary benefit to management of those species (e.g., bull trout).

200726900 - Clearwater Coho Restoration Project

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$93,277 FY08: \$247,210 FY09: \$255,057

Short description: The Nez Perce Tribe goal is to restore coho salmon to the Clearwater subbasin measured by 14,000 adults at Lower Granite Dam annually. This proposal is for completing the Step planning process and construction based on the 2004 Master Plan.

Recommendation: Fundable in part

This proposal is designed to initiate a Three-Step Review. Fundable for Year 1-FY2007, to perform Step 1 of the Three-Step Review. Year 2 and subsequent funding should be contingent upon successful completion of Step 1.

198335000 - Nez Perce Tribal Hatchery Operations & Maintenance

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$2,033,220 FY08: \$2,094,217 FY09: \$2,177,986

Short description: Nez Perce Tribal Hatchery is a supplementation program using conventional and NATURES rearing techniques to rear spring and fall chinook salmon. Phase I production goals are set at 1.4 million fall chinook salmon and 625,000 spring chinook salmon.

Recommendation: Response requested

A response is needed from the sponsors of this proposal that brings reviewers up-to-date on progress toward interim goals described for Phase 1, including returning numbers, smolt releases, smolt-to-adult return rates (SARs), etc.

The proposal is well done, although superficial on details of releases relative to the Phase I and Phase 2 objectives and presentation of any results on performance by hatchery stocks at the interim management points. Given the well-described logic path in the first part of this proposal's narrative, reviewers expected to see some evaluation of recent performance versus stated goals.

Technical and scientific background: This section contains technical items but very little scientific background. The abundant literature on results and consequences of releasing hatchery-produced fish of this and related species into waters is not discussed as it may pertain to the project. The section does contain a lot of information that would fit nicely into the proposal section on rationale but doesn't fit well into the technical section.

The most recent prior ISRP review recommended "Fundable at the Phase 1 level only". The ISRP noted that future funding would likely be contingent upon proposals better addressing longstanding ISRP concerns from previous reviews and presentation of Phase 1 M&E results. Implementation of the full-scale production program (Phase Two) will be dependent on M&E results from the first phase of the program. It is important that the NPTH production remain at the reduced Phase I level throughout this initial review and evaluation period.

The concerns of the ISRP in that review remain relevant to this 2006 review: “The ISRP remains concerned that planning for the hatchery and its M&E include all possible management and response alternatives including termination of the program due to either success or failure in achieving program objectives. As noted in FY00 review, the ISRP recommends that a full and consistent decision tree be developed as the program moves forward. The tree should specify all triggers, including intermediate levels and timelines that if not achieved would forestall Phase 2 construction, or even lead to termination of the program itself. The history of fisheries management in the Columbia River basin is replete with projects that failed to achieve their objectives in part or even completely. Thus, in spite of the need for this project, and the enthusiasm of its implementers, it would seem prudent to plan for all possible outcomes.”

The major issue currently in play for this supplementation project is as follows: The NPTH has two phases of construction management. These phases are the result of issues arising during the Final Design process. During that process, the Council approved construction of a smaller scale, more temporary NPTH program, based on concerns by the ISRP in their FY2000 review. Implementation of the full-scale production program (Phase Two) will be dependent on M&E results from the first phase of the program. As a result of the smaller scale of Phase 1, production numbers were decreased and facility infrastructure was designed to meet a reduced cost.

The original design target production for NPTH was 2.8 million fall Chinook sub-yearlings and 768,000 spring Chinook juveniles. Revised Phase I production goals were set at 1.4 million fall Chinook sub-yearlings and 625,000 spring Chinook juveniles and biological triggers for each stock were established for the implementation of Phase II (Table 1).

Summary of Biological Triggers for phased expansion of NPTH.

Stock: Spring Chinook

Biological Trigger: Smolt-to-adult return rates for NPTH produced spring Chinook salmon in Lolo and Newsome creeks meet or exceed 0.4% for 4 out of 5 years (approximately 546 returning adults to the Clearwater River subbasin from Phase I production).

Stock: Fall Chinook

Biological Trigger: Returning NPTH adults to Site 1705 sufficient to produce 500,000 sub-yearling smolts (approximately 800 returning adults to the Clearwater River subbasin from Phase I production).

Stock: Early-Fall Chinook

Biological Trigger: Returning naturally produced adults to Luke’s Gulch or Cedar Flats sufficient to produce 100,000 sub-yearling smolts (approximately 120 to 170 returning adults to the Clearwater River subbasin from early-fall Chinook natural production)."

M&E is the subject of a companion proposal (Project 198335003) and is not directly covered here. The M&E will address possible expansion to Phase 2. The first complete set of adults

should return by end of 2007. A symposium is planned for the following year. The benefits to focal species are unknown pending supplementation analysis.

Objectives: Long- and short-term goals are given and are well described in considerable detail. The efficacy of NATURES rearing technique is being assessed. The methods are adequate, but lacking detail.

198335003 - Nez Perce Tribal Hatchery M&E

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$1,996,183 FY08: \$2,031,097 FY09: \$2,066,835

Short description: This monitoring and evaluation (M&E) plan describes the implementation of a comprehensive monitoring and evaluation program for Phase 1 of Nez Perce Tribal Hatchery (NPTH).

Recommendation: Fundable

Technical and scientific background: This is a thorough and well-written proposal that documents the long history of the NPTH project including (somewhat between the lines!) the long interaction and dialogue between the ISRP and the project.

The current proposal accurately reflects many of the conclusions reached during previous reviews and is focused on implementing and monitoring Phase 1 of the three-phased, 20+ year project. Phase 1 is expected to take approximately 5 years; however, specific adult returns (i.e., benchmarks or biological triggers) have to be achieved to move the project into Phase II.

Sponsors provide substantial detail throughout the proposal and in the attached M&E Action Plan describing specific tasks and performance measures.

It would appear from this well-crafted proposal that the years of dialogue have paid off and that the systematic approach outlined in the proposal and M&E action plan are likely to yield much needed information on supplementation effects and results.

Relationships to other projects are well described.

This is a very expensive (\$2 million/yr) effort to assess the performance of NATURES rearing and of this supplementation program. Prior ISRP comments specified that this M&E be done commensurate with a Phase 1 production level; however, it is difficult at this time to tease out if there should be any differences for M&E between the two phases.

Objectives, tasks, and M&E are well described including a detailed description of uncertainties, assumptions, and hypotheses.

199501300 - Resident Fish Substitution Program

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$252,725 FY08: \$260,406 FY09: \$268,369

Short description: Increase fish harvest opportunities to partially mitigate for anadromous fisheries losses resulting from migration blockage posed by Dworshak Dam on the North Fork Clearwater River

Recommendation: Not fundable

This proposal is for an effort to double the harvest from the resident fish substitution program (mitigation for lost anadromous fisheries) to about 4,750 kg/year. Two new ponds would be built, and apparently an increased amount of trout would be annually acquired and stocked for angling. The program already has three ponds; two of which according to similar proposals in prior ISRP review cycles have had very poor results that may be due to faulty pond siting, design, or management. The present proposal does not provide the ISRP with convincing evidence that the new ponds would produce better results.

The project has a long history from which fishery results should have been presented. There are physical and chemical problems in the ponds that should have been covered in narrative and described with statistics. Although the project has apparently continued to collect data on angling pressure, fish harvest (creel census), and pond conditions (some of the information from that monitoring effort was included in past proposals), no quantitative results are presented in this proposal.

The sponsors need to revamp the project's management plan by perhaps engaging a team of qualified fishery and hydrologic scientists. The team members should have established expertise in trout pond design and management in the region. A proposal embodying a proper plan for creating and managing pond fisheries is needed.

Finally, although the ISRP does not base its recommendation on project costs, the budget request for 4,750 kg of harvest per year seems high at between \$50 and \$60 per kg (\$23-27 per pound).

200002800 - Evaluate Pacific Lamprey In Clearwater

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$140,365 FY08: \$137,932 FY09: \$144,829

Short description: This ongoing project investigates all aspects of Pacific lamprey life history/ecology in Idaho and defines their present status and distribution in Idaho. This project will continue to add to our knowledge and provide direction for future management.

Recommendation: Fundable in part

Most of the work in the proposal is a continuation of the same type of work that began in 2000. The ISRP's 2000 review indicated that the proposed work should be able to be completed in 3-4 years, followed by a final report. At present, the work has been ongoing for six years. The

sponsors have not provided adequate justification for continuing the full scope of the work for 2007-09. They have not published the work in a peer-reviewed journal, as requested in earlier reviews.

The proposal has several shortcomings. Results of work completed to date (Project History section) needed to be organized by objectives of the original proposal, and a synthesis of results to date and major conclusions should have been given. Well-identified and justified objectives also are lacking. The methods for each proposed objective needed to be more clearly explained and data analyses needed to be more clearly developed.

The fieldwork component of this project should be terminated and the sponsors should proceed with development of a management plan for lamprey. Objective #4, which is to "finalize the comprehensive adaptive management plan for restoring Pacific lamprey in Idaho," is the only part of the proposal that should be funded.

The decline of lamprey in Idaho is clearly a problem that needs resolution. The proposal provided good background material on where lampreys historically occurred in Idaho and gave some results from the proponents past work.

After stating that "[p]opulations of Pacific lamprey in Idaho appear to be on a precipitous decline which could result in extinction in Idaho," and presenting statistics to support this, the sponsors recount the project's long history of investigation into the status of lamprey populations. Toward the end of the section, they allude to some probable causes of the decline (e.g., deteriorated water quality, construction of dams). It would have improved the usefulness of this section -- and of the whole proposal -- if a clearer and more emphatic statement was given of the ultimate (undoubtedly anthropogenic) causes of lamprey decline, which is the true problem. The section ends with the assertion that "[a]dditional basic life history, distribution, and remaining population status are urgently needed to increase understanding of this species and to further implement intensive management before remaining populations decline to critical, unrecoverable threshold in Idaho." The truly urgent need would seem to be determination of the reasons for lamprey decline -- and then to deal with those causes.

The proposal addresses several objectives related to anadromous fish in three subbasin plans. This section does not adequately explain why the project needs to gather more information on the lamprey populations. The need would seem to be for information about the external factors causing lamprey decline and about how to remedy those causes.

The project is coordinated with the lamprey technical working group. The proposal would be improved if connections to other closely related projects in the subbasins were made. There is no discussion of whether the Clearwater and the other projects have adopted similar sampling protocols.

A great deal of information is presented, but it should be organized by objectives in the original proposal so that progress toward accomplishing the objectives can be assessed. The sponsors

should synthesize the results and state major conclusions of the work to date. The project history should provide a clear justification for future work.

The narrative does not present results related to the listed accomplishments at the beginning of the Project History section. Specifically, information on life history characteristics and habitat utilization and preference are not presented. The sponsors state in the Project Relationship section that their project has worked to “determine the limiting factors impacting Pacific lamprey and develop redd survey index reaches.” But there was no discussion of limiting factors or results of redd surveys. The rationale for selection of sampling sites needs to be explained. Tables 1 and 2 refer in their captions to "presence-absence surveys" of lamprey, but the data seem to involve numbers of lamprey captured and population densities, not presence or absence at sites.

The sponsors state that it is unknown whether the populations are nearing extinction. How will population status relative to probability of extinction be known before extinction occurs? Is enough known about demographics to conduct a PVA?

The objectives are too general and not well focused. For example, one objective is to "study all aspects of lamprey in Idaho." The objectives should be restricted to number 4: Finalize Pacific Lamprey Conservation/Management Plan for Management/Conservation of populations in Idaho--and possibly also number 5: 5: Reintroduce Pacific lamprey into the historically occupied Clearwater subbasin, Potlatch River drainage, Idaho and monitor the population.

The sponsors might have given some thought to development of a randomized sampling plan that might be used to derive an estimate of the total population (or subpopulations) of lamprey.

Tasks (work elements) and methods: The methods should be ordered by objective. For example, what methods will be used to determine life history characteristics (Objective 1) and how will this data be analyzed? How will population distribution, population trends, and status (define) be determined (Objective 2)? How often will sampling occur? How and why were 35 monitoring sites chosen in Clearwater and 50 in Salmon River?

The sponsors need to explain the “nonrandom methodology” and why it was settled upon as a sampling scheme. What is the habitat classification scheme that will be used? The sponsors state that field crews will select sampling sites likely to be occupied by lamprey. How will this approach lead to an unbiased measure of distribution and abundance?

Why not install continuously recording thermographs to determine temperature. Given variability of water temperature, a single temperature measurement taken at the time of sampling will be virtually meaningless.

What life history/population parameters, besides outmigration timing, will be determined from the rotary trap data? Is trap efficiency sufficient to obtain a reliable estimate of population parameters? How will population sampling be undertaken in the mainstem Snake?

The data analysis section is not well written, and it seems as though the sponsors have not thought carefully about appropriate analyses. How will habitat utilization and preference be determined? Consultation with a statistician and careful review and editing of this section is warranted.

The introduction of lamprey into the Potlach River needs to be justified. What is the purpose of the introduction? Why was this river chosen? The sponsors state that little is known about genetic structure of populations yet propose to introduce fish from as far away as the Willamette. Given the lack of knowledge of genetic structure and the current emphasis on supplementing natural stocks with genetically and phenotypically similar stocks, how can the proposed introductions be justified?

There are no methods associated with completion of the Conservation Plan (Objective 4). The sponsors should describe this Plan, its purpose, and its elements. The proposed method is to "utilize the habitat utilization, distribution, and status information from proposed objectives 1-7 [doesn't this information exist from previous years?] to formulate guidelines for the habitat needed for persistence of the species, current limitations to persistence, and management actions necessary to conserve the species in the Snake River subbasin." It is questionable whether management guidelines can be based on such population information alone. The need is for analysis of environmental processes, particularly human-generated ones, that are causing the population decline, and for a plan to eliminate or reduce those adverse processes.

Results from the present monitoring should be explained.

Facilities seem adequate, but the qualifications of the personnel were not given in the narrative. Information transfer is well specified. Data are being archived and are available on a website. Plans for peer-reviewed publications are given, but there was no indication of any publications to date in the proposal. Plans for information transfer to stakeholders seem well developed.

This project will yield data on lampreys, but it should be better integrated with similar projects in the Columbia River basin.

The sponsors should be aware of effects of trapping and electrofishing on other focal species such as salmonids and non-focal species such as non-salmonids and mammals. The sponsors do not discuss what precautions would be taken to reduce effects on non-target species.

200723300 - Distribution and Abundance Monitoring of *Oncorhynchus mykiss* within the Lower Clearwater Subbasin

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$373,367 FY08: \$350,615 FY09: \$350,615

Short description: Project will address the lack of spatial distribution and abundance data for the Lower Clearwater River subpopulation of the Snake River Basin steelhead DPS through electrofishing surveys conducted at probabilistically located sites.

Recommendation: Fundable

This is a thorough, well-written proposal that is targeted on priority species and habitats. The methods should yield good quality data to help guide restoration and habitat management in the Lower Clearwater Basin.

The summary of the geographic area and the lack of data on salmonids in these streams are emphasized. The proposal identifies that the subbasin plan calls for improving the data on status and trends of steelhead in these ignored habitats. It would be helpful to include the VSP metrics (abundance, productivity, diversity, and geographic distribution) for steelhead that is expected by the Interior Columbia TRT in these streams when "recovered."

The proponents have developed linkages and potential collaborations with a number of key agencies concerned with the Clearwater Basin. There is good potential for integration.

The goal of the project to assist in recovery serves as an overarching biological objective. The objectives are clearly defined, and measurable: "to obtain reliable data on abundance and distribution of steelhead in the Lower Clearwater Basin"

The methods were well described and show that a lot of thought has gone into the proposed fieldwork. The use of randomized site selection and thoughtful consideration of fish sampling methods (open versus blocked sample areas, mark/recapture versus depletion estimation of abundance) is excellent. A minor comment, the proponents should consider a physiological measure (possibly lipid content) instead of the usual condition factor (Carlander 1969) that they propose. A missing element is evaluating upland watershed conditions that drive the status of the in stream habitat and likely the steelhead populations. Ultimately correcting these watershed elements is going to be needed.

The project will primarily benefit steelhead because new data on these populations will be obtained. The information should stimulate further habitat restoration such as vegetation planting to control sediment (p. 5 of narrative). Preliminary observations indicate coho have expanded their range in the Basin, and if confirmed this could be an important finding providing benefits for coho salmon as well.

200711100 - Assess impacts of flow augmentation on bull trout in the North Fork and Lower Clearwater Rivers

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$188,269 FY08: \$186,264 FY09: \$185,210

Short description: Determine the downriver effects of cold water releases from Dworshak Dam on bull trout populations inhabiting the North Fork Clearwater River tailrace and lower mainstem Clearwater River.

Recommendation: Not fundable

The ISRP rates this project NOT FUNDABLE. This recommendation resulted primarily, because the project objectives do not adequately address the problems identified in the technical and scientific background section of the proposal.

Several aspects of this proposal raise questions: What difference does it make where the entrained bull trout originated above Dworshak Dam? The problem identified is that there is entrainment. Shouldn't the primary focus be upon reducing or eliminating entrainment, regardless of the origin of the fish?

The background and rationale sections indicate that this project will address the potential problem of temperature effects (from cold water releases from Dworshak Dam) on bull trout, but the proposal does not include this as a stated objective.

The use of strobe lights has not been effective in guiding fish away from turbine intakes (see Whitney et al., 1997).

The proposal refers to measurements of water depth occupied by bull trout in the reservoir but makes no mention of their depth distribution at the intakes. Wouldn't the most effective use of effort in this project be to get information on their depth distribution at the intakes? The proposal suggests that the outlet structure can be set to draw water from a wide range of depths. Thus, the only piece of information missing is bull trout depth at the structure.

The proposal gives the impression that Dworshak is operated primarily for the benefit of fish, which of course is not accurate. Information should be provided showing that Dworshak is primarily a hydroelectric power dam (400,000 KW). During the months of March and April, when entrainment appears to be a problem, the dam is most likely operated strictly for power production. Flow augmentation for temperature control in the Snake River occurs later in the season, when fall Chinook are emigrating out of the river. It is misleading to assign responsibility for any effects on bull trout to the flow augmentation strategy, unless more information can be provided.

199608600 - Clearwater Focus Program, Idaho SCC

Sponsor: Idaho Soil Conservation Commission

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$107,136 FY08: \$107,136 FY09: \$107,136

Short description: Idaho State co-coordinator of the Clearwater Focus Program to provide technical and management assistance to habitat restoration groups, performs staff functions for Clearwater PAC, and interagency liaison for program development.

Recommendation: Admin (see comments)

This proposal is to provide a coordinator to integrate activities by Soil and Water Conservation Districts, Nez Perce Tribe, and others with the priorities in the Clearwater subbasin plan. The funding request is for a single FTE. Although the ISRP placed this proposal in the administrative category, the proposal is not justified as presented. This position may be an essential element of stewardship for the subbasin. But based on the proposal, it is not clear that this project is showing results in the basin for restoration and evaluation. This project is supposed to provide vital services, but it is not clear what essential functions this individual provides, and what would happen regarding subbasin integration and facilitation of other Council Fish and Wildlife Program proposals if this coordinator was not available.

The list of tasks for the Focus Coordinator are extensive, leading reviewers to be skeptical of whether this position covers these tasks, for example, "Maintain subbasin inventory database and maps" (page 10 #3) and "Provide contract engineering or legal assistance to Bonneville project sponsors" (page 11 #3). These are disparate tasks for a single person, thus it is not clear what the coordinator actually does. The focus of this proposal seems to be facilitating meetings.

The ISRP's province review recommendation included the statement: "This project should demonstrate performance by the next review cycle otherwise it should be terminated." The coordinator clearly played a role in completion of the subbasin plan, but the continued value of the coordination is not persuasively presented. Past ISRP reviews indicated a need to increase activity in coordinating M&E in the subbasin. From this proposal it is clear that there is no intent to do that. The project began in 1996, but there is an inadequate summary of the assignments actually performed by the Focus Coordinator. There is a list of the meetings that the coordinator facilitated, but it is not clear that this facilitation improved the coordination of activities in the subbasin.

Four projects are identified as Clearwater focus projects, and there is connection to two other through the NPT Focus coordinator. This seems to be minimal rationale to justify a coordinator to link these projects. Moreover, the proposals from the focus projects need significant improvement, so there is no evidence that this position is critical to the SWCDs being able to connect with each other, BPA, and Idaho PCSRF. In other words, the results of the ongoing efforts and how this project improved those efforts through coordination and support are not evident, and based on the other proposals submitted are not promising. In sum, there is not a clear demonstration that this coordinator is essential to execute proposals to BPA and PCSRF.

As with other watershed coordinator proposals, the proposed effort would be better integrated into a proposal that is directed toward management based on science including on-the-ground work and monitoring.

199901500 - Big Canyon Fish Habitat

Sponsor: Nez Perce Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$376,943 FY08: \$370,826 FY09: \$369,583

Short description: Proposal funds installation of BMPs to address agricultural and forestry related habitat degradations.

Recommendation: Response requested

A response is needed regarding three issues: (a) priority and feasibility of restoration, (b) results to date, and (c) watershed assessment.

(a) Why is continuing to expend effort on restoration in the watershed justified? The proposal's technical and scientific background provides a compelling case that there is much habitat degradation in the Big Canyon watershed. What is NOT evident is the extent to which this watershed ever was a major producer of fish (in this case steelhead which are ESA listed, and coho which are being reintroduced). It is not identified in either the Clearwater Subbasin Plan or federal recovery plans as being a focal point of sustainable populations under anticipated landscape conditions, or with the likelihood of recovering sustainable populations by recovering or restoring habitat forming ecological functions in the watershed. For example, "Presence of at-risk-species: wild A-run steelhead" is not enough detail. In response, please provide evidence that this is an essential watershed for the continued persistence of these fish, and some idea that recovery is possible. Please consider both the steelhead and the coho reintroduction.

(b) Results to date need to be reported. How do we know this is working? In response, please summarize the realized benefits to anadromous fish. The first paragraph of the section Rationale and Significance to Subbasin Plans and Regional Programs includes a final sentence with the historic miles of stream restored and sediment reduction left blank. In response, please fill in the numbers.

(c) Some watershed assessments have been completed but the results and implications of these analyses are not adequately summarized in the proposal. The Big Canyon Creek Environmental Assessment (1995) and Big Canyon Creek Watershed Assessment ("expected completion 2001") are identified as related projects. It seems this project should be designed and based on the assessments provided by those efforts. Also, why is Big Canyon Creek Watershed Assessment still listed as expected completion 2001 in 2005/6? Is the assessment completed and released yet? If not, how is it being used to develop the work elements in this proposal? Please provide answers to these questions and expand your summary of the implications of completed watershed assessments.

199901600 - Protect & Restore Big Canyon Creek Watershed

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$455,312 FY08: \$478,301 FY09: \$507,369

Short description: This project is to protect, restore, and return critical spawning and rearing habitat using a ridgetop to ridge top approach, based on a complete watershed assessment and following the Clearwater Subbasin Management Plan.

Recommendation: Response requested

A response is needed regarding three issues: (a) priority and feasibility of restoration, (b) results to date, and (c) watershed assessment.

(a) Several principal questions are not sufficiently addressed. Was this watershed ever substantial (important) spawning and rearing habitat for steelhead - or was it a peripheral satellite region? Is it a critical independent population now? Can the watershed be restored in a reasonable timeframe at a reasonable cost?

Sponsors indicate that this is one of the top producing steelhead populations on the Nez Perce Reservation. But the citation is from 1986. What has happened in the intervening 20 years? And, what does this population contribute to the productivity, abundance, spatial structure, and diversity of the ESU. How important is this population?

Discussion of the NOAA Biological Opinion Remand (2004) reports that Big Canyon is listed as a primary fish-producing area for the steelhead subpopulation along with Lapwai Creek, Little Canyon Creek, and the Potlatch River. Reference is made to Lapwai Creek producing significant numbers in recent history, but is currently depressed. Does this mean that Big Canyon Creek is not depressed, or does it mean it has not produced significant numbers in recent history? Providing the numbers is important for a transparent proposal.

According to the summary, Big Canyon Creek has "medium" potential to increase the population and to improve ecological conditions. This needs to be placed into the full context. How many categories were there and how many streams were evaluated. Is this the location most likely to improve to a threshold that will contribute to recovery (ESA) and eventual self-sustaining populations (Fish and Wildlife Program), or is it one of the worst. The proposal needs to be clear about the status of recovery/restoration potential both for steelhead and for the coho reintroduction.

(b) Results to date need to be reported. How do we know this is working? Summarize the realized benefits to anadromous fish. An explanation is needed as to why project funding is being used to perform work on Lapwai Creek as indicated on p 24.

(c) Some watershed assessments have been completed, but the results and implications of these analyses are not adequately summarized in the proposal. The Big Canyon Creek Environmental Assessment (1995) and Big Canyon Creek Watershed Assessment ("expected completion 2001")

are identified as related projects. It seems this project should be designed and based on the assessments provided by those efforts. Also, why is Big Canyon Creek Watershed Assessment still listed as expected completion 2001 in 2005/6? Is the assessment completed and released yet? If not, how is it being used to develop the work elements in this proposal.

Regarding the 2005 Road Erosion Survey and the 2004 Fish Passage Assessment, a short discussion on the management and restoration recommendations from these projects is needed. How much sediment is coming off the roads, how many miles need to be obliterated? How many miles need to be repaired? How is the obliteration and repair prioritized? Same for the passage problems - how many are there, where are they, what can be done about them, how much is it going to cost, and how long will it take?

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles "protect" and "restore." Where do habitat actions and protection in the Clearwater offer the most potential benefit?

199901700 - Protect & Restore Lapwai Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$738,199 FY08: \$760,332 FY09: \$797,824

Short description: This project will protect, restore and return critical spawning and rearing fish habitat using a ridge top to ridge top approach, based on a complete watershed assessment.

Recommendation: Response requested

Proposals 199901700 (NPT - Protect and Restore Lapwai Creek Watershed) and 200207000 (NPSWCD - Lapwai Creek Anadromous Habitat) are for companion projects on the same creek (Lapwai) for activities on NPT tribal lands (199901700) or private ranch lands (200207000). They use the same format for the entire proposal and much of the text is copied verbatim in each proposal.

Despite previous positive reviews, the ISRP is becoming concerned. Between this and its sister SWCD project, many millions have been spent over the past 7 years and there is no end in sight. Project accomplishments are so minimal that the two projects should not be continued without a thorough programmatic review. Such a review is recommended as a condition of future funding. The response requested here is to produce a revised proposal that addresses the problems identified in this assessment and to include responses to requests for additional information, and incorporates the recommended changes in structure.

The on-the-ground work here may have potential of producing measurable results, but there still is no comprehensive assessment and prioritized prescriptions, nor evidence of a fish response from accomplishments to date, nor plans to provide such evidence.

In general the proposal is difficult to follow; the organization does not efficiently communicate the historic and contemporary status of the focal species, the historic and contemporary status of the habitat, or the desired future state of the ecosystem (habitat) or the focal species.

There are general statements on the status of each of these elements, but not specific detail. Because the detail is not present it is not possible to evaluate the reasonableness of the proposal. Simultaneous with a lack of sufficient detail is considerable redundancy of general statements. This creates a proposal that is too long and difficult to follow.

For example, in spite of presenting a 12-page Technical and Scientific Background, the sponsors never report how many kilometers/miles of streams exist in the watershed, broken down by the main creek and tributaries. They never identify which tributaries and reaches are believed to be the historic production areas, which are currently producing fish, and which are believed to be essential for achieving the production needed to be "recovered." This section needs a brief one-paragraph description of the stream system. Including the kilometers of stream by tributary. A brief summary of the watershed assessments and how they form the basis for the proposal should be provided. These are given in the existing proposal, but the evaluation is overly vague -- summer low flow, sediment, etc. are problems. The summary of the watershed assessments should identify a priority list of stream segments that have degraded ecosystem functions and identify the management actions that will be used to remedy these altered conditions.

The sponsors could identify important stream reaches for protection and restoration on maps. The sponsors have completed a road assessment and a barrier assessment, but the recommendations from these assessments are not communicated in the technical background. How many barriers are there, which are believed critical to gaining access to productive habitat? Where is road condition worst? Where is it recommended to begin road decommissioning and renovation? Some of this is buried in the work elements - it needs to be in the technical section. The technical section should not exceed 5 pages (could be 3 or 4).

The Rationale and Significance to Subbasin Plans section is too long and ineffective. It should be reduced to no more than 2 pages. There is a bulleted list of justifications for Lapwai Creek watershed restoration. Most of these may not in fact be adequate justification. For example - "...presence of at-risk wild A-run steelhead" is justification only if this is a core remnant population essential for recovery identified in the interior Columbia Basin TRT independent population reports and the updated NOAA status review for steelhead. From what is presented it is not clear that this stream is particularly important.

Lapwai/Sweetwater creeks were identified by NOAA BIOP (draft) as the historical source population for A-run steelhead in the Lower Clearwater Basin. This is justification only if these creeks are still likely to serve as the contemporary and future source population for A-run steelhead in the Lower Clearwater.

Clear evidence from the Clearwater subbasin plan is needed that the focal species of this project are identified as focal species, that the strategies for restoration are consistent with the plan, and

that the Lapwai Creek and tributaries are identified as a priority area. This should only require a short paragraph and table.

Clear evidence is also needed to show Lapwai Creek is identified in federal recovery documents (the TRT independent population report, steelhead status review, and possibly the hydrosystem BiOp).

Identifying every element of the subbasin plan that may apply to these proposals, and identifying every BiOp RPA that may apply is a distraction and does not serve to communicate how this proposal will serve to fulfill the obligations of the Council's Fish and Wildlife Program or the ESA recovery actions.

The section of the Mission-Lapwai Creek Watershed plan produced in 1990 and updated in 1994 and 2000 needs clarification. It simply restates what has been said over and over again in the proposal, "... improve flow, enhance riparian, and reduce sediment." The priority locations recommended by this plan need to be identified and tied to specific objectives in the proposal.

There are lists of accomplishments, but there are no management implications identified. No data on fish abundance are provided. This appears to be the only accounting of the project's results. In response, please provide evidence of benefit to focal fish populations.

The work element descriptions are confusing and difficult to follow and understand. Identifying each subbasin plan relationship is distracting. The organization is not helpful. The ISRP suggests beginning this section by identifying in general terms what needs to happen in the next three years. Is more field inventory needed, and if so why? Is more analysis of the past inventory data needed, if so why? What are the priority areas and strategies for activities? Finally, what are the specific methods - in general terms - so they can be identified as appropriate and consistent with current scientific thinking?

The proposal contains rather prescriptive declarations to implement BMPs (for example decommission 10 miles of road, fix one more mile of road, fix 2 barriers, fence 2 miles of stream, etc.). Yet in earlier work elements, there is considerable effort expended on more inventory, planning, and project design. How can it be at this juncture that the appropriate mix is 10 miles of road decommissioning and 2 miles of fence when the assessments are not yet complete? In response, please clarify the rationale for these prescriptions.

The explanation of monitoring for compliance and effectiveness needs to be clarified. The effectiveness monitoring plan should be peer-reviewed during this funding cycle to ensure it is using the same methods and metrics recommended by PNAMP and CSMEP.

At the local level of communicating with landowners and stakeholders the sponsors appear to perform admirably. In communicating with the extended scientific and management community, it appears there is room for much improvement. As an example, these proposals do not provide maps and summaries from the stream inventories, fish barrier assessment, and road analysis.

Until a clearer picture of the amount of work and time needed to bring this watershed into a reasonable state of productivity is given, it is difficult to assess the likely benefits to the focal fish species. It is not possible to assess whether the restoration will take 10 or 200 years, given the information supplied in the proposal.

The funding request appears to have increased significantly. What is the basis for that?

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

200206100 - Restore Potlatch R Watershed

Sponsor: Latah County Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$482,106 FY08: \$476,576 FY09: \$485,376

Short description: Implementation stage for the Potlatch River Watershed Management Plan with focus on restoration of A-run steelhead spawning and rearing habitat through the implementation of best management practices on private agricultural, forest and range lands.

Recommendation: Fundable

The ISRP is pleased to see stronger ties to fish and aquatic habitat here than in most SWCD proposals; this still works to implement Best Management Practices, but the authors have done an assessment and prioritized the tributaries with an understanding of what needs to be worked on first. This is a very strong point of this proposal. They used information from their assessment to actually inform their current understanding; i.e., some of the assessment data changed their minds. There is also a strong working connection, not just lip service, to IDFG steelhead studies on the Potlatch system.

The M&E needs to be better developed and coordinated; see ISRP's programmatic comments on M&E. Fish monitoring would be dependent upon IDFG. This is not likely a situation where in-depth habitat effectiveness monitoring is needed. The effectiveness monitoring should use methods that are peer reviewed and up to Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Evaluation Program (CSMEP) standards.

In order to track progress toward a "restored" state, abundance targets (in this case, numbers of steelhead) are needed. Project staff will need to work with others to better identify abundance goals for fish in the Potlatch River. On page 9, paragraph 2 of the proposal, 5,900 - 10,000 adult A-run steelhead are identified as the goal for the Clearwater, and sponsors suggest that the Potlatch could produce a significant number of these fish. These goals should largely be identified by management agencies and perhaps a recovery plan.

200207000 - Lapwai Cr Anadromous Habitat

Sponsor: Nez Perce Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$485,610 FY08: \$483,672 FY09: \$453,104

Short description: This project restores, protects and enhances steelhead spawning and rearing habitat in the Lapwai Creek Watershed. Information is collected to fill data gaps and BMPs are installed on agricultural and forestlands to achieve biological objectives.

Recommendation: Response requested

Between this and its sister NPT project, many thousands of dollars have been spent over the past four years, and there is no end in sight. Project accomplishments are so minimal, by any standards, and there are so few riparian or instream benefits evident, that the project should not be continued without a thorough programmatic review.

The response requested is to include development of a revised proposal that addresses the problems identified in the current version (identified here and additionally, review comments for project #199901700). The new proposal should be required before funding or deciding whether to fund in part or full is appropriate. The revised proposal should be fewer than 25 pages.

The new proposal needs to be carefully written including an Abstract that accurately reflects the objectives and progress to date. The background should be clearly presented and show a clear basis in science. Factors known to be limiting population distribution and abundance need to be clearly identified with strategies for overcoming their impact. The strategy needs to include prioritization from within a subbasin plan or documented watershed analysis/assessment/prescription. The information presented needs to be summarized and simplified into a package that simply relates the objectives and tasks outlined in the subbasin plan. There has to be clear ties defined with project #199901700.

Monitoring plans need to be included to show implementation success and biological response following a carefully planned experimental design. Proposal development requires a rigorous involvement of personnel trained in biological science, proposal and report writing, and watershed ecology. This project should not be funded based on the present proposal or record of results.

200716400 - Determination of Steelhead Production and Productivity Response to Habitat Manipulations in the Upper Potlatch River, Idaho

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$262,126 FY08: \$237,926 FY09: \$241,767

Short description: The project sponsors will determine the production and productivity of steelhead trout in the Upper Potlatch River basin and compare tributary (spatial) variations and trends in production and productivity to determine the effectiveness of habitat manipulations.

Recommendation: Fundable in part

This is a relatively good proposal to monitor habitat restoration effectiveness, with a well-written technical and scientific background. The work could benefit from a broader review and collaboration with related projects. This proposal was well positioned to provide M&E for several ongoing habitat enhancement projects, and the 2005 run monitoring helps to give it credibility. The monitoring proposed has high significance for the region and in support of other projects. The Potlatch system has high potential if habitat problems are ameliorated.

The strongest areas of the proposal, and that which reviewers suggest may be the only component worthy of support, is the smolt and adult monitoring; the remaining tasks are very low priority. Furthermore, the sponsors should be participating in the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Evaluation Program (CSMEP) to ensure they are using methods adopted throughout the subbasin and basin for the adult and smolt monitoring and subsequent analyses. Please refer also to programmatic comments on monitoring and evaluation, and previous ISRP reports, as well as the basin M&E guidelines that are in development.

The project would primarily conduct M&E for other projects: "In 2004, PCSRF funds were awarded to establish the relationship between habitat quality and steelhead production. The goal of the ongoing PCSRF project is to determine steelhead population response (yield and productivity) to habitat enhancement. The project is focused on lower Potlatch River tributaries where PCSRF and other funds are being used to implement habitat restoration. The purpose of this proposal is to establish a companion project in the upper Potlatch River basin to complement the PCSRF evaluation project. Latah County SWCD has project #200206100 to improve habitat. This project is not discussed. An indication of coordination with all related projects in the area is required.

Project objectives as stated are to: 1) increase anadromous fish productivity and production, 2) develop an index area in the lower Clearwater River, 3) improve aquatic habitat diversity and complexity, 4) assess temperature-amelioration restoration projects and reduce water temperature, 5) determine migration characteristics and timing of smolts, 6) assess competition between reintroduced and native salmonid populations, 7) participate in local watershed and technical groups, and 8) quantify steelhead stray rates. Statistical designs for the 1st, 3rd, 4th, and 6th objectives were not clearly presented, and thus they cannot be reviewed effectively. Some of these objectives seem very low priority. The 6th objective is too thinly described to enable review.

The importance of others in addressing critical needs is not established. For example, "the basic data collected in the field surveys will allow us to examine steelhead production, productivity, and limited life stage survival. As data are gathered productivity estimates such as adults/adult, smolts/adult, and juveniles/km are obvious metrics available to evaluate watershed scale responses to habitat improvement. Less obvious are the in-stream survival estimates obtained from summer- and spring-tagged fish. In-stream survival for PIT tag-able steelhead will be estimated through the use of time-varied tagging. Survival to detection sites from spring tagged

fish minus the survival of the previous summer tagged fish represents the survival gap (in-stream mortality) and separates migration from rearing survival. In combination with estimates of juvenile abundance, in-stream survival gives another index for stream productivity." The need for these observations is not compelling. If they were intended to test particular hypotheses (e.g., winter survival is poor because suitable habitat is unavailable), then the data may be useful, and experimental designs to test these hypotheses may be developed for review. Such designs are not presented in this proposal. The closest that the proponents come to this is "A generalized linear model will be developed to assess the impact of a variety of habitat actions on fish production and productivity metrics." This vague statement is not supported by reference or experimental design, and methods are not well defined. There is a need to reference similar studies and methods, and to justify the monitoring in relation to the needs beyond what is already known of habitat requirements for A-run steelhead and their presence or absence in the Potlatch system.

Once methods for adult and smolt monitoring are clearly defined and standardized to basinwide efforts, there is a need for reporting of the results regionally, basinwide, and in the formal fisheries literature.

200718100 - Lower Lawyer Creek Stream Restoration Project

Sponsor: Flying B Ranch

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$782,500 FY08: \$782,500 FY09: \$22,793

Short description: The projects primary focus is to enhance anadromous species habitat. Secondary but important benefits are to enhance wetlands, provide flood control and enhance habitat for both terrestrial and aquatic wildlife.

Recommendation: Not fundable

The proposal is appreciated for the effort in addressing habitat issues for fish in the basin. However, the proposal is not developed enough to justify a review and response. The proposal does not follow the guide or format, nor indicate a connection to the subbasin plan and its priority within it. Even setting aside concerns with not following the format, the proposal is just too preliminary for a scientific recommendation.

Standardized procedures are recommended. The first step would be to initiate an adequately detailed watershed/fisheries assessment to decide whether restoration in this watershed is appropriate. In general, the watershed and fish assessments are not sufficiently described and summarized to make a reasonable judgment on whether Lawyers Creek is a candidate for restoration, and if it were restored, if it would make a meaningful contribution to the subbasin goals for steelhead production.

Proponents are encouraged to partner with subbasin planners and further develop their proposal, and continue their interest in steelhead and fish habitat.

200727900 - Assess Stream Habitat for Salmonid Recovery in the Lower Clearwater Subbasin

Sponsor: Nez Perce Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$122,525 FY08: \$98,317 FY09: \$101,253

Short description: This project collects stream inventory and assessment data on 231.4 miles within the Lower Clearwater River basin.

Recommendation: Response requested

The project goal is to complete a stream health assessment in order to identify priority areas for fish habitat restoration using the SVAP – stream visual assessment protocol (NRCS) – in six small lower Clearwater mainstem tributaries. There is a mix of land-based (plants) and aquatic elements in the proposal.

The work in this proposal would do no harm, but unfortunately it would do nothing for the steelhead that spawn in at least two of the six streams. The six streams represent the extreme in terms of environmental conditions (summer flow/temp/pikeminnow predation). The fish still have a toehold, but huge improvements would be needed. Consequently the area is a low priority for an assessment. It will include private landowners, which is good. They are doing this work in Lapwai and Big Canyon creeks but are not delivering the goods for fish. They are not working closely with the fish and wildlife agencies.

The technical and scientific background for the proposal is contradictory and incomplete. There apparently has been some empirical field data collected - Kucera 1983 and 1986. But this is cited in various locations rather than being summarized with a conclusion of why it is not sufficient to serve the purpose of the inventory and assessment proposed here. There has been some assessment, for example in the second paragraph, "Excellent opportunities exist for restoration and protection activities in these small streams," but no attribution of the assessment is given. It is not clear whether the assessment involved evaluating field data or professional judgment of fishery biologists. Some of the assessment rates the habitat as poor. This seems at odds with the prior statement that excellent opportunities for restoration are available. There is insufficient detail on development of an evaluation plan for a biological response.

In response, please explain why the Kucera data is insufficient for the inventory and assessment proposed here. Please explain the details of your assessment and include details on how you will detect a biological response.

Proponents suggest there are two elements to a stream inventory/assessment protocol; reach identification and land use identification, and measuring assessment elements (they mention 15). Some of the measured assessment elements listed are actually interpretations from some sort of data, for example hydrologic alteration, and nutrient enrichment. The SVAP assessments may be a good educational and public involvement tool, but by itself it's a snapshot approach that has added virtually nothing to what is already known.

A more complete inventory/assessment would recognize that data are collected on indicator variables, these are analyzed and interpreted to assess evidence of hydrologic alteration or nutrient enrichment, and that some method then needs to be used to infer some historic state of these variables, the current state, and a possible future state based on remediation.

The inventory and assessment is adequate for BMP implementation, but without effective M&E. Inventory and assessment should use protocols adopted throughout the subbasin and endorsed by CSMEP and/or PNAMP. Site selection should be randomized.

In response, please provide details to show that your proposal is consistent with the standards described in the previous two paragraphs.

Additional comments:

How does "Establish yellow star-thistle biocontrol agents on 50 acres of rangeland" fit into this proposal. It seems to come out of nowhere.

The primary value of the project is educational, performing the sorely needed role of involving private landowners that will be pivotal in any continued rehabilitation of these six streams. An earlier demonstration project in Hatwai Creek has proven to be very effective in engaging local landowners.

200734700 - IDL Ponderosa Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$101,400 FY08: \$14,000 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable stream crossing structures.

Recommendation: Not fundable

The proposal does not fully complete all of the required elements. There are no clear focal species, the assessment used to select the sites for upgrading culverts to bridges, or altering culverts is not explained. There is no monitoring. There are no objectives for benefits to fish.

There is confusion within the proposal regarding location. The cover material says Clearwater subbasin while the Introduction says Palouse River. No area map is provided to designate general location. There is no discussion of fish status in the streams where the culverts will be improved. There is a note that fish are present both above and below a culvert and that the culverts do not meet current standards. This leaves open the question of whether the culvert is actually impassible or just not at current standards. The fish species is not identified, so it is not clear whether or not they were the focal species. The status of the focal species in the streams is not provided.

The technical and scientific background is insufficient to evaluate the scope of the problem and the applicability of the proposed solution. Specific detail is required on the presence of fish, the

suitability and quality of the habitat that would be opened by removing barriers, and the importance of this particular stream system to restoration of bull trout and rainbow (native redband or introduced hatchery?) trout.

There is inadequate rationale and significance to the subbasin plan and regional programs. The focal species for this project needs to correspond to those identified in the subbasin plan, and the link to resident fish restoration in the Clearwater subbasin plan and/or recovery documents for bull trout or redband rainbow trout needs to be established.

The objectives for the specific tasks are identified, but the larger purpose (biological objective) is not identified. How this project will benefit trout is not clear.

200700300 - Dworshak Dam Resident Fish Mitigation

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$405,100 FY08: \$1,300,600 FY09: \$257,100

Short description: Improve resident fisheries as mitigation for losses and continuing impacts from construction and operation of Dworshak Dam by reducing entrainment, increasing kokanee size and abundance, and enhancing reservoir productivity.

Recommendation: Response requested

This is a clearly written proposal that presents a multi-pronged approach to improving the kokanee fishery in Dworshak Reservoir. Reviewers are concerned, however, that the project's goals may be unrealizable and therefore, the large investment planned for FY08 (the funding for the capital improvement costs of purchase and installation of underwater strobe lights on Dworshak Dam) may be unwise.

Improving the resident kokanee fishery as mitigation for losses and continuing impacts from construction and operation of Dworshak Dam is planned by a multi-pronged approach involving reducing entrainment (using strobe lights), increasing kokanee size and abundance, and enhancing reservoir productivity using fertilizer to boost the trophic web response. Reviewers wonder if sponsors are familiar with the survey in Whitney et al., 1997 (see, Council document 1997-1, www.nwcouncil.org/library/1997/97-15.htm) that concluded strobe lights have not been effective in guiding fish away from turbine intakes or spill bays anywhere? That work suggests that the expensive strobe light component in this fisheries management plan is inappropriate. In response, please explain your basis for concluding that underwater strobe lights will be effective at Dworshak Dam.

The proposal describes links to other related projects including 1) the USACE Walla Walla District's Dworshak Reservoir Nutrient Enhancement Project; 2) the Confederated Colville Tribes' Chief Joseph Kokanee Enhancement Project (# 199501100) that is focused on assessing and reducing kokanee entrainment, monitoring kokanee abundance, and testing the effectiveness of underwater strobe lights at reducing fish entrainment; and 3) the Idaho Fish and Game studies

of bull trout in the North Fork Clearwater, which is determining bull trout temporal and spatial distributions within Dworshak Reservoir.

Project objectives focus on increasing kokanee size and abundance, reducing entrainment through Dworshak Dam, and enhancing reservoir productivity. The Clearwater Subbasin Plan (Problem 5, objective 1 - strategy 2) specifies the installation of strobe lights and defines research to minimize fish entrainment through Dworshak Dam. The Subbasin Plan defines research to investigate the effects of loss or lack of nutrients due to federal hydropower-related loss of anadromous salmonids, and evaluate nutrient enhancement alternatives (section 4.3.1 Aquatics: I. General, Proposal 1). The project methods appear reasonable and the experimental design is defensible.

200705700 - Potlatch River Basin Conservation Easement

Sponsor: Potlatch Corporation

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$4,008,000 FY08: \$0 FY09: \$0

Short description: This proposal is for the sale of a conservation easement covering riparian areas in the Potlatch River basin owned by Potlatch Corporation.

Recommendation: Not fundable

This proposal is for the sale of a conservation easement covering riparian areas in the Potlatch River basin owned by Potlatch Corporation, to protect against development. There are policy concerns here that the ISRP cannot address. The one-page proposal does not provide adequate detail for the ISRP to make a recommendation in its present form. Details are lacking on the linkage of this project to the Clearwater Subbasin Plan or other regional planning documents that would identify this action as a priority item. Similarly absent, are discussion or alternative approaches to achieve conservation buffer / riparian zone protection on the Potlatch lands.

The idea seems admirable. The proposal's map is helpful. It shows the widespread, largely headwaters distribution of the riparian corridors involved. Some aspects of the proposal need elaboration.

Objectives include protection of 100ft on either side from development. This protection is not as robust as it could be (200ft on either side is usually recommended). One of the action-objectives is to keep the designated acreage "in forest land use in perpetuity." Exactly what constitutes "forest land use," and how will that use affect fish and wildlife? Will large woody debris-producing trees in the riparian zone be harvested? The proposal goes on to say in next sentence that "[i]n addition, Potlatch will implement best management practices in these areas that exceed the requirements of the Idaho Forest Practices Rules." What are those best management practices?

200706700 - Lawyer Creek Idaho A-Run Steelhead Spawning and Rearing Restoration and Enhancement

Sponsor: Lewis Soil Conservation District

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$220,692 FY08: \$220,692 FY09: \$220,692

Short description: Implement habitat restoration on private lands dominated by agriculture with funding from Bonneville, Idaho Pacific Coast Salmon Recovery Funds, Idaho Water Quality Program for Agriculture, and land owner participation. Funding from all sources pending

Recommendation: Response requested

Although some required aspects of the proposal need improvement, on whole, the proposal is very thorough, clear, and well founded. The proposal considers both the limiting factors and the anthropogenic causes (or exacerbations) that underlie the limiting factors. Stemming from this, the proposal takes not only a riparian and instream view, but also a watershed-wide view and promises to treat upland problems, many of which affect stream processes.

The proposal covers sediment issues well, but will need careful coordination to ensure monitoring is specific and targeted on project completions. A response is needed to provide the details of the proposed monitoring and evaluation activities.

Many other BPA projects are listed as related, but coordination apparently is limited to methodology exchange.

200736900 - Protect & Restore North Fork Clearwater Subbasin

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$645,157 FY08: \$645,657 FY09: \$645,157

Short description: Proposed restoration targets all resident fish species within the North Fork Drainage. The first year of restoration will occur on the Clearwater National Forest, out-year projects will include restoration projects on Federal, State, and Private Land.

Recommendation: Response requested

The proposal is comprehensive. However, there is no mention of replacing culverts with clear-span bridges or even bottomless culverts; it is proposed simply to replace culverts with a capacity to accommodate a 1-in-100 year flow. In response, confirmation is needed that either clear-span bridges or bottomless culverts are to be used. Also, details on fish-related M&E are needed.

The area suffers from all the usual factors, in particular sediment and temperature, resulting not only from deforestation but also from the dense road network and invasive exotic plants such as spotted knapweed that limit establishment of native vegetation in disturbed areas, and in some cases actually increase surface erosion (Lacey, et al. 1989). The impacts are expressed in tabular form to limit the amount of text.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

199303501 - Red River Restoration O & M

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$104,993 FY08: \$107,412 FY09: \$56,870

Short description: Restore stream channel to a functioning system by establishing riparian shrub community on Red River within Red River WMA. Restoration critical to the development of high quality fish & wildlife habitat and streambank stabilization.

Recommendation: Response requested

This project adequately addresses the technical background, tie to the subbasin plan, and Fish and Wildlife Program. The proposal intends to benefit salmon, steelhead, bull trout, and westslope cutthroat trout as well as other fishes; waterfowl; upland wildlife; and other aquatic-, wetland-, and riparian-dependent species. The project is being used as a local and regional demonstration project for other stream restoration and watershed projects and as an outdoor educational facility for students of all ages. Phases I through IV are complete on the Idaho Department of Fish and Game’s Red River Wildlife Management Area, one of the four land parcels in the meadow of Lower Red River. Bird populations are said to be increasing, but this may not be associated solely with this project. Elk are mentioned as a non-focal species, but there's no mention of how elk would benefit from this work (will the exclusion fencing withstand elk attention?) A response is needed on the potential benefit to elk.

A response is also needed on the following ISRP comments and concerns:

The proposers concentrate on the post-2002 history and do not present most of the project's 12-year history (some alluded to in section 1). Results in terms of fish or other animal populations are not adequately shown. These are severe deficiencies that should be remedied in the response.

Parts of monitoring and evaluation are spread within the work elements. With regard to biological M&E, subjects are listed, but the methods are not described and a statistical design is not apparent. Clarification in the response is needed of stream-miles treated. Specifically, the numbers of miles that underwent each type of treatment (and miles remaining to be treated) should be set forth clearly in a table. The table should also show the length of the pre-project channel, the length of the present (restored) channel, and the predicted length when the project is completed. A map would be helpful.

A summary is needed of results of the apparently substantial past research expenditure. The narrative seems to say that 4.5 stream-miles have been treated in some way or ways at a total 12-year project cost of \$3,445,489---or \$765,664 per stream-mile. These costs seem high, even when probable research aspects (results not presented in this history) and apparent channel

lengthening (not clearly described) are taken into account. The project's recent reduction of effort seems to have been appropriate. It might be further reduced, unless the project is expanded to include up- or downstream areas and proper biological M&E.

The biggest expenditure item (\$137,215) is for Objective 1, which includes planting as remedial works for low survival and slow establishment. In response, please include more information about the presumed failure of the bioengineering design. Please explain whether this was a design flaw in choosing the appropriate technique, a construction problem (live material drying out before installation), or a failure to irrigate and/or protect against browse (deer and/or beaver)? The cause of failure needs to be identified before suggesting remedies. Please discuss in the response how plantings to “hold” or “substantiate” the bioengineered structure were expected to work.

Proper assessment of bioengineering planting failure-to-thrive, by a person both qualified and experienced to do this post-project appraisal work, seems to be needed and reported before further work is done. In response, please describe alternatives for completing such a report.

199607702 - Protect & Restore Lolo Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$675,877 FY08: \$693,099 FY09: \$634,355

Short description: Protect and restore the Lolo Creek Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road obliteration, and streambank stabilization.

Recommendation: Response requested

This project proposal will benefit fish and wildlife. The focal species fall Chinook salmon and steelhead, will undoubtedly benefit from the project, as will non-focal species, including spring/summer chinook salmon, Pacific lamprey, and rainbow trout, which are listed in the proposal, as well as others.

The section on technical and scientific background adequately analyzes the problem. The section could be improved by omitting bureaucratic matter, as well as the outlines regarding outreach and education activities of the project. These outlines may fit better in the objectives and methods section. The significance to regional programs is adequately shown, as are relationships to other projects.

A response is needed on the ISRP's comments below. The project history section is inadequate and should be rewritten to include quantified evidence of project results. Specifically, the project history contains fine descriptions of previously performed activities. However, it does not include data on physical or biological results. The sponsors mention completions of “effectiveness monitoring” but do not present the results. How effective were the activities in terms of habitat created or improved and in terms of fish produced? In particular, statistics on responses of focal species populations to the work done are needed.

The overall direction of the objectives is sound, but their organization could be improved. The difference between objectives 1, 2, and 5 is unclear. It seems that objectives 2 and 5 should be parts of objective 1. Other objectives also seem to be part of the statement for objective 1. Perhaps objective 1 is too broad or is misstated. The objectives need to be rethought and reorganized and clarified in the response.

The methods are for the most part straightforward and sound. The project methods will be more appropriate and evident once the project objectives are clarified. More detailed method descriptions should be provided in the response.

The monitoring and evaluation (M&E) is inadequately described. In particular, the methods for biological M&E are unacceptably sketchy. The response should provide evidence of a thorough M&E program element including the appropriate statistical design for such a program.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

199607703 - Protect & Restore Waw'aalamnime to 'Imnamatnoon Creek Analysis Area

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$367,843 FY08: \$367,843 FY09: \$367,844

Short description: This project will protect, restore, and return critical spawning and rearing habitat to the Analysis Area using a holistic approach to restoration. Projects will be coordinated with the USFS.

Recommendation: Response requested

The proposal contains good problem analysis supported by clear links to the subbasin plan. However, the history and results sections are deficient and are primarily lists of actions performed. A response should provide a summary of biological results to date such as changed sediment abundance in streams, changed water temperatures, changed physical habitat (the diversity and complexity that are stated as objectives), increased migration of fish (where culvert problems were remedied), and changed abundances of fish. The results should be showing up after almost 10 years of project work.

The objectives are well stated; however, the methods listed (Table 4) for achieving the objective of increasing habitat diversity and complexity do not appear to be adequate. The proposal contains comprehensive discussion and in-depth analysis of factors thought to be impacting fish; work is limited to sediment management through addressing roads, culverts, and exotic weeds. The narrative and response, however, need to better describe what constitutes habitat diversity and complexity (and reference scientific literature that supports statements about this), and then explain exactly how the increased diversity and complexity will be achieved.

The work elements describe standard details for road and culvert rehab. However, it is preferable to see replacement culverts identified as clearspan bridges (where floodplain is significant) or, at the least, bottomless culverts.

The proposal lists appropriate general monitoring and evaluation objectives, but the response needs to include revision that provides adequate design and method details.

Undefined acronyms, for example, CRPS, FCRPS, and CRLOLs, often make it difficult for reviewers.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

199607705 - Restore McComas Meadows/ Meadow Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$700,463 FY08: \$660,022 FY09: \$732,452

Short description: Protect, restore, and enhance the Meadow Creek Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road obliteration, and streambank stabilization.

Recommendation: Response requested

The proposal describes a 10-year-old project to restore physical and biological characteristics of this watershed. The focal species is steelhead. The secondary species are spring/summer Chinook salmon, coho salmon, and rainbow and cutthroat trout. This project involves planting riparian vegetation, replacing passage-blocking culverts, decommissioning roads, controlling weeds, maintaining previously built livestock fencing, and installing salmonid habitat features in streams.

The section on technical and scientific background adequately describes problems that need to be addressed in the project. One particularly strong aspect is the recognition of anthropogenic causes of harm to the watershed and streams -- not just the instream symptoms. The technical and scientific background could benefit by reorganizing some of the material and moving the material to a more appropriate section in the proposal. For example, the outlines of outreach and education activities of the project belong in the objectives and methods section.

The significance to regional programs is adequately shown, as are relationships to other projects. The project history contains descriptions of past activities performed but lacks data on the physical and biological results. What have the 10 years of activities accomplished in terms of improved habitat characteristics and in terms of fish populations? What assessment has been made of the dynamic aspects of the fluvial geomorphic process? A response should address these questions.

Statistics on the response of focal species populations to the work done are missing. The authors refer to a thesis (McRoberts 2002) that reports on change in physical characteristics of the stream channel but does not show the statistics. A general reference to a publication is not helpful. The project history section is inadequate and should be addressed in a response that also includes information on the response of the focal species, and changes in the stream channel.

The objectives and methods are generally adequate with respect to planned management. However, the methods for increasing “in-stream habitat complexity” should be described in more detail and justified in the response. The response also should include answers to the following questions and needs. What kind(s) of “grade control structures” will be built (form, dimensions, materials), and exactly what is supposed to be their function in terms of fish habitat? How does the focal species actually use grade control structures? What evidence exists from projects elsewhere that these devices would benefit the focal species and be cost-effective? What form will the “wood material” structures take? The sponsors should describe and present literature-based evidence (or statistics from results of past years’ work in the present project) that the planned methods are beneficial (such evidence could be presented in the section on technical and scientific background).

The last ISRP review of this project expressed reservation about funding because a complete and detailed monitoring and evaluation (M&E) plan was not provided. Consequently, a detailed M&E plan was expected in this proposal. This proposal contains good general description of an M&E plan but remains deficient with respect to statistical design and methodological details. A response should include details of the plan and methods.

The focal and secondary species will undoubtedly benefit from much of the planned work. However, evidence of this needs to be measured and must be thoroughly presented in statistical terms in the next proposal cycle (and in the response of the present proposal, if such data exist).

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

200003500 - Rehabilitate Newsome Creek

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$766,830 FY08: \$657,029 FY09: \$463,784

Short description: Protect and restore Newsome Creek Watershed for the benefit of both anadromous and resident fish using an overall watershed approach. This project is a cooperative effort between the Nez Perce Tribe and the Nez Perce National Forest.

Recommendation: Response requested

This is an ongoing project to restore and protect habitat for resident and anadromous fish in a tributary of the South Fork of the Clearwater River. The actions involved in this proposal

include reducing sediment input from roads, rehabilitating channel reaches damaged by dredge mining, and replacing culverts to allow fish passage. The project's focal species are spring/summer Chinook salmon, Pacific lamprey, and steelhead. Non-focal species include bull, redband, westslope cutthroat and rainbow trout, as well as mountain whitefish. This project will benefit the focal species as well as non-focal species.

This proposal is well written and reasonably thorough. The proposal contains a comprehensive description of the problems. Significance to the subbasin plan and relationships to other projects are adequately shown. A few items, however, need to be addressed and incorporated into a response.

The project history section lists actions performed but does not present evidence of the physical and biological results. A response should summarize the physical and biological results of the project. Measured physical and biological results belong in this section. Some results are presented in Appendix A, but it is not always clear whether that data represent benefits from the project's restorative efforts. Appendix A is not referred to or summarized in the Project History.

The project's objectives apparently come directly from the subbasin plan. The objectives are arranged in no apparent logical sequence but seem to cover the problems well. The long list of work elements and methods could have been organized in some hierarchical fashion to show how the elements are related. Some of the descriptions of methods are unhelpfully vague. For example, under work element 13, what will be done to increase "stream habitat complexity" (a vague concept—what are the units of complexity?) is not explained. The sponsors state that they plan to modify instream structures that were installed in the late 1980s to early 1990s to bring them up to "today's design standards." A response should provide descriptions of the types of structures involved, tell what is wrong with them, and describe the new designs and the basis for concluding that they will benefit fish.

The response needs to give detailed attention to geomorphic analysis to reaches affected by the mining, including the impacts of headward incision (disconnection of stream from floodplain, for example). It is imperative that the proposal incorporate these considerations.

The statistical design of the sampling and analysis involved in project monitoring and evaluation (M&E) (work elements 18 through 21) is missing. The proposed M&E is presented largely as a listing, rather than as a synthesized approach to identifying what is needed and describing how to measure it. This deficiency needs to be corrected in the response.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles "protect" and "restore." Where do habitat actions and protection in the Clearwater offer the most potential benefit?

200003600 - Protect & Restore Mill Creek

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$245,076 FY08: \$231,573 FY09: \$112,707

Short description: Protect, restore, and enhance the Mill Creek Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement and riparian restoration.

Recommendation: Response requested

This proposal is for continuation of a six-year old project to restore physical and biological characteristics of this watershed to provide habitat for resident and anadromous fishes. The focal species are spring/summer chinook salmon and steelhead. Non-focal species include cutthroat and rainbow trout. A response is needed on the issues identified below.

The section on technical and scientific background adequately describes the basic problems. The section could be improved by omitting the descriptions of proposed or contemplated actions. These descriptions belong in the parts of the proposal that describe work elements and methods.

Significance to the subbasin plan is adequately shown. Some of the material presented here would be more appropriate for the section on technical and scientific background. For example, under the heading, Barrier Removal, on page 9, it is stated that “Salmon and steelhead require a network of connected spawning and rearing habitats ...” and “reasons for decline [of what?]” are discussed on page 12. These and other basic considerations should be covered in the technical and scientific background section, not here.

Relationships to other projects are adequately shown.

The project history describes actions performed. In the response, the physical (habitat response) and biological (fish population response) results of this work should be shown in tables and graphs, and then discussed. For example, fencing enclosure around the upper meadow was finished in 2001. What changes in the riparian zone, the stream channel, and the fish population resulted? The 1927 aerial photo set as goal for riparian restoration (85% cover vs. 5% today) is a good example of work continuity.

Also, the data that have been collected on fluvial geomorphology (page 17—this looks like a good fieldwork effort) need to be used to assess the dynamics of the process, in addition to just describing the instream state. For example, is there good connectivity with the floodplain? Is there evidence of incision or aggradation? What changes are taking place in the short- and long-terms? An assessment of morphological change over time should become standard methodology in such projects.

The objectives are logical and clearly stated. The work elements and methods, however, are vague and unclear in certain respects. For example, under objective 1, “Improve anadromous fish habitat,” none of the methods is directed at doing any improvement. They involve only

administrative work and collecting data. What form is the improvement supposed to take? If the idea is to evaluate previous work, this should be explained -- and the processes by which whatever "habitat improvement" actions were performed were supposed to benefit the fish. The linkages between the work, expected physical processes, and the fish need to be described in the response.

Work element A (plant vegetation) of biological objective 2 (protect & restore riparian habitat) contains the sentence: "Re-vegetation of native shrubs and trees will be planted along riparian corridors to re-establish natural vegetative cover." In addition to an easy editorial change in wording (re-vegetation will be planted), it would be helpful to know what species will be planted.

Monitoring and evaluation (M&E) are ongoing and featured in work elements. The response should show how the project will be modified to show the statistical design for the project M&E.

Bottom of p 16: "Monitoring sites were established and baseline data have been gathered for trend monitoring ..." Many of the variables are only monitored every five years. A five-year interval between data collections seems unreasonably long. At that rate, it would take many decades to detect trends. Other parts of the proposal indicate that biological monitoring is done annually. The results should be shown in the project history.

The project will benefit focal and non-focal species, but in the response, the sponsors should clearly describe the physical and biological processes by which they expect this to happen.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles "protect" and "restore." Where do habitat actions and protection in the Clearwater offer the most potential benefit?

200207200 - Protect & Restore Red River Watershed

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$592,236 FY08: \$633,002 FY09: \$550,207

Short description: Protect and restore the Red River Watershed for the benefit of both anadromous and resident fish using an overall watershed approach. This project is a cooperative effort between the Nez Perce Tribe and the Nez Perce National Forest.

Recommendation: Response requested

The overall objective of the work proposed here is to protect and restore the Red River watershed for the benefit of both anadromous and resident fish using an overall watershed approach. The admirable goal is perhaps distorted by the misconception that "the ability of aquatic species in the watershed to persist has been reduced mostly through man's impacts on the land and stream." The subbasin plan emphasizes out-of-basin impacts, but also documents the impact of high road density, as noted here. It is well accepted that most of the variation in returns, particularly to this portion of the Columbia Basin, is due to out-of-subbasin migration and ocean conditions. A

thorough Ecosystem Analysis at the Watershed Scale (EAWS) would further demonstrate this fact. Nevertheless, habitat protection and improvement may be justified following completion of the EAWS proposed, and the setting of priorities for rehabilitation prescriptions. The emphasis here is almost entirely on roads and road rehabilitation, but the value of improved aquatic habitat is clearly recognized in the proposal.

The sponsors also noted that this proposal is tied to other important initiatives within the subbasin and the Columbia Basin. Significance to the subbasin plan is adequately shown, as are relationships to other projects.

The proposal lacks a project history presentation. In view of the project's history, (funding began in 2003), a response is needed including a quantitative summary of biological and physical results produced to date.

Accomplishments were listed as:

2005 - Design and construct contract awarded for 1709 culvert replacement. Bridge Creek Campground improvements implemented. 12 miles of road obliteration contract awarded.

2004 - NEPA completed for Upper Red River Project. Sensitive plant and archaeology surveys completed for project. Road improvement and obliteration engineering surveys completed for contract prep.

2003 - NEPA initiated for the Upper Red River Watershed Restoration Project; Draft EA and BA out for review and consultation.

2002 - Approximately 100 miles of roads surveyed, 264 out of 300 high priority stream crossings surveyed.

There is need for a report and response on the methods and results of the evaluation of the completion and success of the 2005 road obliteration (12 miles), campground improvements, and culvert replacements. Was sediment significantly reduced? Were culverts made passable?

Study of previous reviews by ISRP indicated little evidence of benefits or progress. The proposal indicated that an EAWS for the Red River watershed will be developed during the 2007 funding period, yet the 2002 ISRP review recommended the proposal for funding under the condition that EAWS be done during the 2002 funding period. The sponsor's response to ISRP questions in the 2002 review laid out a timetable for completion of the EAWS in 2002. Please explain why this was not completed or reported.

The ISRP 2002 Review notes: "In response to ISRP comment, the watershed assessment process will be accelerated for completion in 2002. The construction/treatment phase is to begin in 2004 (restricted at first to obvious needs for road rehabilitation and culvert replacement) and last at least through 2006. It is not clear how the out-year budget can be set before watershed assessment and planning are completed, so the construction proposal should be deferred to the next funding cycle." Monitoring and evaluation (M&E) was proposed for 2005 and 2006. The reviewers previously recommended, however, that monitoring start before construction, to facilitate the comparison of pre- and post-project conditions (sponsor did not respond on this

issue) and be coordinated with Project 28045 as the sponsor's previous response indicated will be done. Please explain why this was not done?

The narrative's section on technical and scientific background (and the abstract) launches into description of the watershed and other matters without stating the purpose of the project. Apparently the project's specific purpose is not explicitly stated anywhere in the narrative. The section does, however, present an overview of envisaged watershed problems (oriented toward those caused by timber harvest), even though the EAWS has not yet been done.

The proposal has clearly stated objectives. However, please explain how all of these can be considered valid if the EAWS has not yet been done. The methods are simple (as stated) and are tied well to the objectives.

Objective 3 covers M&E for part of the proposed project, but M&E is needed to cover culvert replacements. Biological M&E (measurement of fish population responses) is also needed for each of the management activities. A process for future M&E was presented, but no information on M&E of past accomplishments that may use the same techniques (Stonesifer 1999) was provided. Once again, we refer the proponents to the programmatic section of this report, particularly in relation to comments on watershed assessment procedures, monitoring and evaluation.

A history of accomplishments and positive response to previous recommendations is lacking. Personnel may lack the expertise and experience required for successful completion. Funding should be either denied or limited to the watershed assessments only, as recommended in the past. A response to questions above regarding comments on past reviews, recommendations for pre-project condition monitoring, and reporting of results may assist the final funding recommendation.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles "protect" and "restore." Where do habitat actions and protection in the Clearwater offer the most potential benefit?

200207400 - Protect & Restore Crooked Fork to Colt Killed Analysis Area

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$484,395 FY08: \$484,395 FY09: \$484,395

Short description: This project will protect, restore, and return critical spawning and rearing habitat to the Analysis Area using a holistic approach to restoration. Projects will be coordinated with the Clearwater National Forest.

Recommendation: Fundable

This comprehensive proposal clearly takes into account past ISRP advice. The proposal is clearly written and is very thorough, except for needing to complete the biological components. The proposal was a pleasure to review. The proposal contains clear multiple objectives to restore

watershed functions and processes, matched to subbasin plan objectives with high priorities (tabulated), etc. Relationship to other projects is not given in as much detail as might be expected. There could be overlap among these several Clearwater projects. (This is not necessarily a bad thing, but how they all fit together should be better explained.)

Monitoring is factored into the objectives, except that the biological M&E is missing. A biologist is needed on the team. The project history is adequate for the short time project has existed (as a 2002 designation). However, it is stated in the facilities and equipment section that "This project has been on-going since 1996 with the cooperation of the Clearwater National Forest." If so, greater explanation of physical and biological results should appear in the history section.

200709200 - Restore Selway River Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$306,650 FY08: \$317,511 FY09: \$318,092

Short description: Protect, restore, and enhance the Selway River Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by resotation projects such as culvert replacement, noxious weed removal, and streambank stabilization.

Recommendation: Response requested

The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles "protect" and "restore." Where do habitat actions and protection in the Clearwater offer the most potential benefit?

The Selway is important for sustaining and increasing populations of listed salmonids. IDFG has rated the Selway as having high potential for recovering steelhead. The proposal is consistent with the Biological Opinion, the Clearwater Subbasin Plan, and the USFWS draft Bull Trout Recovery Plan, it includes collaboration with the Nez Perce NF and complements several BPA- and non-BPA funded projects. Much of the habitat in the watershed is in reasonably good condition, but some sections are degraded.

In areas where sediment control is proposed, how large of a problem is sedimentation in that area and how much habitat is being affected? Where barrier removal is proposed, is the habitat above the barriers suitable, what species and life stages of fish will benefit, and how much habitat will be made available? Most objectives are only generally stated and methods are not clearly described and referenced so that scientific adequacy could be assessed. Frequently, the work elements bear little relationship to the objective. The weeds component should aim to control spread of weeds that are already there and establish surveillance for new species. A response is needed on the issues raised above.

The ISRP concludes that if a convincing case can be made for removal of the four problem culverts (e.g., will open large rearing area and will not permit access of exotics, specifically brook trout), a one-year project for their removal would be expected to provide some benefit.

The monitoring program was not well explained. M&E needs to have an assessment of brook trout distribution in the Selway.

200709300 - Restore Middle Fork Clearwater Face Drainages

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$308,484 FY08: \$379,436 FY09: \$372,786

Short description: Restore Middle Fork drainages to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road inventory and road obliteration.

Recommendation: Response requested

The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

This is a duplicate of 200709200 for a group of small basins on the north slope of the Clearwater. It proposes to identify culvert, road sediment, and grazing impacts on local streams, after which actions will be implemented. The problem of habitat degradation in the Middle Fork is discussed in general terms, but not whether restoration will take place in the tributaries and/or mainstem. Very little is said about habitat conditions and the amount of available, or potentially available habitat in the tributaries targeted for projects. The sponsors state that resident fish occur in the tributaries but they do not identify the species or provide abundance estimates. The sponsors do not indicate whether the streams where passage will be restored historically supported anadromous fish.

One specific culvert is identified for replacement. Is the habitat above the barrier suitable, what species and life stages of fish will benefit, and how much habitat will be made available? Potential risk of exotic fish should be assessed for barrier removals. For sediment control, how large a problem is sediment and how much habitat is affected? The weeds component should aim to control spread of weeds that are already there and establish surveillance for new species. Without more specific baseline information and objectives, M&E cannot adequately be explained or evaluated.

Overall, there is insufficient detail for scientific assessment. The need for restoration is insufficiently justified. Objectives are very general and not directly related to work elements. The methods and monitoring program are not clearly described and referenced. The sponsors should develop a reasonable basis for and project the quantitative benefits expected.

200709400 - Protect & Restore Clear Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$284,000 FY08: \$405,276 FY09: \$411,834

Short description: Restore Clear Creek drainage to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road inventory and road obliteration.

Recommendation: Response requested

The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

This is the same proposal as 200709300 and 200709200 but to address broad environmental problems in Clear Creek. It should be redrafted as a specific proposal to overcome problems identified at the Hoodoo Creek culvert and a culvert on the West Fork Clear Creek. The new proposal should include a description of a reasonable basis for, and a projection of expected numerical, biological benefits from the actions. It should also include a convincing argument that exotics will not be provided access to presently uninhabited areas. There is need for M&E to determine biological effectiveness.

200711900 - Restore Access to Upper Musselshell Creek

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$125,998 FY08: \$132,972 FY09: \$124,617

Short description: Enhance the upper Musselshell Creek Watershed to restore access and provide quality habitat for all aquatic species by reversing past mining activities that have diverted a portion of Musselshell Creek creating a passage barrier.

Recommendation: Response requested

The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

Sponsors do not prioritize this watershed in terms of biological benefit. It is not tied to critical needs based on EDT or other limiting factor analysis. The proposal should include a description of the basis for, and a projection of the gains in abundance of focal species that are expected from removal of the barrier. The tunnel removal must be feasible, and the proposal should be limited to the tunnel. The response needs to include a convincing argument that access for

exotics will not be improved too. It is not clear why new personnel are required; the USFS has the engineering and technology capabilities to complete this project if it is justified. Monitoring and evaluation needs development.

200713400 - Restore and Protect Crooked River Watershed

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$525,397 FY08: \$453,405 FY09: \$300,813

Short description: Protect and restore the Crooked River Watershed for the benefit of both anadromous and resident fish using an overall watershed health approach. This project is a cooperative effort between the Nez Perce Tribe and Nez Perce National Forest.

Recommendation: Response requested

This project proposal is very similar to 200714200 - Restore and Protect American River Watershed. As such review comments are similar.

This project needs greater and clearer detail of the specific activities to be undertaken and the specific timeframe toward completion (specifically a clear initiation and endpoint). Moreover, the proposal would benefit from a more clearly identifiable need and justification for its undertaking relative to objective (measurable), benefits to focal species (salmon and steelhead), and effects on non-focal species (specifically, will culvert repair facilitate colonization by non-native species?). This project is a first step in improving or restoring impaired habitat in the Crooked River watershed. As part of a longer-term set of goals and objectives aimed at addressing limiting factors identified in the Clearwater Subbasin Plan for critical salmon and trout populations.

The ISRP recommends that for this group of similar “Restore and Protect” projects in this (Crooked River) and other watersheds, the sponsors prioritize which watershed(s) are justified to have the likely greatest measurable benefits. From such a prioritization the top project could be funded as a demonstration and proof of concept from which data and population responses can be used to make a stronger case for future work in the other watersheds.

The ISRP also recommends that project duration be limited to those specific actions that can be completed within funding cycle; e.g., the four culverts that have been identified as problems.

The ISRP could not determine if the road repair work was to be truly focused on habitat improvement for salmon or if the actions are merely to repair roads to facilitate ongoing logging operations which would continue to contribute to road-related stresses. This needs fuller clarification. If it is the latter, we recommend alternative funding avenues be sought. Also, restoration of meanders would prove a difficult proposition unless the riprap is removed and the stream is permitted access to the old flood plain. The weed control program appears to be limited to spraying and is glazed over without explanation as to its benefits, how it ties into the overall project (it appears to be a “throw in” item), and an explanation of how the habitat will be changed/improved so that weeds do not return even if it is possible to eliminate them.

The proposal cites objectives that are generally stated in terms of miles of stream improved, roads decommissioned or improved, culverts removed or redesigned, etc. rather than in terms of specific or expected outcomes to salmon, trout, or wildlife. As such the proposal is a work/task list but needs measurable objectives specified in terms of biological response. Regardless, implementation is amenable to monitoring for implementation. The monitoring and evaluation needs some expansion to define the specific objectives and responses by salmon/steelhead that indicates success (or not).

Methods described include working relationships among key partners including Nez Perce Tribe, Forest Service (NPNF), and BLM. Absent is any stated relationship with IDFG, who presumably participate in biological monitoring (and measurement of response).

200714200 - Restore and Protect American River Watershed

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$335,008 FY08: \$348,016 FY09: \$341,424

Short description: Restore and protect the American River Watershed for the benefit of both anadromous and resident fish using an overall watershed approach. This project is a cooperative effort between the Nez Perce Tribe, Nez Perce National Forest, and BLM.

Recommendation: Response requested

This project proposal is very similar to 200713400 - Restore and Protect Crooked River Watershed. As such review comments are similar.

This project needs greater and clearer detail of the specific activities to be undertaken and the specific timeframe toward completion (specifically a clear initiation and endpoint). Moreover, the proposal would benefit from a more clearly identifiable need and justification for its undertaking relative to objective (measurable) benefits to focal species (salmon and steelhead) and effects on non-focal species (specifically, will culvert repair facilitate colonization by non-native species?). This project is a first step in improving or restoring impaired habitat in the American River watershed. As part of a longer term set of goals and objectives aimed at addressing limiting factors identified in the Clearwater Subbasin Plan for critical salmon and trout populations.

The ISRP recommends that for this group of similar “Restore and Protect” projects in this (American River) and other watersheds, the sponsors prioritize which watershed(s) are justified to have the likely greatest measurable benefits. From such a prioritization the top project could be funded as a demonstration and proof of concept from which data and population responses can be used to make a stronger case for future work in the other watersheds.

The ISRP also recommends that project duration be limited to those specific actions that can be completed within funding cycle; e.g., the four culverts that have been identified as problems.

The ISRP could not determine if the road repair work was to be truly focused on habitat improvement for salmon or if the actions are merely to repair roads to facilitate ongoing logging operations which would continue to contribute to road-related stresses; this needs fuller clarification. If it is the latter, we recommend alternative funding avenues be sought. Also, restoration of meanders would prove a difficult proposition unless the riprap is removed and the stream is permitted access to the old flood plain. The weed control program appears to be limited to spraying and is glazed over without explanation as to its benefits, how it ties into the overall project (it appears to be a “throw in” item), and an explanation of how the habitat will be changed/improved so that weeds do not return even if it is possible to eliminate them.

The proposal cites objectives that are generally stated in terms of miles of stream improved, roads decommissioned or improved, culverts removed or redesigned, etc. rather than in terms of specific or expected outcomes to salmon, trout, or wildlife. As such the proposal is a work/task list but needs measurable objectives specified in terms of biological response. Regardless, implementation is amenable to monitoring for implementation. The monitoring and evaluation needs some expansion to define the specific objectives and responses by salmon/steelhead that indicates success (or not).

Methods described include working relationships among key partners including Nez Perce Tribe, Forest Service (NPNF), and BLM. Absent is any stated relationship with IDFG, who presumably participate in biological monitoring (and measurement of response).

200725500 - Protect & Restore Middle Lochsa

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$224,487 FY08: \$224,487 FY09: \$224,486

Short description: This project will protect, restore, and return critical spawning and rearing habitat to the Analysis Area using a holistic approach to restoration. Projects will be coordinated with the USFS.

Recommendation: Response requested

The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential?

This proposal primarily addresses road decommissioning, culvert replacement, and control of non-native plants. It is unclear how much positive impact the proposed restoration activities will have on stream habitat and whether they will lead to measurable benefits for focal species. The sponsors could have improved the proposal by providing much more detail on how risks of particular human activities on stream habitat and focal species will be assessed, and how the proposed projects and project areas were prioritized. The M&E program needs to be explained better, especially in regard to sampling methods.

The Middle Lochsa presents an opportunity for enhancement of apparently productive habitat for several focal species. The land is under single ownership (USFS), the sponsors state that human impacts are limited, and road densities tend to be low. The sponsors propose to take some straightforward management actions to ameliorate critical habitat problems: decommission roads on terrain at high risk for erosion and unnecessary for management needs, improve roads and trails that are sources of erosion, replace impassable culverts, and control invasive weeds.

The proposed work directly addresses objectives and restoration priorities in the Clearwater Subbasin Plan. It also addresses elements of the Biological Opinion, the Fish and Wildlife Program objectives related to anadromous and resident fishes and wildlife, the USFWS Bull Trout Recovery Plan and a tribal fish restoration plan.

Relationships to other projects: This project is closely linked with two other projects in the same area.

The work elements directly address objectives in the Clearwater plan. A major concern is that restoration activities may occur in parts of the watersheds that may have little impact on stream habitat or that the affected streams are not productive for focal species. For each restoration activity, the sponsors need to describe how they determined that the proposed sets of restoration activities will have substantive impacts on stream habitat that is productive for focal species? Was some sort of risk assessment completed for each project? Specific examples of this concern are detailed below.

Will all travel ways and trails be assessed for risk to stream habitat? How will the road and trail improvement/decommissioning opportunities be prioritized? Just the fact that they are not needed for USFS management purposes is an insufficient reason. Road decommissioning should have the potential to have a significant positive impact on stream habitat. Will the project prioritization be based on potential negative impacts on stream habitat? Will current or potential fish productivity be a factor in prioritization?

How will the culvert replacement sites be selected and how will they be prioritized? Will passage be restored to productive habitat for focal species?

Will the erosion problems in Graves and Lost creeks affect important fish habitat and fish populations? Where specific locations have been selected, they should be justified in relation to habitat and fish benefits.

What is the specific purpose of the weed control? How will it improve habitat and for what species?

The proposal needed a better explanation of the method for assessment of risk for stream habitat (Work Element 4 and 6).

Tasks (work elements) and methods: The methods seem relatively straightforward.

Monitoring and evaluation: The monitoring program needs to be better described. Will monitoring be done before and after project completion? How often will monitoring assessments be done?

Facilities are adequate. A fish biologist should be involved in the project to aid with prioritization of project locations and assist with design of the monitoring program.

Information will be conveyed via reports and outreach programs.

Benefits to focal and non-focal species: The project could be of considerable benefit if the projects are sited in locations that will protect or improve important habitat and fish populations.

Non-focal species could be benefited by actions that protect and improve access to habitat.

200731100 - Acquire Land to Protect Critical Habitat in the Upper Lochsa

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$10,020,800 FY08: \$10,400 FY09: \$0

Short description: This proposal seeks to protect the critical habitat in the upper Lochsa by working with the Rocky Mountain Elk Foundation to acquire 40,640 acres of land at risk of development.

Recommendation: Response requested

The sponsors have not made a convincing case that the patchwork of parcels proposed for purchase will provide significant benefits for focal species. In response, the sponsors need to address the unresolved issues and questions identified in the following assessment.

The proposed purchase consists of blocks of habitat (size not provided) that apparently have been degraded. The parcels proposed for purchase are interspersed with private land, but there is no assurance that the parcels of private land could be purchased. Land-use activities on the private parcels could impact the areas that were purchased. The sponsors did not provide an estimate of the increase in fish or wildlife production that eventually would be achieved from the purchase. Nor was there an explanation of how the land would be managed after purchase and by whom. A monitoring and evaluation program was not discussed.

The sponsors clearly establish the importance of the upper Lochsa and the three watersheds. The sponsors are seeking funding to purchase land in the three watersheds within this area.

The watersheds in question should be clearly identified on a map. A major concern is that the area proposed for purchase is a patchwork of parcels interspersed with private land rather than a single large, contiguous parcel. It is unclear just how well the parcels that will be purchased are functionally connected. The interspersed parcels of private land leaves open the possibility that

land use activities on the private parcels could impact the areas that were purchased. Has purchase of the private parcels been explored? The habitat to be purchased apparently is in a degraded state and would require substantial restoration over long periods of time. The sponsors do not provide any specifics about the nature of the degradation.

The sponsors state that areas degraded by timber harvest have substantial resilience and can recover from habitat degradation faster than areas affected by other human activities. The sponsors need to cite the scientific literature that justifies this assertion.

One way the sponsors propose to prioritize is to purchase the areas with highest development potential but they do not define “development.” The prioritized areas are not shown on a map nor is any information provided about them. The sponsors do not indicate how the purchased area will be managed.

The sponsors provide no estimate of the gain in fish production that will accrue for this land purchase. Apparently an EDT analysis was not conducted. The sponsors do not address the issue of whether passage through the Clearwater and Lower Lochsa is a limiting factor.

Rationale and significance to subbasin plans and regional programs: The proposed work generally is consistent with the Clearwater Plan, the Fish and Wildlife Program, the 2000 Biological Opinion, and other management documents. The sponsors do not indicate whether the proposed purchase is clearly identified as a priority in the plans.

The proposed project is related to several projects funded through the Fish and Wildlife Program. The sponsors do not indicate whether these projects will link directly to the proposed purchases.

A list of references to objectives (document unknown) is referred to, but there is no explanation of the objectives. The work elements are not explained. The only “methods” are those related to arranging for the purchase. There is no stated plan for M&E.

No facilities are required. Personnel are listed, but not enough information is provided to judge their qualifications. Information transfer is not discussed.

It is uncertain how much the purchase would benefit focal species. No estimates of increases in fish production were given. Impacts on non-focal species are uncertain, but negative impacts are unlikely.

Finally, in the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

200729600 - IDL Clearwater Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$63,500 FY08: \$138,100 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable bridges. This will make available existing fish habitat.

Recommendation: Response requested

This is one of three Idaho Department of Lands projects (projects 200729600, 200734200, and 200736100) to remove culverts perceived to be blocking access for migratory fish to productive habitat in the Clearwater Basin. In this proposal, three culverts will be removed opening 16 miles of stream now considered inaccessible.

In response, a detailed justification for the proposed projects including the basis for the sites selected is needed. Sponsors need to outline how these sites were assigned the highest priority (watershed and impact area)? Sponsors need to consider how these three proposals could be considered together for priority setting and compile a joint response for all three proposals.

The sponsors need to provide convincing evidence that reaches upstream from the proposed improvements will in fact provide significant amounts of productive fish habitat. The proposal should describe fish species composition, fish distribution and abundance, channel gradient, and substrate composition. It should include evidence that other potential barriers do not impact project sites in each system.

If a perceived barrier has been in place for many years, what will prevent access to exotic species such as brook trout causing potentially harmful genetic or competitive effects? Please provide the basis for your conclusions in the response.

Deliverables (as described) have nothing to do with fish and wildlife (or aquatic habitats). In response, please clarify roles of Idaho Department of Lands with role that IDF&G might have in M&E (not provided for). If not IDFG, who will do M&E (biological response, as well as implementation)?

The sponsors do not describe relationships to other projects or collaborative efforts.

If these projects provide access to productive habitat that is not presently being used by endemic species that can be harmed by entry of local exotics, it has potential for producing long-term benefits. However, in the response, IDL needs to provide a more convincing case that limited resource dollars should be expended at these sites as opposed to other potential problem sites.

The ISRP would like responses to the following items in a joint response for projects 200729600, 200734200, and 200736100.

1. Is there a logical basis for separating these three projects or can they be included in a single proposal?
2. These three proposals, whether singly or in concert, need to include analyses showing that the sites selected are associated with the greatest problems in the subbasin for migrating fish.
3. The proposal(s) needs to show that these sites are consistent with the priority needs identified in the subbasin plan.
4. Stating that a project will open miles of stream to migrating fish needs to be supported with evidence that significant productivity for desirable species exists in the opened area. Convincing details should be provided to show, for example, that gradient is not excessive, that complex substrate exists, and that other barriers upstream from the site do not exist.
5. What evidence can be provided to show that no isolated populations of endemic species exist upstream from these barriers?
6. Deliverables need to be described in terms of benefits to fish and wildlife.

200734200 - IDL Maggie Cr. Area Fish Passage Proposal

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$210,000 FY08: \$220,000 FY09: \$200,000

Short description: This proposal seeks to replace fish passage blocking culverts with fish passage structures. This will increase the quantity of available suitable fish habitat.

Recommendation: Response requested

This is one of three Idaho Department of Lands projects (200729600, 200734200, and 200736100) to remove culverts in streams of the Clearwater Basin. It is proposed here to replace eight culverts perceived to be blocking access to productive habitat for migratory fish in Lolo and Maggie creeks. The ISRP requests a joint response for the three projects (200729600, 200734200, and 200736100) to items listed under Project 200729600.

200736100 - IDL St. Joe Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$63,120 FY08: \$0 FY09: \$0

Short description: This project involves the replacement of a fish barrier culvert with a steel bridge providing fish passage. In addition two upstream culvert crossings will be removed and the stream channel reestablished.

Recommendation: Response requested

This is one of three Idaho Department of Lands projects (200729600, 200734200, and 200736100) aimed at culvert removal. This proposal is to remove three culverts in Cedar Creek of the Stony Creek drainage (Clearwater Basin) perceived to be blocking access to productive stream habitat for migratory fish. The ISRP requests a joint response for the three projects (200729600, 200734200, and 200736100) to items listed under Project 200729600.

Salmon

200725000 - Genetic Evaluation of Chinook Salmon Supplementation in Idaho Rivers

Sponsor: Idaho Department of Fish and Game / Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,287,711 FY08: \$959,465 FY09: \$966,814

Short description: The project sponsors intend to use DNA analyses to quantify the relative reproductive success of Chinook salmon of various origins in ISS study streams. This will help determine the effect of "de facto" supplementation by hatchery strays in treatment and control streams.

Recommendation: Response requested

This proposal was generated in response to the ISRP's recommendation on the ISS to use parentage analysis to partition juvenile Chinook production in ISS streams by natural, supplementation, and general production hatchery parents. Recognizing that the ISRP recommended a parentage analysis for the ISS, this new project should be justified within the context of the larger genetic network in the Columbia River Basin. The response should include evidence of discussion and coordination with ongoing efforts in the Basin. Are the proposed streams sites the best place to do this parentage analysis? Please include in response why these sites were chosen and what advantages they have over other sites? See programmatic comment and provide clear evidence that there is a regional statistical design for this work taking advantage of economies of scale for collection and testing of samples.

In response, please include more details of the methods for genetic testing and collection. The Lutch report previously reviewed by the ISRP describes some of the methods, but the methods need to be summarized in the current proposal.

If selected for funding, this project should be demonstrated and funded in phases; e.g., this project can be allocated funding based on demonstration of the ability to perform the parentage analysis, and expanded to genotype the full suite of individuals as justified by evidence that the uncertainties can be resolved.

For analyses of population change objective see Pearse, D. E. and K. A. Crandall. 2004. Beyond Fst: Analysis of population genetic data for conservation. *Conservation Genetics* 5:585-602.

For both analysis of population change and parentage analysis, the critical element at this point is to collect tissues. This should be recommended at the full-scale project to estimate mating behavior, not just single parent assignments. After a reasonable number of individuals are genotyped, preliminary analyses can be performed to inform the decision as to whether or not to complete genotyping for the entire set of individuals.

The project has yet to identify a lab to genotype the fish but that should not be a problem. At this time a lead geneticist is not identified. This needs to happen before the genotyping begins. The budget for the genetics work, about 1 million per year, seems very high. The percentage of funding for the genetic work appears higher than in other similar proposals. Over the past few years, the cost per specimen has been going down. In response, please provide additional justification for the anticipated costs per specimen and for equipment. If the budget includes some equipment, what opportunities exist for reducing costs by subcontracting to other labs?

199700100 - Idaho Chinook Salmon Captive Rearing

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$594,773 FY08: \$612,747 FY09: \$631,665

Short description: The IDFG captive rearing program was developed to increase the number of naturally spawning adults and maintain metapopulation structure in selected populations at high risk of extinction while avoiding the impacts of multigenerational hatchery culture.

Recommendation: Response requested

The Idaho Captive Rearing program collects naturally produced Chinook salmon parr or eyed eggs from redds in the Lemhi, West Fork Yankee Fork Salmon, and the East Fork Salmon rivers. The experimental strategy was developed to increase the number of naturally spawning adults while attempting to avoid the impacts of multigenerational hatchery culture.

Over nine years, 1276 adult salmon were released in the treatment streams (an average of 142 fish per year). Through 2005, 149 redds produced by captive-reared Chinook salmon have been documented. Approximately 1/4 of the 558 known females released to spawn constructed redds. Forty-six redds have been sampled for live eggs. Approximately 60 percent of sampled redds contained fertilized embryos, most of which had reached the eyed-stage of development. For redds containing fertilized eggs, egg survival to the eyed-stage of development averaged about 50 percent.

A succinct summary of the collection of eggs and fry, their survival in culture to smolts and adults, and their mating in the wild is provided. The picture presented here is much more positive than reported previously -- little attention paid to dead eggs excavated from redds, asynchronous development compared to natural fish, and poor rigor on the part of males. There was no indication of improvement and explanation of the changes in perspective over the last couple years.

The proposal indicates that this experimental effort will be terminated by 2112. In the remaining years, the sponsors propose evaluating whether the eggs deposited by captive reared adults produce fry and smolts and whether any of these fish successfully migrate to the ocean and return as adults. Once that is completed this type of captive propagation can be fully described and evaluated.

On the understanding that continuation of this project is to complete cycles essential for a final evaluation, it warrants consideration. In the ISRP view it is not yet clear whether this captive propagation technology can be used to benefit salmon.

In their response sponsors should first focus on the reproductive success and pedigree experiments. The response should provide the time-line for stocking the adults, evaluating the parr and smolts, and returning adults, so the ISRP can clearly see this can be completed before 2112. Secondly, a justification for the evaluation of gene diversity needs to be presented. There is no need to worry about gene diversity if the strategy is not likely to produce a demographic benefit to the focal species. Finally, a quantification of any potential benefit to the VSP parameters of the focal species ESU is needed. The objective is the successful natural production of natural parr, smolts, and adults, to preventing extirpation of the populations, and rebuilding to self-sustaining levels. But even if there is some benefit to one or two local populations, how does this affect the broader scale status of the ESU? Is the benefit too little and too localized?

The participants do a good job of regularly giving presentations at regional meetings and publishing in the peer-reviewed literature.

The response should review/consider information in the ISRP programmatic summary concerning captive rearing.

199107200 - Redfish Lake Sockeye Salmon Captive Broodstock Program

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,086,118 FY08: \$1,135,362 FY09: \$1,172,418

Short description: Establish captive broodstocks of Redfish Lake sockeye salmon. Spawn captive adults to produce eggs, juveniles, and adults for reintroduction and future broodstock needs. Evaluate juvenile out-migration and adult returns by release option.

Recommendation: Not fundable

General Comments on the Suite of Stanley Basin Sockeye Proposals:

The ISRP recommends "not fundable" for this suite of projects (199107200, 199204000, 200727600, and 199107100) originally designed to prevent extinction of Stanley Basin sockeye salmon. Since there has been no response by the populations to recovery efforts in the Basin, it is clear that conditions outside the Basin determine the fate of these fish, and there is no evidence that these conditions are likely to improve significantly in the foreseeable future. Not only are these limiting conditions not likely to change, the fish themselves are likely to be changing as a result of present intensive propagation and rearing procedures so that their viability even under restored conditions is increasingly in doubt. Recovery of endangered species is important, but evidence presented here does not demonstrate that recovery is occurring. The view of the ISRP is that there is no scientific basis for continuing this program.

The reintroduction efforts in the Stanley Basin lakes have been thorough and well conceived. Yet few fish have returned from the ocean. Many of those that do return disappear between Lower Granite Dam and the Sawtooth Hatchery and Redfish Lake weirs. The returns are so low now, that doubling them by doubling the smolt production would not the yield the returns identified as needed in the proposal. Failure of sockeye to respond significantly to the recent (1999-2002) upturn in ocean conditions suggests that the population is no longer able to respond to the environment.

This is, however, not only a numerical problem but also a viability problem. The greater the time these fish are dependent on support of "artificial" propagation methods, the greater the genetic divergence from the original population and the lower the potential for producing a self-sustaining population. Given this inevitable divergence, fish transplanted from other populations in the basin or adjacent basins are likely to be as suitable founders as are any remaining "Stanley Basin fish" that might be available if habitat conditions are restored at some time in the future.

Additional information regarding the Stanley Lake basin sockeye salmon and captive rearing strategies is discussed in ISRP programmatic summaries provided with this report.

Although the recommendation is to discontinue the program, some specific comments regarding the program are included in the following.

Objectives in project #199107200 are all in terms of fish to be reared, spawned, and released. It is more appropriate for objectives to include the return of anadromous adults from the program followed by successful outmigration of smolts and their return. In earlier documents there is mention of recovery targets for the ESU - something like 500 adults returning to basin lakes on average, over 5 years. These targets, or their current status, should be included in the objectives.

The proposal is clearly written and provides a good description of the project. There is a reasonable summary of the work-to-date. Previous summaries described that a number of fish returning to the Stanley Lakes basin were unmarked and believed to be natural production - perhaps from spawning of released adults, anadromous adults from the program, or egg plants from this program. This was not discussed in this summary and should be. Also, according to proposal 199305600, many sockeye are tracked to Lower Granite Dam, but disappear before they reach the Stanley Lakes basin. This may be a major cause for the dismal performance of the project so far. Proponent's views on these limiting issues should be presented in the proposal.

The proposal states that NOAA project 199305600 is developing tools that are being used in the Redfish Lake sockeye captive program. But they are not identified here.

It would seem the first goal is to prevent the absolute extinction of the Snake River sockeye ESU, recognizing that it is essentially extinct in the wild now. The second goal is restoration of self-sustaining natural populations. The only apparent trigger to sunset this program is

achievement of self-sustaining status by the stock. Reporting would benefit from a discussion of the basis for the proponents conclusion that viability has been and is being preserved.

Project proponents produce valuable reports and publish in the peer-reviewed literature. Sponsors should provide evidence from other species recovery efforts to show that actions (and time) proposed here are sufficient to preserve the viability of this species to a projected time of recovered habitat.

199204000 - Redfish Lake Sockeye Salmon Captive Broodstock Rearing and Research

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$824,994 FY08: \$857,994 FY09: \$892,312

Short description: This ongoing project provides a safety net captive broodstock program preventing the extinction of Redfish Lake sockeye salmon. It also produces prespawning adults and eyed eggs for use in Idaho's recovery efforts for this ESA-listed endangered species.

Recommendation: Not fundable

General comments on the suite of Stanley Basin sockeye proposals are provided under proposal 199107200. Additional information regarding the Stanley Basin sockeye salmon and captive rearing strategies is discussed in this report's programmatic section.

Comments specific to project #199204000: There is reporting of the outcome of the project's efforts. The reporting could be more comprehensive, however. For example Table 1 on page 10 should include the numbers of fish spawned, their age distribution, fecundity, and gamete viability, not just the number of eyed eggs.

The proponents state that the anadromous returns to the basin (averaging about 16 fish per year) demonstrate that the captive project is succeeding both as a safety net and as a tool to restore the anadromous run. The ISRP respectfully interprets these results differently. Clearly the Snake River sockeye ESU has been preserved in captivity and has not been extirpated. However, at this time it appears the ESU is extinct in the wild and reintroduction efforts have not proceeded easily or successfully. There is no reported successful full-cycle reproduction in the wild and then production of subsequent adults.

The work elements for standard fish culture are adequate. The budget for rearing the fish is large and seems excessive, but it is difficult to evaluate.

Objective 3, Refine genetic preservation techniques, and other experiments with this project should be deleted. They are poor substitutes for the efforts in 199305600. This proposal is more appropriately directed to standard rearing for the primary sockeye captive rearing effort.

The proponents provide useful reports and publish the results of their efforts in peer-reviewed literature.

The culture facilities could have adverse effects on other fauna through disease transmission or eutrophication from the facility effluent. The reintroduction efforts are impacted by resident kokanee (hypothesis) and may impact bull trout. These are considered in the larger project planning but are not discussed at great length in this proposal.

200727600 - Idaho Department of Fish and Game Rearing Expansion for Snake River Sockeye Salmon

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$5,252,090 FY08: \$1,261,278 FY09: \$270,823

Short description: This capital proposal addresses the need to increase the return of anadromous Snake R. sockeye salmon to Idaho. Incorporating "fit" anadromous adults into the captive spawning design is a recommended action for this closed population

Recommendation: Not fundable

General comments on the suite of Stanley Basin sockeye proposals are provided under proposal 199107200. Additional information regarding the Stanley Basin sockeye salmon and captive rearing strategies is discussed in the report's programmatic section.

This proposal is to develop a new culture facility as part of the sockeye salmon recovery effort. The objective is to produce fish for release. "The long-term plan, which this proposal addresses, is designed to relocate sockeye incubation and rearing responsibilities from the Idaho Department of Fish and Game Sawtooth Fish Hatchery and Oregon Department of Fish and Wildlife's Oxbow Fish Hatchery to a new, Idaho facility developed specifically to meet the incubation and rearing needs of the program." The identity of the facility is not revealed. Cost would be \$6 million plus to purchase and remodel. Nothing is mentioned about existing facilities that would be released for other use?

A compelling need for this facility is not demonstrated. How more production would solve the problem of low return numbers of anadromous adults is not explained.

The new facility location is not identified making it impossible to assess potential adverse effects from the proposed culture facility. Studies are underway to assess relations with bull trout and rainbow trout. These results should be presented as soon as possible.

199107100 - Snake River Sockeye Salmon Habitat and Limnological Monitoring

Sponsor: Shoshone Bannock Tribes

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$450,900 FY08: \$456,591 FY09: \$460,458

Short description: This project will monitor and enhance (if necessary) rearing conditions for juvenile Snake River sockeye salmon. The project sponsors will also investigate competition, growth rates, and survival for progeny released from the captive broodstock program.

Recommendation: Not fundable

General comments on the suite of Stanley Basin sockeye proposals are provided under proposal 199107200. Additional information regarding the Stanley Basin sockeye salmon and captive rearing strategies is discussed in the report's programmatic section.

Project #199107100 was established to contribute to the overall program of protecting and increasing abundance of Stanley Basin sockeye salmon by managing nursery lakes in the Basin to improve survival of planted juveniles to the smolt stage. The proposal's readability and clarity are improved, and data showing results through 2004 are included. Some benefits seem to accrue to overall survival in these lakes, but benefits to population are not described. No evidence is presented to show that the program is making a significant contribution to the broad objective of protecting these salmon. The project is directed to creating productive conditions for juvenile sockeye salmon; impact on, and conditions for, other species are not described.

198909800 - Idaho Supplementation Studies

Sponsor: Idaho Department of Fish and Game/NPT/SBT/USFWS

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$2,014,483 FY08: \$2,098,127 FY09: \$2,207,751

Short description: The goal of the Idaho Supplementation Studies is to evaluate supplementation as a recovery/restoration strategy for spring/summer Chinook salmon in Idaho. The project is a multi-agency effort, covering 30 streams throughout the Salmon and Clearwater subbasin.

Recommendation: Fundable (Qualified)

This is an important project entering a final data collection phase, which will carry important implications for using supplementation as a strategy and for using large-scale ecosystem experiments in the Columbia River Basin. The ISRP reviewed a portion of the ISS in December 2005. The ISRP continues to recommend that they include an analysis of the data as an observational study using regression models. They have moved from hypothesis testing to a modeling approach. They are using a statistician from U of I that is highly qualified. They should continue to take note of advice from their statistician.

The technical explanation of supplementation was adequate but not remarkable. The important measures needed to evaluate supplementation, the practical difficulty of collecting the data under the environmental conditions in the Columbia River basin, and the challenges in implementing the initial ISS design are not well developed. A primary recurring ISRP concern is the adequacy

of redd and carcass data. The redd data alone is of limited utility, which they recognize. They need to assess the carcasses originating from the various combinations of natural and hatchery fish. Precision and bias of the carcass counts needs to be measured regularly. The FY07-09 proposal is consistent with the material last reviewed. The ISRP recommends that future funding beyond FY08 be contingent ("Qualified") on reporting of results from 2006-2007 returns, in 2008, coupled with a presentation to reviewers. The ISS plans to follow the last cohorts, plus a year of subsequent natural production. Thus, the project should be complete by 2016.

The history of the project is adequately described and the difficulties in maintaining the study design are identified. The project proponents have not taken the lead in making progress of the ISS widely known. Modifications in the statistical design are largely a product of prodding by the ISRP with support of the Council.

Some of the biological objectives in Section 6, such as "assess out of basin factors affecting smolt outmigration" and "calculate mainstem mortality" do not seem particularly germane to the evaluation of supplementation.

At this point in the ISS, the critical element is estimating adult abundance and partitioning it and subsequent production by adult source - natural adults, supplementation adults, and general production hatchery adults. This is not a simple straightforward task but is essential to a robust statistical evaluation of the ISS and subsequent interpretation for management decisions.

It is not entirely clear from the work elements that the ISS proponents have fully considered and addressed the recommendations from the most recent ISRP review. Addressing bias and other difficulties with redd and carcass counts is not well developed; proponents are advised to review the approaches in project 199107300 Idaho Natural Production Monitoring.

There is a disappointing lack of peer reviewed literature submission; dissemination of information from this project has been poor. If robust data is collected and then appropriately analyzed, this project will provide benefit to the region by helping clarify whether there are benefits from supplementation.

If there are adverse effects to non-target populations they have occurred already but are not quantified.

199604300 - Johnson Creek Artificial Propagation Enhancement Project

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,275,001 FY08: \$1,330,000 FY09: \$1,287,999

Short description: The Johnson Creek Artificial Propagation and Enhancement (JCAPE) project is a small-scale (100,000 smolts) supplementation initiative integrated with a monitoring and evaluation program designed to prevent the extirpation of the Johnson Creek stock.

Recommendation: Fundable in part

This is a long and complex proposal that richly documents its history including numerous iterative reviews by the ISRP. Significant exchanges have occurred between the project sponsors and the ISRP since the late 1990s and the removal of Johnson Creek from the ISS control stream status.

The goal of the Johnson Creek Artificial Propagation Enhancement project is to reduce the demographic risk of extirpation of the ESA listed Johnson Creek summer Chinook salmon and begin its recovery through supplementation while maintaining genetic diversity of the artificially propagated summer Chinook salmon population and the natural population. The sponsors hope to increase adult returns through increased juvenile survival and improved homing in order to preserve and recover the Johnson Creek salmon population. The ISRP has long been critical of this project for a variety of technical reasons. Most of these have been addressed through the above described iterative review exchanges.

The Johnson Creek Artificial Propagation Enhancement Project is FUNDABALE IN PART for one year (FY07) with subsequent annual funding contingent upon reporting of monitoring results and evidence of adaptive management decisions justified by the results. Sponsors also need to analyze and report on extinction risk. The annual report should be reviewed by an independent team.

A decision was made to initiate a supplementation program in Johnson Creek to increase the population size as it appeared to be at increasing demographic risk during the 1990s. Decision-makers must have concluded that removing Johnson Creek from the ISS study design would not compromise the objectives of the ISS. The current proposal redirects the Johnson Creek work to become an additional stand-alone assessment of supplementation. What is the reason for another stand-alone assessment?

Sponsors have provided an excellent summary of the results of their project to date. The proposal is well done. Proponents should be commended for reporting and making these data available. The next step is to make adaptive management decisions on the appropriateness and scale of further supplementation. This discussion is absent from the proposal.

The important data sponsors provide calls into question whether the supplementation program is providing any demographic benefit or whether it may be creating a demographic loss (page 24, Table 10). For both the 1998 and 2000 brood years, the female-to-female replacement rate was lower for supplementation than for natural spawning (6.99 vs. 6.95 for 1998, and 4.46 vs. 2.88 for 2000). In both these cases, more fish would have returned had the collected females been permitted to spawn in the wild than by bringing them into the hatchery.

With results to date, the ISRP does not currently see justification for supplementing Johnson Creek. Moreover, this project could result in harm to the wild population based on the data reported. What are the limits to broodstock mining? Continuing the project with adequate monitoring may only be valuable in better understanding the problems with supplementation.

Proponents provide appropriate evidence that the summer Chinook population in Johnson Creek has decreased over the past 50 years. The purpose of supplementing the population is to reduce a risk of extirpation of the population. What is needed to more fully justify the action is a quantitative assessment of the likelihood of extirpation within specific timeframes. This should be followed by a presentation of the level of demographic support from supplementation that would be required to reduce this risk; i.e., how much supplementation at specified performance levels would lead to a 10, 20, 30, 40% etc. reduction in the risk of extirpation? This provides a context for comparing the project to alternatives. If for example, the population has a 50% chance of extirpation in the next 25 years, will we only reduce that chance to 40% under the expected performance of the supplementation program? Finally, this type of analysis would logically lead to clear performance thresholds by which to judge the artificial production portion of the program.

While it is clear (p. 29) that natural origin adults are used for broodstock, it is not clear whether adults of hatchery origin are also used for brood stock purposes. This should be clarified. Supplementation in its strictest sense (RASP) would rely solely on natural origin adults.

This project has changed from what it was first intended to be. It is now viewed as a stand-alone assessment of supplementation rather than as a part of the ISS assessment program. It appears that several issues that were contentious in the recent past have been resolved.

Benefits of the program are unknown at this point, but objectives seem clearly described. As noted above, however, the objectives are vague in terms of reducing the risk of extirpation - by how much, in what timeframe - and are vague with respect to adaptive management loops to modify, expand, or terminate the supplementation.

The monitoring indicates they are adding contrasts between supplemented and unsupplemented reference streams, but no detail for this contrast is provided. It is still unclear just how supplemented and unsupplemented "reference" streams will be compared.

The reliance on contrasts of supplementation with natural fish within Johnson Creek are informative but not sufficient to evaluate demographic or fitness benefits or losses from supplementation. Evaluation for the project is dependent on suitable data from reference streams, but available streams are not free from stray fish from adjacent supplementation programs.

Sponsors have made information from the project available for independent review.

Identification and magnitude of adverse outcomes for non-focal species is unknown.

199107300 - Idaho Natural Production Monitoring

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$960,900 FY08: \$1,008,950 FY09: \$1,059,410

Short description: The project sponsors propose to refine the description of population structure of spring/summer Chinook in Idaho, monitor juvenile production of Chinook/steelhead, evaluate survival/productivity of Chinook, and estimate annual abundance of Chinook redds in the upper Salmon.

Recommendation: Response requested

This project may have out-lived its usefulness. It needs better justification for its continuance at this level of activity. In response, please consider scaling down to provide only the data needed for regional RME needs. Please include in the response, how past performance justifies continuation of the project.

In response, please provide a clear description of need for the genetic and life-history aspects of the proposal, and within the context of what is already known, why it is important to fill the "gaps" that are perceived to exist. The authors argue that expanding data to describe genetic structuring of Chinook salmon in the Basin is important. This claim should arise from a detailed study of what problems would benefit from such an expansion, and from a thorough analysis to show that existing data do not meet the perceived need. In response, please describe the basis for concluding that presently available data do not meet the needs.

The project is fundable to get analysis of past data collections, but otherwise the proposal should be treated as a new project and reviewed as such. This project has been in existence for more than two decades. The abstract (details in text) should include what benefits have resulted and provide a strong basis for the project to be continued. The authors do describe a stock-recruit relationship that they have successfully developed, but there is no discussion of the significance of this potentially program-altering relationship for management of Chinook salmon.

A response is requested to provide details what specific objectives and goals are driving accumulation of these data.

On page 6, Table 1, the proposal is identified as contributing to identifying hatchery spawner relative to natural spawners, but no work elements support that contribution. Similarly "effects (hatchery) on natural populations and recovery contribution by hatcheries is identified, but work elements do not clearly link to those needs. In response, please clarify these apparent missing elements.

A major proposed new task is to incorporate and evaluate probabilistic sampling, a commendable effort. It would be done with available spawning habitat in the upper Salmon River, which seems less critical than testing population estimation. However, in response, please provide details of year-by-year plans and provide a firmly established completion date.

In response, please explain and clarify your objectives and the reasons for having them. Some objectives seem to be in the proposal as carryover from the past. Some tasks will help fine tune data management and run forecasting, for example. That's nice but instead there could be a major thrust to identify and deal with the factors limiting salmon and steelhead quantity and quality.

One work element is to genotype the spring and summer Chinook at several microsatellite loci to corroborate the independent population status evaluations by the Interior Columbia Technical Recovery Team. Please show, in response, how duplication between this project and 198909600 Genetic Monitoring Snake River Chinook salmon and steelhead is to be prevented, and how these projects will be coordinated.

In response, please provide extensive background and justification for collecting more genetic diversity data, more life-history data, etc. Use of words such as "potentially useful" does not help to clarify the important reasons and need for these data.

199703000 - Chinook Salmon Adult Abundance Monitoring [Formerly - Listed Stock Adult Escapement]

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$305,071 FY08: \$314,076 FY09: \$323,350

Short description: This project collects data for long-term monitoring of trends in wild adult salmon stock abundance and productivity in a control or reference stream in the South Fork Salmon River for use in management and listed species recovery metrics monitoring.

Recommendation: Response requested

The project proponents provide data and evidence of their past work. It is not always clear, however, how and why they have chosen to modify their project in the ways they have. Is this project reaching completion (termination time)? The ISRP does not see funding the project for another cycle as high priority. How many years are required here to evaluate the monitoring technology being tested? What precision is required/desired, and based on results to date what is the projected potential for gaining that precision and at what cost?

Please provide responses to clarify the following questions and statements:

1. How will you partition wild from hatchery fish, and how will you determine age classes? It is not clear how any hatchery strays can be identified by the DIDSON technology. Determining adult-to-adult replacement (lambda etc) requires determining the year class that each returning spawner originated from. How is this accomplished in this project? Proponents indicate that this replacement rate data is one of the needed outcomes from the project.
2. Why are they discontinuing Lake Creek video monitoring that is important to other studies? If it is sediment problems, will they have similar problems with DIDSON? What are the consequences for other projects and evaluating the status of summer Chinook in general?

3. What is the second validation method for DIDSON? According to the proposal the DIDSON sonar is being validated by two methods - but only one is in their text - video cameras. Is DIDSON the best approach for systems like the Secesh?
4. They plan on using DIDSON - 250K to install to monitor 100 fish - is this cost effective?
5. The Secesh River serves as a reference for Johnson Creek, Imnaha, and Action Effectiveness RME projects. This is critical monitoring, but the case wasn't strongly made in the proposal. Discussion of how South Fork Salmon River results fit with other NPT monitoring was not evident. Is there to be a pilot project as recommended by ISRP? The proposal said it would work with a "PILOT" project, but no details were evident. The authors mention that work to monitor the ISS reference site will not be continued unless ISS funding is made available. Since the Secesh is to provide reference for both the ISS and the Johnson Creek project, what assurance is there that required monitoring will continue?
6. The results, obtained to date for steelhead, are difficult to find. Finally, the ISRP would hope that publication in peer-reviewed literature is forthcoming -- nothing to date.

199102800 - Pit Tagging Wild Chinook

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$591,990 FY08: \$609,749 FY09: \$628,043

Short description: Collect time series information to examine migration/survival characteristics of wild ESA-listed Snake River spring/summer chinook salmon stocks. PIT tag wild chinook salmon parr annually; then monitor parr/smolts at instream monitors, traps, and dams.

Recommendation: Fundable

This is a high priority project deserving support. Significant peer reviewed publications are continuing to be produced by this project.

As the proposal indicates, with the development of additional PIT-tag detection capabilities at dams, research biologists can now estimate survival from parr to smolt stages. The proposal makes a good case for continuing this project to make these estimates, which may allow in-season management decisions regarding timing of hydropower system operations within season (spill, flow, and transportation) to provide the most benefits for juvenile wild Chinook.

In the 2003 Mainstem/Systemwide Review, the ISRP concluded that, "This is a good smolt-monitoring project that provides invaluable basic data for management decisions affecting the stocks involved." This conclusion still applies.

199202603 - Upper Salmon Basin Watershed Project (USBWP) provides technical and administrative support with project implementation guidance to landowners to implement fish habitat projects on private lands

Sponsor: Idaho Soil Conservation Commission

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,367,036 FY08: \$1,377,730 FY09: \$1,388,744

Short description: To provide local coordination, guidance, and implementation of on-the-ground projects that improve and enhance anadromous and resident fish habitat and fish passage.

Recommendation: Response requested

The proposal reports tasks accomplished, but a response is needed on project monitoring and evaluation and reporting on results on habitat condition and/or fish responses. Also needed is reporting on how far along they are to meeting their long-term goals, how much have they accomplished, and how much needs to be done.

In response to past ISRP comments, project proposers in a previous proposal committed to develop a more unified monitoring and evaluation program. Yet the current proposal includes no mention of any M&E results. Please provide a summary with synthesized quantitative data describing habitat changes resulting from project activities, and fish population responses.

199401500 - Idaho Fish Screening and Passage Improvements

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$974,740 FY08: \$1,015,982 FY09: \$998,842

Short description: The project protects anadromous fish and improves fish passage in Idaho's anadromous fish corridors by consolidation and elimination of irrigation diversions, conservation of water, and screening fish from gravity and pump water withdrawal systems.

Recommendation: Response requested

In most regards this is a very nicely prepared proposal that includes an excellent overview of project history. Responses are needed on two items. The ISRP wonders where the agency currently stands in the process of completing the needed fish screens. In 2003 they made the statement: "Idaho is approximately 75% complete with the screening effort of known diversions in anadromous waters. Consistent funding could assist completing the known work by 2005." Where are they now after three additional years of funding? From the current proposal, it now appears the screening can go on indefinitely.

The second issue: Is water saved due to these projects being returned to the streams and remaining in-channel? A response is needed on the benefit of irrigation improvement (sprinkler conversion, etc.) to instream flows.

199405000 - Salmon River Habitat Enhancement

Sponsor: Shoshone Bannock Tribes

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$408,911 FY08: \$425,702 FY09: \$393,311

Short description: Continue to monitor and evaluate previous habitat enhancement efforts and the effects of mine impacts. Complete preliminary data collection and feasibility studies on two new locations for habitat enhancements in the Upper Salmon River Subbasin.

Recommendation: Fundable in part

Two proposals in one cover might be better separated into different projects, at least until the new projects succeed into a routine monitoring mode following site modifications. Sponsors should be strongly acknowledged for past monitoring and its contribution to new proposed projects.

New projects on Smiley and Slate creeks represent diffuse sediment/flow problems that are difficult to attack and probably of medium priority. Smiley Creek work includes "stabilizing" 10,000 ft of bank, but technique is unfortunately not described. If this is hand labor and minimally intrusive that is OK, but not so if requires heavy equipment and soil disturbance. Rampant spread of invasive plants may make weeds more of a problem on new re-grading sites more than in the past. This should be anticipated and prevented/controlled, especially given the hazard of downstream distributions of invasives during high water events. Funding for these project elements should depend on the absence of disturbance, and absence of risk for spread of invasive plants.

Not only have they been monitoring relative to measured baselines, but they report some results. They do show some increase in resident species at some projects, but not for anadromous species. The sponsors need to spend more time convincing reviewers that the monitoring project should be continued. They show some changes before and after their habitat projects, but graphing the number of parr produced in different numbers of redds does not show that their work has been successful. These graphs should have a year associated with each point so that the parr produced at any level of redds can be examined. Also, the number of smolts produced each year should have been included in the program. It is likely that the number of smolts is largely determined by survival from parr to smolt, and these data provide no insight into whether or not the number of smolts has been increased at any density by their habitat enhancement efforts.

In terms of habitat, the approaches seem based upon both science and experience, and address both physical and biological conditions in parallel. The relatively long run of data would, at first glance suggest that perhaps they have monitored long enough, but explaining the influences of events such as floods and changes in land and water use, justify continuing this monitoring well into the future. However, the Bear Valley monitoring probably does not need to be continued.

Sponsors did not mention whether they are endeavoring to use "standardized" M&E protocol as was recommended by last ISRP review - is this still an issue? Excellent reporting to Streamnet

and intent to publish in open literature is evident. There is reason now to monitor actual focal species as well as proxies, even though out-of-basin effects persist. Adaptive management is not directly addressed. One case is noted in which data collection was discontinued when not useful, but use of data to fine-tune procedures is not explicit.

Good evidence of substantially improved communication and collaboration with other projects is evident. The narrative demonstrates close integration with projects, past, present and upcoming, under various sponsorships, not just BPA, and at varied scale. They should link up with the NOAA Habitat Effectiveness Pilot Study.

199901900 - Restore Salmon River (Challis, Idaho)

Sponsor: Custer County Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$480,295 FY08: \$480,295 FY09: \$480,295

Short description: Passive restoration by securing easements will assist restoration efforts via the Corps 206 Program. The development of side channels will help create a more naturally functioning floodplain, provide a wide array of environmental and ecological benefit.

Recommendation: Not fundable

This project has changed so much since the ISRP site visit and previous review that it is unrecognizable. Previous ISRP comments were "Fundable in part for study of the importance of temperature as the potential limiting factor in the proposed study reach and to pursue passive activities such as purchase of priority easements and fencing projects. Temperature modeling similar to that alluded to in items 5 & 6 of the response, as well as additional physical and biological watershed assessment, will be crucial in assessing potential benefits of the project, including components of the heavy construction work. It is clear that the agencies involved have indeed done a nice job in getting local landowners poised to 'collaborate on a single vision and to consider the reach in a holistic sense.' Unfortunately, it is not clear to the ISRP that enhancement of anadromous fish populations will necessarily follow from all of the tasks. A watershed assessment should indicate the priorities of tasks in this project. For example, if high stream temperature generated upstream is the key limiting factor, the heavily engineered approach proposed in the project may be secondary in priority. Evidence that this reach provides a number of high quality thermal refuges and assessment of the potential to provide more should be given. The proponents are referred to the programmatic section of this report on Monitoring, the specific comments on Aquatic Monitoring and Evaluation, and the specific comments on Terrestrial Monitoring and Evaluation."

Reviewers were concerned that extensive (expensive) active restoration efforts in this 12-mile section might be ineffective because of overwhelming water temperature constraints. Apparently some temp modeling was done, but no results seem to be given. Instead this has evolved to be a 35% cost-share for a heavily-engineered rehab program with the US Army Corps of Engineers. The proposal lays out some benefits to control flooding, but the link to fish and wildlife is tenuous.

Although the sponsors did temperature monitoring in 2002, they didn't analyze the data to justify the proposal. In other words, they've ignored the ISRP's recommendation from the province reviews and are seeking to acquire easements without assurance that benefits will accrue to fish and wildlife. Are reviewers to assume that they going to exclude grazing?

What are they going to construct? What are their methods? What are they going to monitor? Is monitoring/project assessment left to others not mentioned here? Monitoring remains in the planning process.

Apparently, to date (since 1999) \$800k of BPA money has been spent and one 180 acre easement has been secured.

200205900 - Yankee Fork Salmon River Dredge Tailings Restoration Project

Sponsor: Shoshone Bannock Tribes

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,182,328 FY08: \$1,943,014 FY09: \$1,305,292

Short description: Reconnect the Yankee Fork River to its floodplain and restore natural channel characteristics and processes in a segment impacted by dredge-mining. Integrate biological and physical data with project experiences to develop future restoration alternatives.

Recommendation: Not fundable

The proposal itself is well put together and easy to read, but the scientific rationale for benefits to fish and wildlife is not convincing. A stated goal is to increase chinook smolt production by an order of magnitude. This is certainly a gross exaggeration of the project's potential. The ISRP previously concluded that fishery benefits on this project are likely to be low. The impacted area is a relatively short stretch of moderately high gradient. The primary chinook salmon rearing area is upstream, and passage doesn't seem to be impeded.

Some objectives do not seem reasonable, and methods for the actual stream engineering are not given. Previous ISRP concern over the need for a conservation easement that would limit future development of lands associated with the stream channel restoration was not addressed.

It is interesting that a similar project funded in the past by BPA (Crooked River on South Fork Clearwater) and now perhaps in need of re-doing was not mentioned in the proposal.

If resources were unlimited and the availability of effective methods were assured, this might be the right thing to do at this profoundly altered site. Cost estimates are \$15 million through 2011 and that certainly is an underestimate. No cost-share is identified.

200706400 - Protect & Restore Slate Creek

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$223,768 FY08: \$330,044 FY09: \$399,440

Short description: Restore and protect the Slate Creek Watershed for the benefit of both resident and anadromous fish using an overall watershed approach. Restoration and protection efforts will be done cooperatively with the Nez Perce National Forest.

Recommendation: Response requested

This is exactly the same proposal as 200710400 (White Bird Cr.) with only the name changed.

A response is requested on:

1. Justification of benefits to fish.
2. Provisions of M&E to show benefits to fish.

Despite the acknowledged similarity to #200710400, the subbasin plan did not prioritize it similarly. The proposal would benefit and the response should include description of the distribution and abundance of migratory fish in the basin. Numbers must be available given the assessment of the stream's importance for fish populations. It also would be beneficial to describe what has happened to these numbers through time compared to fish in a Middle Fork Salmon River tributary for example, and to assess the chances that stream flow and access to the flood plain can be restored. If chances of that happening were low, it would be useful to know what the proponents believe are realistic goals regarding fish production in the system. The response should include a description of past studies that support their strategy for enhancing salmonid numbers.

The response should show how the objectives, presently to replace culverts and decommission roads, could be restated as actions to increase fish populations by some well-founded amount.

The project includes barrier removal to expand available habitat, but that can provide access to exotic species, a risk that needs to be addressed in any barrier removal project and in the response. Efforts to restore the hydrograph and regain access to the floodplain should be high priority.

Where vegetation will be "treated," an IPM approach is needed. Seeding annual rye is not re-vegetation in any long-term sense. If the goal is to manage invasive plants, establishment of adapted native species is more effective. Monitoring looks perfunctory in that no methods, sampling, analysis or adaptive management provisions are described. Plans seem to be for monitoring tasks rather than resource conditions. In response, please show how monitoring will provide assessment of resource conditions.

Methods for data storage, sharing, or amalgamation at regional level are missing. Information and education programs are not information transfer in a scientific sense, but road decommissioning in particular is rarely popular and could benefit from some public

understanding. Sponsors might look to State and NRCS programs on private lands to expand available technical and financial resources.

200706500 - Coordinate and implement tributary habitat restoration in the Little Salmon River and lower Salmon River Idaho

Sponsor: Idaho Soil and Water Conservation District

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$409,363 FY08: \$407,362 FY09: \$423,362

Short description: Implement fish habitat restoration on private lands dominated by agricultural practices using cost sharing by Bonneville, Idaho Pacific Coast Salmon Recovery Funds, Idaho Water Quality Program for Agriculture, and landowner participation. Requests pending

Recommendation: Response requested

The response requested is for development of a new proposal that is structured according to guidelines and reflects careful consideration of the stated problems and associated needs by resource specialists. For example, the proposal would benefit from participation of improved and stronger fisheries expertise. Proposed actions are assumed to be beneficial without scientific scrutiny or exploration of technical literature, and without a carefully prepared M&E effort.

Providing centralized liaison with private landowners is a good idea, and the District's track record with this is an asset. Coordination is necessary, but success is doubtful if, for example, IDFG is not more involved. No strong linkages or strategic positioning relative to other efforts is apparent. There are no direct fish-related objectives. Methods are "standard," but not necessarily proven and as described, with few technical references, not credible. There is good experimental work to be consulted. Evidently, monitoring will not have a significant role. Aquatic M&E is left as "to be done by IDFG." Initial re-vegetation requires monitoring season by season. No baseline data are mentioned, nor is there recognition of any scientific value from data to be generated or responsibility to contribute it beyond PISCES and annual information/education events. Success will depend on new hires, and the job description does not seem to require the needed scientific background. Consultants will be trusted to develop technical requirements for much of the work, requiring scientifically qualified oversight. This is a good beginning and the District is encouraged to continue to develop the proposal.

200710400 - Protect & Restore White Bird Creek

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$246,804 FY08: \$215,897 FY09: \$285,294

Short description: Restore and protect the White Bird Watershed for the benefit of both resident and anadromous fish using an overall watershed approach. Restoration and protection efforts will be done cooperatively with the Nez Perce National Forest.

Recommendation: Response requested

This is exactly the same proposal as 200706400 (Slate Cr.) with only the name changed.

A response is requested on:

1. Justification of benefits to fish.
 2. Provide a convincing case that conditions in the stream have caused decline in focal species in the basin. Despite the sponsor's view that this "project [is] essential to address problems identified in the sub-basin," the subbasin plan did not prioritize it similarly. The proposal would benefit if the distribution and abundance of migratory fish in the basin were described. Numbers must be available given the assessment of the stream's importance for fish populations. It also would be beneficial to describe what has happened to these numbers through time compared to fish in a Middle Fork Salmon River tributary for example.
 3. Sponsors should provide convincing evidence that stream flow and access to the flood plain can be restored. If chances of that happening are low, it would be useful to know what the sponsors believe are realistic goals regarding fish production in the system.
 4. Sponsors should describe and cite past studies that support their strategy for enhancing salmonid numbers.
 5. The response should provide discussion of the risk that barrier removal might permit access to exotic species.
 6. Objectives are to build culverts and decommission roads. Rather, sponsors should develop objectives to increase fish populations by some reasonable and defensible amount.
 7. Efforts to restore the hydrograph and regain access to the floodplain should be high priority. Where vegetation will be "treated," an IPM approach is needed. Seeding annual rye is not re-vegetation in any long-term sense. If the goal is to manage invasive plants, establishment of adapted native species is most effective.
- Monitoring plans seem to be perfunctory. The plan seems to be to monitor tasks, rather resource conditions. Sponsors need to develop a rigorous M&E plan to outline the details of their sampling and assessment methods.
- Data storage, sharing, or amalgamation at regional level are missing. Information and education program are not information transfer in a scientific sense, but road decommissioning in particular is rarely popular and could benefit from some public understanding. The sponsor might look to State and NRCS programs on private lands to expand available technical and financial resources.

200712700 - Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$325,000 FY08: \$489,200 FY09: \$332,800

Short description: This project will reestablish fish passage through a 30-foot tall cascade using natural channel design and rehabilitate one mile of fish habitat through an anthropogenically degraded reach of the upper mainstem East Fork of the South Fork Salmon River.

Recommendation: Fundable

This project is to provide fish passage for steelhead, chinook and bull trout past an old mine site. This seems like heroic engineering, but that may be what is required in this instance. Future

M&E will be critical to know if the passage section is functioning as predicted and to monitor fish use in the section above the new passage.

Reviewers remain concerned about whether BPA has funding responsibility for this entire project, the benefits to fish (bull trout) that may already have passage (albeit limited), and about the amount of available habitat upstream of the project relative to the cost of the project.

200712800 - Protect & Restore Little Salmon Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$327,000 FY08: \$318,600 FY09: \$365,600

Short description: This project entails conducting road/stream crossing surveys and analysis, implementing fish barrier remediation, and riparian protection/restoration in the Little Salmon watershed. Interagency coordination and watershed planning will also be targeted.

Recommendation: Response requested

This purpose of this project is to protect and restore riparian and aquatic habitats within the Little Salmon River watershed. This objective should flow directly from the subbasin plan and an adequate watershed assessment and prescription. It does not do so. There is a shopping list of habitat projects with no clear priority or connection to plans or limiting factors. The latter are not defined in terms of productivity or fish survival, but as physical elements: 1.) lack of adequate, shade-providing, bank-stabilizing riparian vegetation, 2.) decreased recruitment of large woody debris (LWD), and 3.) floodplain and channel encroachment from roads and development. Some clear examples of problem areas are provided, with photos, but reviewers cannot judge how these might play out in an overall assessment of the watershed. The response needs to include a demonstration of how needs flow from the issues identified in the subbasin planning exercise, with clear indication of connections.

The technical aspects of this proposal target the recovery of riverine-riparian zones, water quality, and instream habitat. We expect the projects proposed herein to: reduce sediment delivery, improve riparian function, decrease water temperature, improve flood storage, increase habitat complexity and improve wildlife and aesthetic attributes with the completion of riparian planting, bank stabilization and cattle exclusion measures. The benefits described above directly contribute to increased survival during the egg-to-smolt life stage. This is accomplished by decreased sedimentation in spawning gravels, decreased water temperature during critical spawning and incubation periods and improved connectivity. Additionally, the NPT DFRM Watershed Division strives to disseminate information to the public and provide a sense of watershed and cultural awareness for the local students and community. This would be more effective if results on the effectiveness of the habitat work were available.

The presentation is not tightly focused on limiting factors, physical attributes of the habitat that limit survival at critical life stages. The Little Salmon lies within a very constrained and flashy canyon. It may be best to focus habitat work on the lower river section and its tributaries (Squaw Creek and Rapid River) rather than work in the mid and upper basin at this time. Specifically, the

sponsors should concentrate work in the bottom third of the subbasin, while focusing the work on steelhead habitat in tributary systems, thus dealing with culvert and road blockages and land use impacts from grazing, forestry, and agricultural practices. Work in the upper basin should be delayed, particularly above impassable falls, until after the pending decision on funding for the passage improvements.

Barrier removals were noted in the subbasin plan. What of the other tasks? Several planning exercises and agency relationships are presented. It is time to roll these into an overall plan of habitat for the subbasin - an integrated component of a set of studies. This proposal does not do this effectively, but does indicate linkages. The objectives are presented as tasks, and listed. The response needs to include a clear statement on objectives, as defined in the proposal guidelines.

Objectives, tasks, and work elements are confused and fail to follow proposal guidelines. Work elements are described as management tasks (coordination, outreach) but also surveys and reporting, providing documentation (compliance) and designing. Real tasks are listed last: fish passage, culvert replacement, fencing, off-site watering, re-vegetate, then data collection and more reporting. Physical works appear to comply with BMP.

There is no experimental design. Currently, the monitoring and evaluation planned for this project will involve project-specific effectiveness monitoring. Data will be used to determine level of project success and resource response. Parameters to be monitored under project specific plans will vary depending on the nature of the project. They may include: temperature, bank stability, riparian vegetation response, fish presence/absence, and biological productivity variables. Results will be used to determine changes needed in out-year planning, effectiveness determinations, and restoration approaches undertaken in the future. The evaluation seems superficial. Culverts will be monitored for implementation effectiveness. Some coordination with regional M&E is required, and may require the advice of a statistician; the personnel on this project appear adept at habitat work but not experimental design and evaluation. The response should provide convincing evidence that a sound experimental design and a rigorous M&E program are available for this project.

200726800 - Idaho Watershed Habitat Restoration Project via Custer Soil and Water Conservation District

Sponsor: Custer County Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$600,000 FY08: \$600,000 FY09: \$600,000

Short description: The project scope is to implement high priority action items to maintain, enhance and restore fish habitat and fish passage in the priority stream segments of the Upper Salmon Basin area within the administrative boundaries of the Custer SWCD.

Recommendation: Response requested

Much work has already been carried out, and this proposal should be a continuation of the effort (although stated as a new project), but the impression given is that no details need be included because the need is so obvious. To make a final recommendation, the ISRP needs a response

giving further details, particularly of those work elements without metrics, to help enable a recommendation for funding. What is the priority in the shopping list of strategies (pg 2, pg 5)? Did these arise from the subbasin plan?

The proposal lists general benefits related to the biological objectives and the work elements are related to the biological objectives, but the response should include more details. Specifically, not many metrics are included in the work elements

Actions undertaken within the project will include monitoring and evaluation plans. Monitoring and evaluation over the past four years has been contracted through Project # 199202603 - but this is not an M&E project. Please describe the M&E for biological response.

A response should include mention of specialist expertise needed to conduct the proposed tasks, e.g., for the geomorphic study needed regarding reconnection of floodplains. If the BoR \$200,000 is to be spent on such work, that should have been stated.

Information transfer is by implication only. No details are given.

Columbia Cascade

Columbia Upper Middle

199404400 - Enhance, protect and maintain shrub-steppe habitat on the Sagebrush Flat Wildlife Area (SFWA)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$382,479 FY08: \$225,977 FY09: \$239,628

Short description: Protect and enhance habitat to expand and protect pygmy rabbit, sage grouse, sharp-tailed grouse and other shrub-steppe obligate species populations as mitigation for habitat loss associated with the construction of Grand Coulee and Chief Joseph Dams.

Recommendation: Fundable

This is continuing project is tied to protection and restoration of pygmy rabbits, sage grouse, and sharp-tailed grouse. These activities are related to a number of regional programs. However, the priority of this project does not appear urgent.

The proposal includes a good description of project history and tasks accomplished. Some small descriptions of biological benefits achieved are described, but authors should better develop this description, particularly given the amount of time and work that has transpired over the project history.

Data have been collected from all four units of the SFWA. In many instances, these dataset represent more than a decade of work. A consistent ISRP recommendation for a number of years has been the need to relate HEP survey data to actual on-the-ground wildlife responses. It is a disappointment and a serious concern that those results are not yet available for this project. They should receive much higher priority. Given the large, ongoing investment in this project, the ISRP believes it is important to know whether wildlife (particularly ESA-listed species) are responding to the habitat work. The project sponsors seem on track to providing this evaluation, and this type of reporting should be included in annual reports and subsequent proposals.

Technical and scientific background: The rationale for this project is tied to protection and restoration of pygmy rabbits, sage grouse, and sharp-tailed grouse. Similar to previous ISRP reviews of this long-standing project, the proposal provides much detail for monitoring and evaluation indicating awareness of issues missing from many proposals.

Additionally, the ISRP recommends that terrestrial sampling on Fish and Wildlife Program lands follow common sampling methods and some common data collection protocols across the four States involved to enhance monitoring and evaluation of terrestrial systems on subbasin and basin scales. Perhaps the recent PNAMP and CSMEP efforts and the National Resources Inventory sampling procedures and data collection protocols could serve the region.

The proposal included extensive description of budget items, with individual items seemingly having appropriate costs, but the overall project cost still seems high compared to other projects.

Rationale and significance to subbasin plans and regional programs: The proposed work fits in well with wildlife objectives of the subbasins plan, the Fish and Wildlife Program, and ESA mandated concerns on pygmy rabbits, sharp-tail and sage grouse.

Relationships to other projects are well described in the proposal.

Project history: The proposal includes a good description of project history and tasks accomplished. Some small descriptions are provide of biological benefits achieved - more emphasis needs to be placed here, particularly given the amount of time and work that has transpired over the project history.

For example, the following is from page 15 of the proposal under Monitoring: "Baseline HEP work has been conducted on all 4 units of the SFWA, including the Sagebrush Flat, Dormaier, Chester Butte, and Bridgeport units. Although the HEP results have been examined in relation to standard Habitat Suitability Indices for focal species, the habitat data has as yet not been linked directly to the results of wildlife surveys. These surveys include, but are not limited to, aerial surveys of mule deer populations, surveys of greater sage-grouse and sharp-tailed grouse display sites (leks), pellet surveys of deer, grouse, and jackrabbits, breeding surveys of songbirds, searches for songbird nests, winter surveys of birds, trapping surveys of small mammals, and standardized searches for reptiles and amphibians (Schroeder and Almack 2006). Some of these

data sets have been collected every year since at least 1994 and some have been stratified by management history and focal habitat."

200708400 - Shrubsteppe Habitat Acquisition for Terrestrial Species in Need of Conservation in the Upper Mid-Columbia Subbasin

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$44,400 FY08: \$1,776,700 FY09: \$42,400

Short description: To acquire key land parcels that improve or maintain the conservation values, or ecological connectivity, of existing land owned by Washington Department of Fish and Wildlife. Shrub steppe dependant pygmy rabbit, sharptail, and sage grouse are the focus.

Recommendation: Fundable

This proposal meets the ISRP review criteria and benefits wildlife. The ISRP, however, suggests that the sponsor address the following comments to improve the project. The ISRP does not need to see a response to these suggestions but encourages integrating responses for subsequent review.

The rare shrub steppe habitat is an important acquisition. The ISRP recognizes that the authors have focused on key species in this rare habitat. The proposal could be improved by better describing the parcels of lands that would serve to connect lands already in public ownership. The ISRP wonders if these lands are available for purchase and how these lands supplement current land ownership. Additionally, the ISRP recommends finalization of a monitoring and evaluating plan, once the land is acquired.

200715400 - Douglas County Multi Species Habitat Conservation Plan, Previously referred to as the Foster Creek Habitat Conservation Plan (FCHCP)

Sponsor: Foster Creek Conservation District

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$125,000 FY08: \$125,000 FY09: \$125,000

Short description: Implementation of a 20 species habitat conservation plan approved by USFWS and NMFS potentially covering 800,000 acres to minimize and mitigate impacts from farming and ranching activities in Douglas County, Washington.

Recommendation: Not fundable

The ISRP does not view this as a proposal, but rather an executive summary of a plan. This proposal did not present adequate information to warrant a response. The ISRP wanted to see a justification, objectives, methods, and a monitoring and evaluation of activities that would benefit fish and wildlife. As written, the ISRP found little to no evidence of benefits to fish and wildlife and no evidence that current personnel have qualifications to complete necessary wildlife work. The project needs to more specifically identify how agricultural practices and silviculture will be modified, how wildlife species will be monitored, who will conduct monitoring, when monitoring will occur, and how monitoring information will be evaluated.

200719300 - Evaluate potential to enhance spawning of summer/fall chinook salmon in the tailrace of Chief Joseph Dam, Columbia River, WA

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$284,377 FY08: \$234,762 FY09: \$275,258

Short description: This project will map potential spawning habitat in the tailrace of Chief Joseph Dam. The project sponsors will estimate the number of summer/fall chinook redds that could be supported and evaluate the feasibility to increase production by altering hydrosystem operation.

Recommendation: Fundable

This is a well-designed but expensive project. The connection of this project to others being undertaken in the vicinity of Chief Joseph Dam was not fully described and the significance of this project to regional and subbasin plans may have been a bit optimistic. However, the technical aspects of this proposal were very well done, and this effort should provide valuable information regarding the effects of hydropower operation on spawning habitat for summer/fall Chinook salmon. Nonetheless, the ISRP has suggestions for the sponsors.

The background information provides a clear picture of the historical and current distribution of summer/fall Chinook in the Columbia above the Okanogan River. The nature of the problem this proposal intends to address is well described. They intend to apply techniques developed over the past ten years doing habitat characterization and underwater video surveys of fall Chinook salmon redds elsewhere. They could have done a better job of explaining the results of previous similar work, and summarizing the citations that they cite. There is nothing specific described about the habitat of the Chief Joseph tailrace area that relates it to the authors' previous studies in the Snake, Hanford, Wanapum, etc. There must have been some reconnaissance that indicated potential for good habitat. It is not clear why this proposal advances the CCT proposals to get Chinook above Chief Joseph Dam.

The rationale section makes the case that this project is relevant to issues raised in some regional plans. However, in some instances the significance of this project appears to be a bit overstated. For example, the claim is made that the project will deliver information important to subbasin and recovery planning. Yet the Mid Columbia Subbasin Plan does not specifically address spawning in the tailrace of Chief Joseph and the summer/fall Chinook in this part of the Columbia River are not ESA listed, so no recovery plan exists. Ties to some of the mainstem planning documents are more compelling. The proposal does a good job of describing the significance of this project in efforts to increase population levels of spawning salmon at this location. The project also may provide information relevant to identifying opportunities to enhance spawning habitat at other dams. In this regard, it seems time for the site-specific studies of tailraces by this group to be synthesized into some general principles that can be applied with minimal site-specific research.

This project intends to utilize technology developed during previous spawning assessment projects on the Columbia, and these projects are briefly described. There is no mention of efforts ongoing at Chief Joseph Dam or upstream to evaluate the potential to reintroduce anadromous fishes to this stretch of the river. However, the introduction to this proposal implied that such work has been ongoing. If so, some discussion of this work would have strengthened this proposal. This proposal would be stronger if the proponents had demonstrated collaboration with the hatchery managers/dam operators (Corps) for whom their products are intended.

The objectives are appropriate and fully described. This component of the proposal is very well done.

Methods are clearly explained, and well documented with citations to the literature. The work elements are thoroughly described. There were a few minor points that deserve clarification or further elaboration. In describing the sampling scheme for characterizing the extent of available spawning habitats, transect spacing is stated as 100-400 m in one place and as 100 ft. in another. Also, calculating a redd capacity estimate that is based on the average redd area, not accounting for inter-redd spacing, does not seem to be worthwhile. What would this value represent?

This is an expensive project. Is it possible that the proponents could select some alternative methods that would still provide results sufficient to evaluate the potential of the study area for salmon spawning? The first work element is to develop a plan and select a study site. It's not clear why this will take two years. Work element B (conduct a redd search) gives the start date of 1 October 2008, but the deliverables indicate 2007 and 2008. Which is correct? The proponents do not discuss their assumption that these two years will be representative of salmon runs to the study site.

The facilities, equipment and the qualifications and responsibilities of all project personnel are fully described. The experienced staff has done this sort of work elsewhere. The information transfer mechanisms are appropriate for this type of project and very complete.

This project has the potential to be very beneficial to the population of the focal species utilizing the section of the Columbia River that will be studied. This assumes that appropriate operational measures are taken at the dam and that the fish actually use the habitat that is "suitable." However, the significance of the population spawning below Chief Joseph Dam to the entire population of summer/fall Chinook in the upper Columbia is not clear. Some of the information developed by the project may be transferable to other hydropower facilities, increasing the potential value to this species when general principles are further developed.

200704600 - Steelhead Spawning Ground Surveys, Flow, and Temperature Monitoring of Small Tributaries of the Upper Middle Mainstem Columbia River

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$60,350 FY08: \$56,699 FY09: \$57,776

Short description: Twelve small tributaries of the Columbia River, between Crab Creek and the Entiat River, will be surveyed to determine the abundance of steelhead redds, presence of adult steelhead, collect carcasses, and monitor flow and water temperature.

Recommendation: Fundable

This is a well-prepared proposal for a worthwhile project. The sponsors should consider the ISRP suggestions below.

There is good background rationale for studying steelhead in these small tributaries. Sponsors provide indicative preliminary data and good references. The proposal could have used a map to orient reviewers. The need for more complete information on the fish populations and habitat characteristics of the small tributaries of the Columbia in this subbasin was identified as a key priority in the subbasin plan. The data collected also would contribute to development of recovery plans and is integrated with other spawner survey efforts in the Columbia Cascade Province, which are described. This project proposes to use methods comparable to those being employed in other watersheds and indicates that all these efforts will be closely coordinated.

The objectives are stated clearly. The methods are generally appropriate for the objectives. There are several issues the sponsor might want to consider prior to initiating the project.

- 1) Is there empirical support for the assumption that *O. mykiss* below 500 mm in length are resident redband rainbow and those over this length are steelhead? Unless there is a firm foundation for this assumption, there is the possibility of introducing some error into the steelhead spawner and redd counts. Could genetic analysis of the recovered carcasses and samples taken from verified resident fish be used to substantiate this assumption?
- 2) The genetic samples collected from carcasses in this project are only to be stored, not analyzed. It would seem that completing the genetic analysis would be an important part of this project. Answering the questions about the origins of the steelhead using these small streams could be important in understanding the population structure of the ESU. This could be done on the assumption that a genetic baseline exists.
- 3) The methods for temperature characterization of the streams are not clear. What is the purpose of installing a second thermistor at the upper end of anadromous access in May in a subset of the streams? Given that recording thermistors are relatively inexpensive, it would seem that two thermistors, deployed full time at the mouth and the upper end of anadromous access would provide a much better indication of the thermal environment provided by these streams.

4) Periodic flow measurements cannot capture short-term variation in discharge. One possible approach to developing a more comprehensive record of flow would be to develop a relationship between the flow measures taken on the study streams and discharge at a nearby flow recorder. If an appropriate flow recording station is available, this approach would enable the construction of a continuous flow record for each stream.

There is minimal description of facilities, although the personnel are good. The information transfer process described should be effective. Coordination with groups conducting similar studies in the province also should enhance the effectiveness of information transfer.

The information generated by the project should be very beneficial to the steelhead of the Upper Columbia ESU.

200703400 - Columbia Cascade Pump Screen Correction

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$316,666 FY08: \$300,416 FY09: \$309,428

Short description: This project proposes to start a voluntary compliance pump screen correction program in the Methow, Entiat, & Wenatchee River basins in order to reduce juvenile fish losses due to entrapment in water diversions as called for in the most recent FCRPS BiOp.

Recommendation: Response requested

There is a clear need for this work, but the ISRP recommends a response on several specific issues (see list below). The ISRP's primary concerns are that the proponents do not adequately explain the extent of the problem, and no monitoring and evaluation of effectiveness is proposed.

1. The background information is brief but to the point, and basically indicates that the extent of the problem related to salmonid mortality at pump withdrawal sites is not known. There are anecdotal accounts of fish being entrained during pump operation but a much more complete documentation of the severity of this problem would seem appropriate before funding an expensive program to upgrade screening at all pump locations. The proposal would be improved by a more detailed summary of the TAPPS pump screen inventory data for the Methow, Entiat, and Wenatchee, and Okanogan Basins and new screening criteria adopted by the CBFWA's Fish Screen Oversight Committee. Only one reference (Everest and Chapman 1992) is cited. More detailed information on the extent of the problem is needed.

2. The need to evaluate the impact of pump diversions is clearly indicated in the subbasin plans for the Columbia Cascade Province. This evaluation should be completed before launching a screen upgrade program. The proposal includes a thorough listing of relevant plans, other entities in the Columbia Basin working on screening projects, and ongoing projects in the Columbia Cascade Province that are producing fish that could benefit from correcting pumps that are killing fish. Can the proponents provide comprehensive information on the pumps that are causing fish mortality, and the specific interactions between this project and others projects that

would benefit? Collaboration with specific projects funded in the Fish and Wildlife Program and described in the subbasin plan inventory is not described.

3. The objectives related to the assessment of the pump screens in the province are appropriate and would be an important contribution. Without further justification, the objectives related to installing new screens are premature. How were the costs for repairing screens estimated without knowing which screens would be fixed? The ISRP suggests that the project should be undertaken in a sequenced fashion, with the initial focus on understanding the severity of the problem with pumps, identifying those pump sites that have the greatest impact on listed fishes, and determining which irrigators would be willing to work on a cooperative project to correct the priority screens.

4. There is relatively little detail provided on the work elements. What are the assessment and correction protocols of the Voluntary Cooperative Compliance Program? How will the screen assessments be conducted? What criteria will be used to judge the severity of the entrainment problem at a given site? Are any studies to quantify the severity of the problem planned? If so, what is the design?

5. There is no specific monitoring for effectiveness proposed, although there is presumably basin monitoring that will be useful. Even though we assume that WDFW staff are familiar with screens, and know what works and what does not, the lack of M&E is a deficiency. There are demonstrated benefits from screening irrigation intakes to any species that could be entrained in a water intake, not just salmon. The benefits to the fish and the overall effectiveness of this project would be enhanced if those specific screens that are most problematic could be identified and addressed first. It is likely that benefits will persist over the long-term, but this could not be substantiated without periodic M&E.

The proponent's response should include a specific plan for monitoring effectiveness.

6. The facilities appear to be appropriate, but what is the actual WDFW office where the program would be located? The proponents appear to be well qualified to conduct the outreach and construction parts of the project. A lead person will be hired and trained specifically for this project. Will this person have the scientific background to successfully design and implement a program for monitoring screen effectiveness? The data collected will reside in the WDFW TAPPS database, but what is the specific information sharing strategy with the other agencies and entities would benefit from this project?

In summary, the ISRP suggests that the proposal could be restructured to focus on the assessment portions of the project. More detail should be provided on how the assessment will be conducted. Once the assessment is complete and the pump sites prioritized, a proposal for funding to correct the screens and evaluate the effectiveness of the screens could be submitted. The proponents need to demonstrate provisions for monitoring and evaluation of the proposed screening work, whether they or another division of WDFW or others are doing the evaluation.

200704500 - Beebe Property Upland, Riparian, and Wetland Enhancements

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$739,765 FY08: \$120,432 FY09: \$58,488

Short description: WDFW will initiate riparian, wetland, instream, and upland habitat restoration on the Beebe Springs property. This work will compliment Beebe Creek restoration and development of interpretive and educational projects currently underway.

Recommendation: Response requested

Generally, this proposal should benefit fish and wildlife. However, there are no detailed plans for pre- and post- enhancement monitoring presented. If monitoring of this project is to be conducted as part of a larger evaluation effort, this effort should be noted in the proposal. A response is needed to address this omission.

Technical and scientific background: The proposal provides excellent background on the history of the property, the need for habitat protection, and general plans for the rehabilitation of the project property.

Rationale and significance to subbasin plans and regional programs: The proposed actions will increase the availability of habitat types indicated as "focal habitats" in the Upper Middle Mainstem Columbia (UMM) Subbasin Plan. However, nowhere in this plan is Beebe Creek or the associated terrestrial habitats explicitly mentioned as a location where restoration efforts should be focused. Nonetheless, the opportunity to add to the amount of area occupied by focal habitats in the plan area does indicate that this proposal fits well with the general objectives of the subbasin plan. The number of comparable projects that have been undertaken in the region also suggests the significance of these types of efforts.

Relationships to other projects: Many of the related projects addressed in the proposal are efforts in the same general area that are applying similar treatments. There really isn't any direct relationship between the proposed work and the other projects, except that they are all potentially contributing to an increase in certain habitat types in the region. On the other hand, there clearly is a close association with those projects that have been funded and implemented on the Beebe property. This project appears to be well aligned with the overall restoration plan for the Beebe site.

Objectives: The objectives of the project are appropriate and expressed quantitatively for habitat components (at least in terms of acres or linear miles to be created). Some more specific objectives about fish and wildlife population response would have strengthened the objectives and provided a basis for developing a more detailed monitoring effort (see comments below).

The expectation that adding structure and islands to the shallow water area in the Columbia River adjacent to the project site will increase populations of rearing anadromous fishes appears to make sense. However, some discussion about possible negative impacts of these enhancements also should be addressed. Is it possible that increasing the complexity of the

nearshore habitat will attract large numbers of piscivorous fishes and birds? If so, will the attraction of juvenile salmon and steelhead to this site lead to mortality rates higher than would have been the case under unimproved conditions? These questions cannot be answered but should be raised in the proposal and be included as part of the monitoring effort.

Tasks (work elements) and methods: Work elements are well outlined and in appropriate detail for a proposal. They are the logical steps for each objective.

Monitoring and evaluation: The monitoring component of the proposal is very brief and incomplete. Specific monitoring objectives are provided. However, the methods are given only by reference to a WDFW document. The proposal indicates that habitat and wildlife populations will be monitored using the HEP protocol (see the ISRP's programmatic comments on HEP). No mention is made of the specific methods to be used, how often assessments will be made, etc. There is no indication that any monitoring of fish populations will be conducted. Some detail on the monitoring process to be used to ensure establishment of the riparian plantings also should be included.

Facilities, equipment, and personnel: Not much information is given. The assumption is that a contractor will do the work and that company will have the right equipment. WDFW would supervise. Nothing is given on personnel.

Information transfer: There has been significant interaction with the local community already on this project, and an educational component is being built into the plans for the site. No indication of how information from any monitoring conducted at the site will be shared.

Benefits to focal and non-focal species: Given the paucity of natural riparian and upland habitats in the Upper Middle Mainstem Columbia region, the creation of these habitats at the Beebe site should have a positive effect on many of the species listed as focal in the proposal. But see comments above about possible unintended consequences of developing shallow water habitat and fish predators. Otherwise, the list of focal species was very broad, and most may benefit from this project. There seems little potential for negative impacts.

The ISRP believes a response to these concerns and questions will result in a much stronger proposal.

200710300 - Skookumchuck Watershed

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$700,000 FY08: \$30,198 FY09: \$31,426

Short description: The Skookumchuck Watershed project is a multi-phased effort to protect a right bank tributary of the Columbia River that supports threatened steelhead.

Recommendation: Fundable (Qualified)

This proposal would benefit from a much more thorough treatment of the planned monitoring elements. A better description of methods to be employed to assess habitat changes (photo points, wildlife use) in response to actions such as removing a road, reducing grazing impacts or riparian plantings should be included. Contingencies for monitoring fish populations if the WDFW native fishes proposal is not funded also should be addressed. In addition, a more comprehensive description of the objectives and work elements would improve the proposal. Regardless, the contribution this land purchase will make to the preservation of shrub-steppe habitat in this area of the Upper Middle Mainstem Columbia (UMM) subbasin indicates that the project is very worthwhile. Although the ISRP is not requesting a response, the project would be strengthened by addressing the following comments.

Technical and scientific background: A fairly lengthy background section is provided. The case they make for this land acquisition project from the standpoint of establishing a large, contiguous block of shrub-steppe habitat is compelling. Less convincing is the argument for steelhead. There is relatively little information provided to indicate either the abundance of steelhead utilizing this stream or the significance of these fish to the diversity or meta-population dynamics of the upper Columbia evolutionary significant unit (ESU).

There are some statements made indicating that the Skookumchuck steelhead are important but no evidence is provided to indicate that this is the case. There is one statement in the "Genetics" section that current knowledge about straying and natal stream fidelity supports the importance of this population to the ESU. But what is known about these subjects is never presented.

The other argument made to support the significance of this stream to steelhead is the observation that some proportion of the steelhead passing Priest Rapids Dam does not pass Rock Island Dam. The failure of the fish to appear at Rock Island is taken as an indication of tributary habitat use somewhere between the two dams.

However, the decline in steelhead may be due to mortality or even spawning in mainstem habitats. Also, two different values for the proportion of fish disappearing between the dams are presented in the proposal: 23.14% on page 5 and 13.8% on page 10. This inconsistency further clouds the issue of the significance of Skookumchuck Creek to steelhead. Despite the less than convincing argument for steelhead, the background information does make the case sufficiently that this should be a worthwhile project.

Rationale and significance to subbasin plans and regional programs: This section is complete. The fit with the priorities in the subbasin plan is evident and the relationship to other regional programs is also clear.

Relationships to other projects: There is an ongoing effort to purchase other land in the Skookumchuck watershed for conservation purposes. The proposed project is a perfect complement to these other programs and may be a key piece, as the proposed purchase will secure land lower in the watershed, near the confluence with the Columbia. Also, ties with some proposed fish monitoring efforts in the subbasin are logical links and these are described.

Objectives: The objectives are listed but very little detail is provided in this section. Some of the supporting information on the objectives can be gleaned from the background section at the beginning of the proposal.

Tasks (work elements) and methods: The description of the work elements is very brief, simply a short list. The methods are more administrative than technical. This project is primarily a land acquisition. Some description of plans for management of the area should have been included. There are some management plans mentioned that apparently apply to the purchased land (Area Wildlife Management Plan, WDFW Habitat Conservation Plan), but no specifics on these plans are given.

Monitoring and evaluation: Monitoring is covered by reference to another proposal, which might not get funded. This monitoring effort will focus on fish populations in the Upper Middle Mainstem Columbia subbasin. There is no indication of a process for monitoring wildlife. Perhaps the wildlife plans mentioned above will include some monitoring but this is not clear from the proposal.

Facilities, equipment, and personnel: Not much information is given, but since the effort would be mostly administrative, it seems adequate.

Information transfer: There is no mention of an information transfer process.

Benefits to focal and non-focal species: Steelhead is given as the focal species for this proposal, and the purchase of the land may contribute to their conservation, assuming this watershed proves to be important for this species. However, given the contribution the purchase of this land would make to the conservation effort being mounted in the surrounding area, this project should have a significant beneficial impact on shrub-steppe wildlife populations.

There are very few non-focal species as the project lists all shrub-steppe obligates as part of the focal species list. Because this is a land purchase, with little deliberate manipulation of habitat, negative impacts are very unlikely.

Entiat

200717800 - Monitoring fine sediment delivery in the Entiat subbasin

Sponsor: US Forest Service (USFS) - Pacific Northwest Research Station

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$265,570 FY08: \$145,830 FY09: \$154,010

Short description: Develop and test improved protocols for monitoring fine sediment in salmonid habitat.

Recommendation: Fundable (Qualified)

The ISRP's qualification for this "fundable" recommendation stems from the need for this study to examine the relationship between particle size distributions of deposited and suspended sediment in order to verify their assumption that suspended sediment provides a good surrogate measure for sediment levels in streambed gravel. There is additional discussion of this point below. Addition of this component would make this a very strong proposal, and this research would be relevant systemwide.

Technical and scientific background: This proposal does a fairly thorough job of discussing the background of this issue. The importance of sediment to the quality and productivity of freshwater habitat is generally appreciated, so this topic is one of considerable importance to restoration and salmon recovery efforts. However, the proposal makes a major, the ISRP believes, unsupported assumption that suspended sediment levels are a good indication of levels of sediment deposited on the streambed.

The relationship between levels of suspended sediment and fine sediment deposited in streambed gravel or in pools has not been well established. In fact, there are some studies that suggest that the two are not very closely associated. The Zimmerman and Lapointe study cited in the proposal apparently found a relationship between suspended sediment and infiltration of fine sediment into gravel baskets. However, there was no mention of whether or not the particle size distributions of the suspended sediment and that captured in the basket samplers were similar.

It is possible that this relationship could have been caused by both suspended sediment and bedload being mobilized by the elevated flows, with the bedload movement being the process responsible for the deposition. The ISRP believes there are several studies that have examined the correspondence between particle size distribution of suspended sediment and fine sediments in streambed gravel and found little overlap. The suspended material is typically extremely fine, often dominated by clay-sized particles, whereas the fine sediment in the gravel was dominated by sand, a size fraction comprising a very minor component of the suspended load.

This criticism is not intended to imply that this project is not worthwhile. On the contrary, a better understanding of suspended sediment dynamics at a watershed scale would be very useful. But to make the linkage to potential biological impacts, a characterization of the particle size distribution of streambed fines and suspended sediment should be included in the study. The

proposal indicates that some streambed sampling is already ongoing in the Entiat as part of another project. Expansion of this program to cover a wider array of channel types and inclusion of particle-size distribution analysis on a subset of suspended sediment samples (those with the highest concentrations) would address this question. Were this comparison done across the range of channel types to be examined in this study, it might be possible to delineate where in the watershed suspended sediment levels are a good index of deposited sediment and where they are not. This understanding also would help to guide restoration efforts as particle size distribution varies among sediment sources (e.g., road surface erosion tends to produce very fine material, bank erosion and mass failures a wide range of particle sizes).

Rationale and significance to subbasin plans and regional programs: This project does address an issue deemed important to salmon recovery in the Entiat Subbasin Plan. Fine sediment also is identified as an important issue in many other subbasin plans in the Columbia Basin.

Relationships to other projects: There are ties with ongoing USFS projects as well as BPA funded RME projects in nearby subbasins (e.g., Wenatchee). The relationship of this effort to the objectives of the PNAMP process also is described.

Objectives: The objective section should better reflect the actual technical objectives of the study. The objective presented simply repeats the subbasin plan goal of reducing fine sediment levels in stream gravel to <12%. The work elements described in the proposal do not directly address this objective. In fact, sampling of stream gravels is not included, so this study will not provide information indicating whether or not progress is being made against this objective. The objectives should be expanded and made explicit to the work elements included in the study. For example, a primary objective appears to be a characterization of the relationship between flow and suspended sediment concentration and load in streams of varying size, land uses and disturbance history.

Tasks (work elements) and methods: Work elements are clearly stated and outlined with summary of methods to be used.

Monitoring and evaluation: This entire project is a RME effort. It is generally very strong from a technical perspective. The monitoring and evaluation protocols developed should be useful for other projects.

Facilities, equipment, and personnel: Personnel are well qualified. No justification is provided for equipment costs for this project, which are high (approx. \$125,000).

Information transfer: Information transfer appears adequate with dissemination through scientific channels plus the data will be made available on the USFS website.

Benefits to focal and non-focal species: A better understanding of suspended sediment dynamics, especially the watershed-scale approach being proposed for this study, will provide information relevant for efforts to restore populations of the fishes listed as primary and secondary focal

species. An improved understanding of sediment is likely to have large benefit, assuming the relationship between suspended sediment measurements and actual gravel sediment is real. Adverse effects to non-focal species are not likely.

200729200 - Effectiveness monitoring of in-stream habitat restoration in the Lower Entiat Basin at microhabitat and reach scales

Sponsor: US Forest Service (USFS) - Pacific Northwest Research Station

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$63,973 FY08: \$61,558 FY09: \$0

Short description: The project sponsors will use techniques from population ecology at the microhabitat and reach scale to monitor the response of juvenile fish populations to restoration of rearing habitat.

Recommendation: Fundable (Qualified)

This project will provide useful information on the response of Chinook and steelhead to a commonly utilized enhancement method. Accounting for density-dependent effects is an unusual aspect of this study design and an important aspect ignored by most other projects that have attempted to assess fish response to habitat improvements. There may be some difficulties in extending results to larger spatial scales. Although the ISRP is not requesting a response, the project would be strengthened by addressing the following comments.

Technical and scientific background: The background provided is complete and does indicate that there are some interesting questions that can be addressed at the habitat/reach scale at which this project will be conducted. The background information greatly benefits from data collected during a pilot study. However, the relationship of the responses observed in this project to responses at much larger spatial scales (subbasin, ESU, etc.) is unclear. The statement is made that variability in responses at the microsite or reach scale will indicate if it is likely that a response to treatment at larger spatial scales are likely to be detected. However, this assumes that the treated and control sites used for the experiment are representative of all reaches in the Entiat. It is entirely possible that the underlying conditions at the study sites will constrain a response to wood addition, but in other areas of the watershed such treatments might elicit a large response. Some clearer description of how the results of this study will be extended to larger spatial scales should be included in the proposal.

Rationale and significance to subbasin plans and regional programs: Placement of wood or other materials in stream channels to increase pool habitat and cover is an action identified in the Entiat subbasin plan. Therefore, this experiment can provide valuable information on the effectiveness of this approach for Chinook and steelhead. The issue with extending the microsite and reach level responses to more relevant spatial scales for salmon recovery remains an issue, but the project does align well with regional programs.

Relationships to other projects: This project is aligned with some of the United States Forest Service (USFS) and other projects being implemented in the Entiat.

Objectives: The proposal provides a single, clear objective and specific hypotheses (objectives) to be tested. The objective is to assess the response of Chinook and steelhead to placement of instream structures. This restoration strategy is being widely applied across the Columbia basin.

Tasks (work elements) and methods: The methods are fully described; they are also quite innovative in that the study explicitly accounts for density dependent effects in assessing fish response to the placement of in-stream structures. Failure to account for density dependence has been a problem with many studies conducted on this subject.

There are two specific points related to the methods that the authors may want to consider:

1) The reliance on snorkel surveys and seining to estimate population levels may pose a problem. Increasing structural complexity of habitat will make the proposed census techniques less effective; it is harder to see or net fish if they have lots of places to hide. As the fish will be tagged anyway, why not recapture fish by seining the day after they have been tagged and develop a mark-recapture estimate of population size? This would be more accurate than relying on the snorkel estimates.

2) The enclosure experiments are likely to expose the experimental fish to many different conditions than would be the case if they were free to move about the pool. The ability of the fish to move from feeding to resting locations may play a role in determining their performance. The experimental fish may be prevented from using some important microhabitat types. The enclosures also will prevent predation.

If this mechanism is an important determinant of habitat carrying capacity, it will not be captured by the enclosure experiments. Could entire pools be used for these manipulative experiments (i.e., isolate the pools with screens or nets and manipulate density by adding or removing fish from nearby habitats)? This approach would avoid some of the artificial properties introduced by using cages.

Monitoring and evaluation: This is a monitoring and evaluation effort. As noted above, most components of this proposed study are technically very good.

Facilities, equipment, and personnel: The personnel are well qualified and facilities appear adequate.

Information transfer: Information will be communicated through standard scientific channels. There is no mention of a process to communicate results directly to restoration practitioners in the Entiat or other subbasins.

Benefits to focal and non-focal species: The knowledge generated by this study will be of value in guiding future in-stream habitat enhancement projects. The problems related to extending the results to spatial scales of primary relevance to recovery efforts are a potential issue. There may be very minor impacts on non-focal species in the areas where sampling occurs or where habitat is manipulated. These impacts should be very short-lived. There may be positive effects for non-focal species that utilize pool habitat in streams.

200705400 - Entiat River - UPA - Stillwater Restoration Project

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$267,544 FY08: \$32,320 FY09: \$9,459

Short description: Enhance instream habitat complexity and reduce sediment delivery to salmonid spawning habitat from rapidly eroding streambank using LWD placement in 0.5 miles of the Stillwater Reach of the Middle Entiat AU. Riparian revegetation will occur along 0.1 mile.

Recommendation: Response requested

The ISRP believes the proposal has merit, but is requesting that the following concerns be addressed before a funding recommendation can be made.

This project adopts an engineered approach to stabilizing the channel and streambank in the Stillwater area. If stronger evidence had been presented that bank erosion was having a detrimental impact on the channel at and below the project site, the proposal would have been more persuasive. Establishing the potential significance of the project would also require a more complete description of the sediment problems in the watershed. The significance of erosion at the project site cannot easily be judged without this context.

The basic premise of this project is that the production of sediment from the eroding banks is impacting habitat quality and biological productivity at the project site. The only evidence provided is the level of fine sediment in the gravel. Bank erosion is attributed to past land-use practices and a lack of riparian vegetation, but it was not clear whether or not this area would erode regardless of past problems. The following questions were not addressed in the proposal, and the ISRP would like a response to them in addition to other concerns listed in the comments. Is erosion at this site an important source of gravel for downstream spawning areas? Are sediment sources upstream producing sufficient material to supply gravel and maintain channel form?

A large portion of the budget will go toward placing approximately 125 rootwads and 240 cut logs in large woody debris (LWD) complexes to be spaced 10 feet apart. The reason for the 10-foot spacing is that it is believed to be necessary to prevent additional streambank erosion. There was no attempt to relate the proposed LWD additions to conditions in a similar, but relatively undamaged part of the Entiat or otherwise similar alluvial river valley. This regular spacing is not likely to occur naturally, and unless the LWD structures are very securely anchored, movement of the structures during high flow events is almost sure to happen. The objectives did not make clear whether either the structures or riparian plantings would be repaired after natural disturbances.

The objectives tend to be generic, and in some cases the linkage between the project elements and the desired outcome is not clear. For example, the proposal indicates one of the biological outcomes is an increase in nutrient delivery to the channel as a result of riparian tree plantings. Although an increase in organic matter delivery to the stream with the re-growth of riparian trees

and shrubs is likely, nutrient input may actually decline as a result of uptake by the new vegetation. Also, there is some confusion regarding the level of wood being added to the project reach. The background information provided at the beginning of the proposal indicates a desired level of large wood of about 20 pieces per mile of channel. However, this project plans to add a total of 365 pieces to about a half-mile of channel. We recognize increasing wood abundance is secondary in this project to bank armoring, but some indication of possible consequences of increasing wood levels to more than 15X the stated objective should be explored in the proposal.

High flows are likely to alter the distribution of LWD structures and may affect the survival of some replanted riparian areas. Reducing sedimentation from the exposed streambank is a valid objective, but the solution could become costly to maintain if natural disturbance-mediated changes are not tolerated.

Not enough detail is provided on the monitoring component of the project to evaluate it. However, the information that is provided raises some concerns. Many of the variables that are proposed are highly variable, both spatially and temporally (e.g., gravel fines, macroinvertebrates, and fish). The proposal implies that pre-treatment information on these parameters will be collected one time. There is very little possibility that a measurable response could be detected based on a single pre-treatment sample. Additional details should be provided to justify the work.

200705500 - Entiat River - UPA - Lower Entiat River Off-Channel Restoration Project

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$54,580 FY08: \$5,388 FY09: \$0

Short description: The Lower Entiat River Off-Channel enhancement project will provide 0.28 miles of off-channel habitat to benefit Upper Columbia ESA listed steelhead, spring Chinook, and bull trout. An irrigation channel will be enhanced for rearing and spawning habitat.

Recommendation: Response requested

The ISRP believes the proposal has merit, but is requesting that the following concerns be addressed before a funding recommendation can be made.

Execution of this proposal is contingent upon completion of the Whitehall Sump project, and final plans for this off-channel restoration project are still to be completed. This proposal is to improve approximately 1/4 mile of irrigation channel in the lower Entiat River in order to improve winter rearing opportunities in a section of river lacking in winter habitat. The proposal asserts that salmon and steelhead will use the irrigation channel once movement barriers (an irrigation dam and driveway culverts) have been eliminated and habitat complexity has been increased. This assertion is based on the observation of a coho redd at the downstream end and observations of occasional juveniles.

The technical background section provides a good description of the site, although it did not give quantitative information about what carrying capacity for fish the irrigation canal could have or what water quality parameters might limit production. An estimate of the increased rearing capacity for target species should be provided in the response.

Actual modifications to the irrigation canal include stream diversion (to connect a wetland), LWD addition, culvert replacement, and spawning gravel placement. Of the objectives given, the wetland pond reconnection, eliminating the movement barriers, and replanting native vegetation tasks seem to have the most potential.

According to the narrative, the only monitoring that will be accomplished is a presence-absence fish survey. Much more could be done to document whether this project achieved its objectives, especially use by salmon in the winter - the primary objective of this project. A more complete monitoring plan should be included in the proposal.

The ISRP will likely recommend funding completion of the plans and pre-treatment data collection, with final approval pending completion of the Whitehall Sump project, plans for the off channel work, and expanded monitoring. Before the ISRP can make its final recommendation, a response is needed on the issues raised above especially concerning monitoring and evaluations and clarification of benefits to fish of providing the quarter-mile, off-channel habitat.

200723100 - UPA Entiat Subbasin Riparian Enhancement Program

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$71,053 FY08: \$82,257 FY09: \$82,257

Short description: Riparian projects are being proposed in the Entiat subbasin to benefit Upper Columbia spring Chinook, steelhead and bull trout. Funding is requested for Tillicum Creek Fence and potential programmatic riparian projects.

Recommendation: Fundable in part

The Tillicum Creek fencing is justified, with conditions. The programmatic section is not justified until assessments and thoughtful plans are available. The ISRP therefore recommends that base funds be provided for completion of the assessments, evaluation of livestock exclusion alternatives, and monitoring plans.

This proposal is to construct 0.7 mile of pole fence, off-channel stock watering facilities, and about 0.1 mile of riparian tree plantings along three sites on Tillicum Creek, Indian Creek and Mad River. The goal is to exclude sheep from the riparian zone and channels at a time when steelhead, salmon, or resident trout are spawning or rearing. The proposal does not estimate how many steelhead or Chinook actually use the areas for which fencing is planned, but there is no question that sheep grazing has damaged riparian vegetation, although stream temperatures have not reached hazard thresholds. Additional fine sediment has been attributed to streambank

damage, but the percent of fine sediment in spawning gravels has not been measured so the extent of current damage to spawning areas cannot be determined with precision.

The fence-building objective is clearly explained, but the proposal suggests no biological or habitat performance metrics for judging project effectiveness. The buck and pole fence is more visually and environmentally appealing than a wire fence, but it is being proposed for an area that has a history of severe fires, and this fence type is highly vulnerable to wildfire damage. Since the fencing work will consist of three segments, it is possible that livestock could reach the streams through an area that is unfenced if the herd is not continuously monitored. The cost of this approach also creates concerns for the more general programmatic proposal in that few miles of riparian area could be fenced under the program if fencing costs over \$80,000 per mile as it does in the Tillicum Creek project.

Another possible issue with the programmatic element of the project was the indication that bank stabilization would be considered as one of the treatments. Bank armoring may be an appropriate restoration technique in some cases, but it has been greatly overused and is a prime reason why some rivers have become disconnected from their floodplains. Bank armoring projects should receive thorough review before implementation.

Riparian monitoring will be limited to periodic photos. Fish population response will include presence/absence surveys and redd counts. It will be difficult to document population-level responses to this project with only one-year pretreatment data. Monitoring the recovery of riparian vegetation to sheep exclusion through vegetation surveys would yield valuable information on the fence's effectiveness.

200731800 - Entiat River - UPA - Knapp-Wham Hanan Detwiler Irrigation System Consolidation Project

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$364,077 FY08: \$9,313 FY09: \$0

Short description: Consolidation of the Knapp-Wham and Hanan Detwiler irrigation systems will eliminate partial fish passage barriers associated with 2 surface water diversions, add instream habitat within the lower Entiat River, and enhance instream flows via water saved.

Recommendation: Fundable (Qualified)

This proposal would (1) eliminate one of the two main river irrigation diversions in the lower Entiat River (Hanan Detwiler), (2) move the expensive, high capacity rotary screen from this diversion to the upper diversion (Knapp-Wham) which has an undersized screen, (3) replace the two existing push-up dams with full channel-spanning rock cross-vanes to impound water and create holding pools, and (4) replace a 3.4 mile open irrigation ditch with a pipe network to distribute irrigation water to farmers.

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

Two large irrigation diversions have been identified as high priority sites for restoration, which makes this project attractive. A stronger case for the work could have been made that included a better estimate of how much water will actually be saved in the river during irrigation season, and what species and life stages are likely to benefit from these incremental flows and presumably improved water quality.

Although the theoretical increase in flow in the lower Entiat during the irrigation season is claimed to be 2-6 cfs, the proposal admits that the realized incremental flow savings will be less. In addition to re-engineering the water intake, new wells are being added to the system, and the contribution of those wells to flow savings is also uncertain. The proposal states that these two irrigation systems are the largest in the Entiat subbasin and have been assigned highest priority for improvement in the Entiat Watershed Planning Unit, which underscores the value of this project. However, irregardless of the amount of water being conserved, it is important that instream flows not be appropriated by junior water right holders downstream. Therefore, project managers should provide some evidence that conserved water will remain in the river. Alternatively, it might be cost-effective to purchase water rights.

The engineering aspects of the proposal were adequately described, but the habitat and fish population benefits were less clear. Since both existing diversions are screened, how much will the consolidation really lead to a reduction in juvenile salmonid entrainment? Will the flow savings primarily benefit spawning, rearing or both -- and to which species? Have pesticide residues been identified in irrigation return water of the existing canal systems that this project will help reduce?

It is stated that "both physical and biological changes will be noted post-implementation", but there was no elaboration of what this meant. The budget includes a request for a dry suit for snorkel surveys in 2008-2009 during March, May, and September, but additional details were not provided. Monitoring water quality (temperature, pesticide residues) in irrigation return water would help verify the effectiveness of this project.

Methow

200726100 - Habitat effectiveness survey of existing, historical, and potential beaver habitat in the Upper Columbia Basin, Methow Subbasin

Sponsor: Pacific Biodiversity Institute

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$79,240 FY08: \$0 FY09: \$0

Short description: The first phase of this project is a survey of existing and historical beaver habitat accompanied by an evaluation of existing habitat effectiveness models.

Recommendation: Response requested

This proposal presents an alternative to 'heavy-handed on site management activities', by re-introducing beaver back into river systems. The ISRP applauds the authors for their inclusion of historic information including an attempt to reintroduce the species back into the system in the 1930s. The earlier reintroduction attempt failed, but the authors believe the re-introductions were not placed at logical locations. The authors want to begin with the existing habitat effectiveness model, but use specific data collected from the study area to refine beaver habitat characteristics in the model.

The ISRP agrees that this is a worthwhile concept but seek a response that provides more detail on the specific types of habitat and stream data (and the metrics) that will be collected and how the data will be specifically analyzed in phase 1 and phase 2. The ISRP assumes use and non-use sites will be the backbone of the overall analyses, but need more details in a response.

200722100 - Native Trout Restoration in the Methow, Entiat, and Wenatchee Subbasins

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$178,892 FY08: \$188,260 FY09: \$209,787

Short description: Recovery to naturally sustainable levels of native resident trout populations in portions of the Methow, Entiat, and Wenatchee watersheds. Investigate small tributaries including high lakes where invasive species threaten native trout populations.

Recommendation: Not fundable

Information on the distribution and status of bull and brook trout populations in these subbasins would be very valuable. However, this proposal is very brief and unconvincing; therefore, the ISRP does not recommend funding at this time. The proposal cannot be evaluated unless much more detail is included on the project design and methods. Where will the surveys be conducted and why? How will data on fish populations be collected? How will habitat conditions be assessed? How will data on water quality be collected and analyzed?

Technical and scientific background: The nature of the problem is briefly described. More specific information related to five potential projects listed in the proposal should have been presented to indicate why these had been identified as priority actions.

Rationale and significance to subbasin plans and regional programs: The relationship of this project to the subbasin plans is briefly described. The lack of data on the distribution and status of bull trout populations hindered the identification and prioritization of projects for bull trout in these plans. Presumably, the survey effort proposed here would provide some of this information.

Relationships to other projects: The relationship of this effort to the Draft Columbia Basin Research Plan is provided but there is very little discussion about the relationship of this project to other BPA, state, or federal efforts to address bull trout. Some discussion of the state and federal efforts, in particular, should be included to place this project in context.

Objectives: The need for better information on the status of headwater bull trout and brook trout populations is clearly a key information gap in these subbasins. Collecting this type of information is a reasonable objective. The inclusion in the proposal of potential projects seems premature. A more logical approach for this effort would be to focus only on collection of the appropriate data to enable prioritization of projects in the future.

It does not appear as though funding for the proposed projects is included in the budget proposal. Other than chemicals for fish eradication, no supplies or equipment that would be used for the possible projects appears in the budget.

Tasks (work elements) and methods: This section is a list of tasks. There is no discussion of methods in the proposal. The type of data to be collected for the status assessment is listed in the objectives but no indication of how these data are to be collected or analyzed is provided. Similarly, there is only very general information provided about the methods to be used in implementing the potential restoration projects.

Monitoring and evaluation: The determination of current status of the fish and habitat is basically an evaluation effort. However, as noted above, very little detail as to how this task will be accomplished is provided. For the potential projects, the proposal simply states that the response to project implementation would be monitored. No specifics are given as to what would be measured or how.

Facilities, equipment, and personnel: This cannot be fully determined without a more complete description of the methods to be used. Based on the limited information in the proposal, the equipment available and the skills of the personnel appear adequate.

Information transfer: Information transfer is not addressed.

Benefits to focal and non-focal species: Collecting the information on fish and habitat status would be of value to the focal species. But given the inadequate description of methods, it is impossible to judge the potential for the project to generate useful information. The use of chemical treatment to remove brook trout would have a detrimental impact on co-occurring native species. Collection of the status information should have minor impact.

200703500 - UPA Project - Methow Basin Riparian Enhancement

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$252,464 FY08: \$197,243 FY09: \$158,932

Short description: MSRF proposes to partner with Bureau of Reclamation and Methow Conservancy to identify and prioritize riparian enhancement projects that will add value to passage, access and conservation projects. All projects will focus on TES species and habitat.

Recommendation: Fundable in part

Overall this proposal seems justified, but agreements with landowners for three of the nine sites should be completed before the project is fully fundable. The projects without a landowner agreement also are not fully described in the proposal. The projects for which a landowner agreement has been reached are presented in sufficient detail to warrant funding. The project also would benefit from a stronger monitoring plan. The ISRP recommends that only those projects for which agreements have been secured be funded at this time; funding for other sites can be requested as new agreements with landowners are obtained. In addition, the ISRP requests that project sponsors consider the following concerns and questions.

Technical and scientific background: Much of the background material is excerpted from other sources and is not really required to support the proposed projects. The proposal would have been more effective if the pertinent information from the other documents was summarized.

Appropriate justification is not provided for all the proposed projects. The proposal identifies six fencing and riparian revegetation projects in the Methow subbasin, with three additional projects pending landowner agreement. Some of the projects appear justified in that they are associated with previous restoration projects. Other projects appear to be simply taking advantage of a willing landowner.

Specific information about the significance of each project would have made this a stronger proposal. Table 1 provides a prioritization scheme based on biological significance, cost and probability for project success. This process is a logical way to rank riparian projects. However, it is never indicated where the proposed projects fall on this prioritization scheme.

Quantitative vegetation surveys from the project sites showing the extent of vegetation loss or change due to grazing would have helped to justify the projects, although the photographs indicated that past grazing practices have significantly altered the sites. Specific effects of the grazing on habitat conditions in adjacent fish spawning rearing areas are not described.

Rationale and significance to subbasin plans and regional programs: Riparian restoration was indicated in the Methow Subbasin Plan as a priority element. As noted above, however, it is difficult to determine the priority of the specific riparian projects proposed. Are these projects being applied in locations with the highest probability for success and focal species response? The proposal also indicates links the objective of restoring riparian areas to the Fish and Wildlife Program and BiOp.

Relationships to other projects: There are a number of riparian restoration efforts being pursued in the basin. The project is associated with two Salmon Recovery Funding Board (SRFB) projects, a National Fish and Wildlife Foundation (NFWF) landowner grant, and a locally supported conversion project. The projects in this proposal would augment some of these efforts or apply similar treatments at other locations.

Objectives: The general objectives are appropriate but very generic and the same objective is repeated for each project. The only quantitative aspect of the objectives was an estimate of the miles of riparian habitat treated. There should be specific objectives for each proposed project. The background discussion indicates the actual objectives are related to improvements in aquatic habitat such as reduced water temperature, reduced sedimentation etc.

No objectives are stated for these desired outcomes. At a minimum there should be specific objectives established for the survival of the planted vegetation at each site. It also would have been helpful if all the proposed project sites were displayed on one map in relation to other protected areas to determine the extent to which these new projects may help restore connectivity along the riparian corridors of the mainstem Methow and its two large tributaries.

Of the nine areas proposed for fencing and/or riparian planting, landowner agreements for three sites have not been finalized so there is no guarantee that those projects can go forward at this time. These projects should be removed from the proposal.

Tasks (work elements) and methods: In general, the work elements and proposed methods appear to be appropriate for revegetating the project areas. The fencing and riparian planting methods seem sound. Irrigation, protection from browsing and control of invasive weeds are all addressed. Placing tubes around seedlings to prevent browse damage can be effective for some tree species but difficult to properly implement for others (e.g., western red cedar). Quite often tubes need to be repaired to maintain their effectiveness, so project planners need to be prepared for this eventuality. Pole fencing, using live trees for posts, and other fencing methods involving wood structure can be damaged by wildfire - a significant ecosystem process in this area.

Monitoring and evaluation: There is limited discussion of monitoring for these projects. As this type of treatment will be applied widely throughout the region, there should be some attempt to assess effectiveness to make future projects more successful. The proposal does mention that a contractor will be hired to establish photopoints and ensure that fencing remains functional. Presumably the photos will provide some indication of vegetation survival. However, much more could be learned about the success of plant establishment by treatment type, species, and location

in the riparian area. It would be very helpful to include some quantitative vegetation surveys at some of the sites to determine whether the fencing and replanting efforts are producing desired effects. It would also be helpful to know what types of seedling protection devices (i.e., boxes, tubes, etc.) are most effective.

Facilities, equipment and personnel seem reasonable.

Information transfer is through local website updates and public outreach. It would be helpful to have a data acquisition and storage system for these projects.

Benefits to aquatic species and riparian-associated wildlife seem likely, providing the riparian projects are in locations key to Chinook and steelhead production in the Methow. Regardless, the benefits will take some time to be expressed as many of the desired functions of the riparian vegetation will require trees to reach considerable size.

These projects may be more beneficial, at least in the short term, for some of the species listed as "other" in the proposal, especially the birds. The benefits for some of these species may be achieved relatively rapidly once native vegetation begins to reoccupy the project sites. One potential negative effect is that the deer exclusion fencing may interfere with deer travel routes. There was no discussion of this potential issue in the proposal.

200712400 - Okanogan County Irrigation Water Management Improvement Project

Sponsor: Okanogan Soil & Water Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$281,209 FY08: \$373,909 FY09: \$372,659

Short description: To provide money and technical assistance to local landowners for irrigation system improvements in the interest of improving water quality and quantity throughout Okanogan County for fish habitat.

Recommendation: Not fundable

This was not a technical proposal, and without more details about how specific irrigation improvement projects will be selected there was little to evaluate from a scientific standpoint. Whether or not a new Okanogan Conversation District (OCD) board should be established, as this proposal suggests, or whether an existing entity could also perform this function effectively, is a policy question.

Technical and scientific background: This proposal is for startup money for the Okanogan Soil and Water Conservation District to establish a procedure for local landowners to apply for irrigation improvement funds. There are no specific on-the-ground water conservation projects included in this proposal; it is strictly to fund a planning and priority process for Okanogan County irrigators. While the need for increased flows and water quality improvements have been highlighted in the subbasin plan, there is little of a technical or scientific nature to evaluate in this proposal, other than possibly the validity of the ranking scoresheet.

Rationale and significance to subbasin plans and regional programs: Increasing flow is an important component of the subbasin plans for both the Okanogan and the Methow. Assuming that the projects funded by this proposal actually are effective in increasing flow, this program could contribute to achieving the ecological objectives in the subbasin plans. However, the proposal does not provide enough information to assess the likelihood of achieving this objective. There also is a question of how this project would fit into ESA-related salmon recovery actions. Even if a project were assigned high priority by the conservation district, wouldn't it still require ESA consultation?

Relationships to other projects: Relationships of this project selection process to ongoing soil and water conservation projects are discussed in a very general way. It appears that the program proposed here is one of several efforts in these subbasins that do essentially the same thing; provide funding for farmers to make their use of irrigation water more efficient. What this proposal does not discuss, however, is specifically what this program will add to the existing efforts (beyond additional money). Will the proposed program address areas, landowners, or situations that are not covered by these other programs? Will the existence of the proposed program enhance the value or effectiveness of existing efforts? A better description of how various programs fit together would have provided a more complete context for the proposed effort.

Objectives: The objectives are appropriate, in so far as they address a key concern identified in the subbasin plans. However, the objectives are very general. The proposal accepts the biological goals of regional recovery plans and purportedly will select irrigation improvement projects that have the greatest potential to contribute to recovery objectives. Beyond that, no details are given.

Tasks (work elements) and methods: A process for evaluating project proposals submitted to this program is briefly described. Very little detail is given about the types of changes in irrigation infrastructure needed. According to the proposal, the Okanogan Conservation District would favor irrigation methods that reduce water loss, such as drip and micro-irrigation. Beyond that, no details are given.

Monitoring and evaluation: There is no mention of monitoring and evaluation in the proposal. Presumably, some level of monitoring would (should) be associated with each funded project under this program. At a minimum, some measure of the water saved and, if possible, verification that this water is appearing the channel should be required. Also, it would seem that given the number of programs in the region that are addressing irrigation water use, a coordinated monitoring effort that examines in-channel flow and near-channel groundwater levels should be established. Ideally, this program would be coupled with project-specific monitoring and also include long-term monitoring of key water quality variables.

Facilities, equipment, and personnel: It was difficult to assess the adequacy of this item because no specific water conservation projects are described in the proposal. There was a mention that

the current computer system wasn't up to handling the GIS tasks required by this program. A new computer system is included in the proposal.

Information transfer: The Okanogan Soil and Water Conservation District has an ambitious plan for public outreach and local education that is thoroughly discussed in the proposal. Outreach to individuals in the local agricultural community appears to be well thought out and should be quite effective.

Benefits to focal and non-focal species: It is difficult to assess the benefit to fish of the proposed program because specific projects were not described. How much water will be returned to the channel? Where in the watershed will this water be added? How significant will the associated improvements in water quality be? Presumably, successful implementation of this program will have some impact on flow. But without an estimate of how much additional flow, the actual benefit for the fish is uncertain.

Adding water to the channel should not have any negative effects on non-focal species. In fact, if the program makes a measurable contribution to in-channel flow, some riparian wildlife species may benefit.

200717200 - UPA Project - MVID West Canal Diversion and Headworks

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$249,900 FY08: \$10,900 FY09: \$14,950

Short description: Move POD 175' upstream by installing new concrete diversion headworks, realign 150' of West Canal intake and build new access road to connect new headworks, construct permanent channel-spanning natural rock roughened channel permanent diversion.

Recommendation: Fundable (Qualified)

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

This proposal is to re-engineer a large water diversion intake on the lower Twisp River. The new irrigation intake will make the irrigation system more efficient. However, benefits to ESA-listed salmonids are hard to determine without more information about the project than is provided in the proposal. Reducing the amount of water withdrawn from the Twisp River should have biological benefits. The biological effects of other elements of the project were less clear. Under what flow conditions does the existing structure pose a significant migration barrier? What are the contingency plans in the event the roughened channel is damaged during freshets? Will the new headworks be screened to prevent entrainment of juvenile salmonids? Answers to these questions would have made the proposal easier to evaluate. The availability of a significant amount of in-kind support is a positive element of this proposal.

Technical and scientific background: The existing diversion required annual construction of a late summer push-up dam, which was believed to hinder upstream migration of Chinook,

steelhead, and bull trout, or even to block migration completely during exceptionally dry years. The narrative does not quantify the extent to which spawning migration has been hindered or blocked, and in fact almost all spawning occurs above the existing intake anyway. Streamflows appear to be the real limiting factor to spawning migrations. This project will provide improvement in flow for this particular reach. The existing diversion could divert 30 cfs and the new structure will reduce irrigation withdrawals to 11 cfs plus a few additional cfs for Chain of Lakes wildlife mitigation.

Rationale and significance to subbasin plans and regional programs: The proposal does a generally good job of describing its relationship with the Methow subbasin plans and regional restoration programs.

Relationships to other projects: The relationship to other efforts is described. Especially relevant are the passage and habitat projects that have been implemented in the Twisp River upstream of the project area. The proposal asserts that these upstream projects depend on improved fish passage at the intake site. This may be true, although the evidence that the current diversion is a significant limiting factor was not completely clear.

Objectives: The objectives of the project are clearly explained and timelines are adequately described. One of the objectives is to discourage Chinook spawning in the vicinity of the diversion intake (which is dewatered when irrigation season is over). The proposal suggests that this be done by using very coarse substrate -- too large for spawning gravel. It is possible that spring freshets may re-sort the substrate in the spring and recreate suitable spawning conditions at the new intake.

The full-spanning roughened channel structure is designed to withstand relatively high flows, but it might be damaged by bedload transport or fluvial large woody debris (LWD) during exceptional runoff events. Continued maintenance may be necessary, and the ability of the new structure to pass fish cannot be adequately evaluated until it is installed and has survived several seasons.

Tasks (work elements) and methods: Most of the work elements are well described. The treatment of the revegetation aspect of the project was somewhat abbreviated. There also was no indication that the new headworks would be screened to prevent entrainment of juvenile salmon and trout in the irrigation canal. Unless reviewers missed it, surely WDFW will require screening. The revegetation plans seem adequate.

Monitoring and evaluation: The monitoring plan includes assessment of the physical attributes of the project (flow, substrate, water depth etc.) and plans to take advantage of ongoing redd monitoring efforts to assess whether or not fish passage improves after the project. The monitoring plan also should evaluate spawning at the new intake (or lack of spawning), and entrainment of fish in the diversion pipe.

Facilities, equipment, and personnel seem reasonable.

Information transfer: Project completion reports and Bureau of Reclamation progress reports are the only mechanisms of information transfer mentioned. Availability of information on this project may be useful for similar projects in the basin and a more complete information transfer process would be valuable.

Benefits to focal and non-focal species: It was difficult to estimate the benefits of this project given the information in the proposal, but some benefits to Chinook, steelhead, and bull trout seem likely. Some impact to non-focal species will occur during the construction phase of the project. Dewatering the Twisp River for 40-60 days during intake relocation will surely impact the benthic community in the 225 ft length that will be dried out. Increased numbers of spawning salmon and steelhead in the Twisp may provide a food resource for some non-focal species that consume carcasses.

200721400 - UPA Project - Fender Mill Floodplain Restoration - Phase 1

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$127,141 FY08: \$12,630 FY09: \$17,100

Short description: Restore natural channel process, reestablish side channel rearing habitat, restore-improve riparian forest habitat, add wood complexes in main stem, install rock structure to keep majority of flow in main stem, breach existing levee, connect side channels.

Recommendation: Response requested

Generally, this seemed a worthwhile project. However, the ISRP believes a response is needed to address several points not fully described in the proposal. In order to establish the potential benefit of this project, more information on the importance of this river segment as a spawning site for spring Chinook and/or summer steelhead is required. Also, some discussion of the extent and type of habitat that will be created with an intermittent connection to the mainstem - based on two-year flood events - is needed. Since the secondary channels will only be connected to the mainstem during two-year events, it is not clear how much habitat for juvenile rearing and winter refuge will actually be created in phase 1. There also is some uncertainty regarding the approach being taken to brook trout at the project area. Reconnecting habitat infested with brook trout to the mainstem has the potential to adversely affect the benefits of the project.

Technical and scientific background: The background information on the project is generally complete. The significance of the project location is well established; it is noted as an area for restoration in the subbasin plan and is adjacent to a previously implemented floodplain restoration effort. However, the background section spends considerable space attempting to support the hypothesis that reconnecting the side channels will reduce sediment transport capacity in the mainstem sufficiently to impact substrate composition. The speculation is made that the reduced transport capacity will lead to improved spawning habitat in the mainstem.

Numerous approaches are used to assess the potential change in transport. None of these approaches provide very convincing evidence that the change in transport would be sufficient

enough to cause a biologically significant alteration in substrate composition. The amount of effort expended on what is really a very minor element of the project objectives detracted some from the effectiveness of this section.

In contrast, not enough discussion of the potential benefits of increased off-channel habitat is provided. Some information on the utilization of off-channel habitat at the Hancock Springs project by juvenile Chinook and steelhead would provide some indication of the likely response by the focal species to this type of project at Fender Mills. Also, some quantification of the availability of off-channel habitat within the subbasin would help provide some context for the significance of this effort.

Rationale and significance to subbasin plans and regional programs: The proposal does an adequate job of linking its objectives to regional programs. The description of its relationship to the Habitat Improvement BiOp was the most complete. The project type and its location are supported by the subbasin plan for the Methow.

Relationships to other projects: The Hancock Springs and the Big Valley Ranch restoration efforts are important complements to this project, as indicated in the proposal. The relationship between the Fender Mill project and some of the other projects mentioned in the proposal are less clear, other than they all occur in the Methow Subbasin. However, the proximity and compatibility of the restoration efforts in the Big Valley Ranch -Weeman Bridge section of the river indicates that this project will add to the overall effectiveness of this effort. These are the kinds of landscape-based projects that lead to large-scale improvements over time.

Objectives: Most of the objectives are appropriate and correspond well with issues identified in the subbasin plan although more specific objectives related to expected (desired) biological response would have enhanced this section of the proposal.

There were several objectives that were puzzling. The objective to increase competitive pressure on brook trout by providing native species access to the off-channel sites is unlikely to succeed. Both juvenile Chinook and bull trout have been shown to be very poor competitors with brook trout. The story is less clear for steelhead. Nonetheless, hoping that introducing native fishes to habitat currently occupied by brook trout will deal with the negative impacts of this introduced species is not supported in the literature.

In fact, it is not impossible that by attracting native fishes to habitats infested with brook trout, survival and productivity might actually be impaired. Connecting a source of brook trout with the mainstem also could have negative impacts on native fishes rearing in the river. The brook trout are not a trivial issue and more consideration should be given to dealing with them prior to reconnecting the side channels and beaver pond. Aggressive electrofishing or even chemical control should at least be considered as possible options. Seining and angling will remove relatively few of the brook trout.

There is no discussion of stranding of fish overwintering in the reconnected channels. If these channels will only be directly connected to the mainstem during flows with 2 year or longer return intervals, it would seem that egress from these habitats in the spring could be a problem.

Tasks (work elements) and methods: The construction methods are fully described and appropriate. The methods for brook trout control will not be effective, as noted above and should be improved. More details about restoring native vegetation would have been helpful, including some discussion of removing invasive non-native plants, if present.

Monitoring and evaluation: Monitoring includes photopoints, as well as fish population surveys (snorkeling, seining, and electrofishing), redd counts (by WDFW), and river geomorphology studies. The monitoring plan was reasonably comprehensive, although some of the monitoring elements were not certain to be done. In addition, some of the monitoring elements are described only briefly. A few elements seem to be lacking. For example, there is an objective for riparian planting of 80% survival after 23 years. But vegetation monitoring, beyond photopoints, is not included in the RM&E section.

Facilities, equipment, and personnel seem reasonable for the job. In fact, the long list of participants provided at the end of the proposal raised some question as to who was going to do what. It didn't seem as though this project was large enough to provide something for everyone to do.

Information transfer: Given the potential of this project to serve as an important demonstration site, it was disappointing that plans did not include more than just annual progress reports on file with the Bureau of Reclamation. Given that there is a significant amount of monitoring involved in this project and that there should be something to be learned from some of the construction methods, a greater effort to communicate results should be undertaken.

Benefits to focal and non-focal species: Results should be positive, assuming that the fish use the connected habitat, are not frequently stranded, and positive benefits are not offset by brook trout. The relationship of this project with other floodplain restoration in the area increases the potential for positive effects. Non-focal species are also likely to benefit, including those that can inhabit the three acres of new wetland that will be created.

200723700 - UPA Project - Elbow Coulee Floodplain Restoration

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$122,662 FY08: \$3,800 FY09: \$8,900

Short description: This project would eliminate a dike; open an existing side channel and floodplain; reconnect a wetland; and use large woody debris and boulders to split flows. These would increase habitat complexity and create more dynamic habitats for listed salmonids.

Recommendation: Fundable (Qualified)

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

This project would be worthwhile provided that the connection to the mainstem performs as desired. There seems to be some potential for the channel entrance to fill with sediment due to the planned log structures and these concerns need to be addressed prior to funding. Also, some additional attention to the brook trout problem is needed. Reconnecting a habitat containing brook trout with the mainstem may have negative impacts on native fishes. A thorough consideration of the potential impacts of brook trout and methods for controlling them prior to reconnecting the off-channel habitats should be included in the proposal.

Technical and scientific background: The background information provided ranges from a very pertinent discussion of the desired outcomes of the project and its history to very general information about floodplains, channel development and sediment dynamics, only tangentially related to the proposed effort. For example, this section includes a rather lengthy attempt to determine whether or not diversion of flow from the main channel of the Twisp River to the floodplain channel will reduce mainstem stream power sufficiently to enable additional deposition to occur. Encouraging deposition in the mainstem is, at best, a secondary outcome of this project (in fact, it is not even listed as one of the project objectives). The main benefit is the increase in floodplain habitat. Nonetheless, the necessary information to justify this project is included.

Rationale and significance to subbasin plans and regional programs: The proposal does a good job of linking its objectives to the Methow subbasin plan and the revised 2004 BiOp. The provision of floodplain habitat in this section of the Twisp River was identified as an important restoration action in the subbasin plan.

Relationships to other projects: There are a number of other planned projects on the Twisp that may interact with this project, including several other restoration projects in the vicinity of Elbow Coulee. Passage improvements at road crossings higher in the drainage might lead to increased production of juvenile fishes that could benefit from the floodplain habitat. The proposal discusses these efforts and describes how this project fits into the overall plan to improve spawning and rearing conditions, as well as off-channel wetlands, in the lower Twisp River. This project is well aligned with other ongoing or proposed efforts in the subbasin.

Objectives: The project objectives are generally appropriate. However, there are some questions about a few of the goals. Some of the currently isolated, floodplain habitats contain brook trout. The proposal suggests that the native fishes accessing these habitats after reconnection will outcompete the brook trout. There is no support in the literature for this contention.

In fact, brook trout have been consistently found to be superior competitors when found with bull trout and juvenile Chinook salmon. The outcome of attracting juvenile native fishes to brook trout infested floodplain habitats may actually be detrimental; competitive pressures may offset any benefit associated with the higher quality habitat. A more aggressive approach to reducing

or eliminating brook trout prior to reconnecting the floodplain habitats to the mainstem should be included in the project.

There also should be some discussion in the proposal of the potential for stranding anadromous fishes in the floodplain habitats. It would appear that this potential problem is less of an issue for this project than the similar Fender Mill floodplain project because connection of the off-channel habitats are intended to be maintained at relatively low flows. However, some attention to the possibility of this occurring with siltation of the channel entrance or exit and how this problem would be addressed should be included in the proposal.

Tasks (work elements) and methods: There are a few proposed work elements that deserve further development in the proposal. The floodplain channel connections to the mainstem include several log structures to control siltation and ensure diversion of water into the secondary channel. These log structures, especially at the entrance, would seem to promote siltation rather than prevent it. The debris filter structure in the secondary channel near the upstream connection will collect finer wood and, ultimately, form a partial blockage for flow. The blockage will reduce flow velocities and encourage deposition. The proposal does indicate that maintenance of the channel connections is expected but the current design would seem to exacerbate maintenance concerns. The secondary channel design, especially at the upstream connection, should be reconsidered to deal with this issue.

Is it possible that the floodplain springs can provide sufficient flow to keep the floodplain channel watered? If so, a low-flow connection to the mainstem at the upstream end of the channel may not be necessary to achieve the objective of providing access for fish to the floodplain habitats. This option would avoid problems with sediment deposition closing the channel connection to the floodplain.

The plan to reduce brook trout populations by seining and angling will not be sufficient to deal with the issue of competitive impacts on native fishes. A more thorough attempt to reduce brook trout populations prior to reconnection of floodplain habitats with the mainstem should be attempted. Electroshocking, or even chemical treatment, might be options.

Choosing Douglas fir and ponderosa pine as the species to plant on the floodplain seems unusual. These species do not do well in wet conditions and are not typical overstory species on floodplains.

Monitoring and evaluation: The monitoring and evaluation component of the proposal is only briefly described. However, most of the primary elements to assess the success of the project are included. Photopoints will be established and fish populations will be surveyed within, above, and below the project area. WDFW will survey salmon and steelhead redds. However, very little detail on measurement protocols or the timing of measurements is provided. There is no indication of how survival of riparian plantings will be monitored. Some of the monitoring will apparently be done by cooperators, so the proposal did not provide complete certainty that it would be accomplished.

Facilities, equipment, and personnel appear to be sufficient for the project. The proposal lists 19 people who will be involved in the project but provides no indication of who will be responsible for what part. In total, the qualifications of the project participants are quite impressive. But without matching the person to the job they will perform, the adequacy of skills is hard to judge.

Information transfer: This element is not well addressed. Given the potential of this project to serve as an important demonstration site, it was disappointing that plans did not include more than just annual progress reports. But there is no mechanism specified to enable the transfer of knowledge generated by the implementation and monitoring of this project to other restoration practitioners in the basin.

Benefits to focal and non-focal species: Assuming the project performs as planned (see concerns above about some of the objectives and work elements) the project should benefit the focal species as long as the floodplain remains reconnected. This is especially so, given the integrated nature of the restoration efforts planned on the Methow and Twisp. Non-focal species are also likely to benefit, including those that can inhabit the 1.5 acres of newly connected wetland.

200725100 - UPA Project - Methow Valley Irrigation District East Diversion Dam Replacement

Sponsor: Methow Valley Irrigation District

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$44,800 FY08: \$542,800 FY09: \$29,800

Short description: This project will remove the present channel-spanning irrigation diversion dam and replace it with a reinforced earth and rock wing dam parallel to the thalweg. This project will also re-open 1/4 mile of side channel habitat blocked by a pushup berm.

Recommendation: Fundable

Overall, this is an excellent "on-the-ground" project to improve habitat and fish. This proposal deserves a high priority. More scientific and technical information (with references) on the proposed installation (permanent wing dam diversion structure) and alternative methods, e.g., complete removal of the instream diversions and fish screens/replacement with wells and pressurized pipes, would have been useful. Examples of other areas where this type of irrigation water diversion installation has increased salmon abundance would have been useful.

Pre- and post-replacement monitoring and evaluation and plans for information transfer are the weakest parts of this proposal. Redd surveys might not be the best measure of success, because adult salmon returns could be affected by many other external factors. While the project is likely to have immediate benefits to focal species, only long-term monitoring can show whether these benefits will persist. There is no discussion in the narrative about other activities (upstream or downstream) in the basin that might compromise benefits to focal species. It is not clear from the narrative whether the new upstream location for the diversion dam is important habitat for focal species and how this habitat will be affected.

There will be some attempts (biologists with nets) to rescue fish stranded by construction of the new dam. A discussion of potential adverse affects of dam replacement on habitat/populations of native biota would have been useful. The project will produce progress and annual reports. Plans for publication and or release and long-term storage of data, photographs, and meta-data resulting from pre- and post-Monitoring and evaluation were not described.

200726400 - UPA Project - Programmatic Habitat Complexity Projects in the Methow River Subbasin

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$492,500 FY08: \$620,500 FY09: \$882,000

Short description: These projects would eliminate dikes, open side channels, and enhance floodplain connectivity at various sites in the Methow subbasin. Identification and ranking to be based on MIHRP study. Submitted as budget placeholder at request of BPA (Chris Furey).

Recommendation: Fundable (Qualified)

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

Overall, this is a well-written proposal. The ISRP's recommendation is qualified because the actual sites to receive restoration action are not currently selected, provisions for long-term monitoring and evaluation are not well described, and cost sharing is under development. The work elements refer to "permitting activities, pre-project and post-project habitat and fish monitoring, revegetation, and an adaptive management plan" but no details on methods are provided. The proposal would have been improved by more specific timelines and information on how benefits to fish and wildlife will be measured. The narrative would have been improved by providing data on similar restoration projects that have resulted in significant benefits to focal species that persisted over the long-term, as well as a discussion of potential adverse effects and proposed precautions for non-focal species.

The proponents need to re-examine their approach to reducing brook trout before opening up new habitat that brook trout will likely use. The proposal's major premise is that if native salmonids are reintroduced they will out-compete brook trout. The current literature shows that brook trout out-compete other salmonids including Chinook salmon and bull trout.

The proponents are experienced and well qualified, but their FTEs are not included in the narrative. Private contractors (to be determined) will be hired to complete much of the proposed work. Even though this is not a research project, the proposal would be improved by plans for public dissemination of the results beyond progress and project completion reports in Bureau of Reclamation and BPA files.

Okanogan

200302300 - Chief Joseph Hatchery Program

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$2,752,798 FY08: \$16,811,650 FY09: \$11,748,946

Short description: CJHP is designed to increase the abundance, productivity, distribution, & diversity of naturally spawning pop. of S/F Chinook salmon in the Okanogan & Columbia Rivers above Wells Dam & reintroduce extirpated spring Chinook salmon to historical habitats.

Recommendation: Response requested

Funding for this project is not yet warranted until a better justification is provided and the scientific foundations it is based on are more completely explained. As written here, the project is a mixture of augmentation (for harvest) and supplementation (for rebuilding natural production). While the augmentation portion has a more obvious and probable outcome, the supplementation portion remains largely unsupported and less likely to succeed.

Much of the critique and comments provided by ISRP during the Three-Step Master Review of the Master Plan remain in place and largely unaddressed -- see ISRP 2005-2, www.nwcouncil.org/library/isrp/isrp2005-2.htm. ISRP highly recommends linking the project proposal to the review comments in the Three-Step Review in order to further evaluate a funding recommendation.

In fact, the budget requested in the out years assumes passing of the review and is substantial for facility construction. As such it is rather premature because supplementation remains an unproven strategy for rebuilding naturally producing populations.

While Sponsors have begun to address longer term M&E needs by identifying that an M&E plan is needed and will be developed, we anticipated this component to be completed, but it is not yet there. Moreover, reviewers remain somewhat uncertain as to how the brood collection in the future will occur so as not to impinge on natural production as well as how future artificial production and presumed improved natural production will occur together.

Technical and scientific background: The Chief Joseph Hatchery Program described in this ongoing proposal has received a considerable amount of scrutiny from ISRP through the first step of the Master Plan Three-Step Review process. The motivation for this project is to address undelivered mitigation promises from the construction and operation of the Chief Joseph and Grand Coulee Dams. The project addresses basinwide issues with the summer/fall Upper Columbia Chinook ESU. Also, the project addresses the degradation of the historical ceremonial and subsistence fisheries to the Confederated Tribes of the Colville Reservation (CCT) by those (and downstream) dams. Lastly, the project may provide a means to assist with the Upper Columbia Spring Chinook ESU, which is severely depressed or perhaps extinct.

The proposal specifically seeks funding and authority to move to the next steps in the Three-Step Review process, construction, and implementation.

Ultimately, we find a proposal (\$30M) to build a hatchery to "rebuild" a fish population practically eliminated by hydro facilities downstream. The ISRP Step 1 comments on scientific merit remain to be addressed before we can competently review this proposal. Ultimately, we recommend that pilot studies precede the massive construction project, which will consume a significant portion of the Fish and Wildlife Program budget without a significant level of population and natural production response. Lastly, do the predictive models indicate that successful supplementation would have a favorable response to the local natural populations or merely provide augmentation for harvest?

Rationale and significance to subbasin plans and regional programs: The proposal is consistent with the Fish and Wildlife Program and is related to specific objectives of the Okanogan Subbasin Plan at a very general level.

The Okanogan Subbasin Plan has a goal for a "Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife." Moreover, "Recovery of the fish and wildlife affected by the development and operation of the hydrosystem that are listed under the Endangered Species Act" depends on maintaining natural productivity. This will only be possible if the sponsors and local authorities first establish why spring Chinook are not there now - possibly because they can no longer sustain themselves at current smolt-to-adult survival conditions due to ocean conditions, the stress of navigating nine dams, and harvest rates.

Relationships to other projects: The proposal is superficially linked through a more thorough and detailed discussion in the Master Plan and Okanogan Subbasin Plan. Ultimately, it is not sufficiently linked to ongoing habitat work, M&E, and outreach.

Project history: The project's history is documented. While there remain some uncertainties (especially in regard to downstream influences), the project sponsors have been actively working to confront these uncertainties. One area that would benefit from a clear presentation of results is the potential conflicts from producing summer/fall Chinook as a supplementation exercise aimed at increasing natural production and the surplus artificial production for ceremonial and subsistence harvest. Do hatchery fish provide reasonable returns and wild progeny?

EDT has shown that density-dependent limitations are not likely to cause an immediate conflict, but as the proportions and numbers of naturally produced salmon rises, carrying capacity limitations may become an important hazard (ecological and genetic) to natural salmon from continued artificial production.

Objectives, work elements, and monitoring and evaluation: The non-biological objectives (Master Planning, construction, and operation) are relatively clear. Several biological objectives are developed such as the self-sustaining nature of the salmon population and fishery (including

the goal for enhanced ceremonial, subsistence, and recreational fisheries). However, these objectives and methods remain experimental.

The work elements are fairly detailed, especially in regard to the master planning and construction aspects. Some elements such as developing a suitable M&E plan are less well described.

Monitoring and evaluation will be conducted under an M&E Plan to be developed. While this is not yet fully developed, there are activities (including some research on collection methods, etc.) ongoing that will be amenable to M&E. Regardless, this missing component will be a necessary and critical component for ISRP to review from a scientific perspective.

Facilities, equipment, and personnel: A main hatchery facility and several satellite acclimation sites are proposed. These are appropriate only if demonstrated (with smaller scale pilot studies) that the approach will achieve success.

Information transfer is not well addressed.

Benefits to focal and non-focal species: The project will focus on UC Summer/Fall Chinook ESU for supplementation and Spring Chinook for reintroduction. The project will address straying impacts through marking consistent with elsewhere in the basin. No other non-focal species impacts were considered or addressed specifically.

The ISRP believes addressing these concerns is necessary to ensure a successful project outcome.

200721200 - Develop a locally-adapted summer steelhead program to supplement natural production throughout the Okanogan River basin

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$300,736 FY08: \$227,561 FY09: \$1,132,242

Short description: Evaluate Cassimer Bar Hatchery, using the NPCC's 3 step process, to meet the estimated production level of 200,000 steelhead smolts to supplement natural reproduction within the Okanogan River basin. Assess current sub-population and habitat in tribs.

Recommendation: Fundable in part

The ISRP recommends funding this project at a base level in order to proceed with the Three-Step process and development of the Step 1 documents and analysis. Because this is a new production initiative, it is appropriate for the Three-Step review process. The Three-Step process will provide an opportunity for the review team to examine the proposed project in considerably greater detail than is possible in the FY 2007 review process. The in-depth review provided by the Three-Step process is appropriate and should lead to recommendations on how and whether to proceed into implementation.

199609401 - Scotch Creek Wildlife Area

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$407,693 FY08: \$385,890 FY09: \$426,739

Short description: Protect, increase, and maintain a viable sharp-tailed grouse population and increase mule deer use of the project site. Enhance shrub-steppe and forested habitats for sharp-tailed grouse, mule deer and other obligate species.

Recommendation: Fundable

This project began in 1991 with major land purchases (now 16,500 acres). Much habitat work has been completed including collecting native plant seeds and commercially growing them to develop a large quantity of locally adapted seed stock for reseeded.

This project has meaningful goals with appropriate monitoring data collected to evaluate the sharp-tailed grouse population change over time. With much management activity on a relatively large study area, the ISRP was pleased to see grouse population increases in recent years. Additionally, the ISRP was impressed with the inclusion of the grouse data in the proposal.

200723200 - Okanogan-Similkameen Habitat Protection Project - Fish and wildlife habitat protection through fee simple and conservation easement purchases

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$625,000 FY08: \$877,500 FY09: \$877,500

Short description: Acquire high quality shrub-steppe, dry forest, and riparian habitats, and help secure a critical international wildlife corridor in the Okanogan-Similkameen Watershed. Support Okanogan Subbasin Plan, WDFW mission and other regional planning efforts.

Recommendation: Response requested

This project calls for the purchase of up to 2000 acres to become part of the Scotch Creek Wildlife Area to improve situation for sharp-tailed grouse and other key species. The ISRP would like a response on a few items. Specifically, the ISRP would like a response on how this proposal integrates with Scotch Creek (199609401) and/or the shrub-steppe habitat (200708400) acquisition proposal?

The ISRP would also like a response explaining the proximity of the habitat acquisition proposed in the Okanogan-Similkameen (this proposal) with the Scotch Creek WMA. The ISRP requests a map, showing these WMAs. This additional information could make a stronger case for purchase of 2000 acres. What specific characteristics would be used to identify the acres proposed for purchase (connectivity, plant communities, history of use, etc.)?

200722400 - Implementation of the Okanogan Subbasin Plan. Initiate a Programmatic and Sequenced set of Key Habitat Restoration and Protection Actions

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$296,705 FY08: \$700,505 FY09: \$804,490

Short description: The integration of science into management, decision-making and recommended actions is an essential task for resource managers. This phased and programmatic plan is the centerpiece for mitigation, recovery and conservation in the Okanogan R & the Province.

Recommendation: Fundable

This is a proposal to fund the Colville Confederated Tribes to implement restoration and protection actions in the Okanogan Subbasin Plan. The implementation of this plan is a high priority. This proposal may require clarifications and adjustments by the sponsor in consultation with the Council and BPA. The broad scope of the proposal made it difficult for the ISRP to assess the potential impact of particular Assessment Unit (AU) Actions, or their combined effect. The proponents might have made some effort to rank the likely relative magnitudes of effects on fish and wildlife of particular AU actions. That would help determine which of the proposed AU Actions might be most worth saving in the event that budgets are reduced. The proposal narrative would have been improved by inclusion of Tasks (work elements) and methods provided on the administrative forms.

A short summary of monitoring and evaluation (M&E), which are to be covered by Colville project 200302200, should be included in the final proposal narrative or statement of work. Resumes are provided for only two of the proposed key personnel. No FTEs are provided. The majority of the work will be performed by contractors under the supervision of the project proponents. The administrative form provides details on an excellent plan for information transfer, but this is mentioned only in a very general way in the proposal narrative. The proposal narrative would have been improved by a discussion of potential adverse effects and precautions regarding non-focal species.

200728200 - Okanogan River Restoration Initiative: Phases IV & V

Sponsor: Okanogan Nation Alliance

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$1,083,262 FY08: \$1,066,234 FY09: \$93,184

Short description: The objective of the project is to re-naturalize 0.7 miles of channel by moving back dykes, restoring river meanders, creating pool/riffle sequences, reconnecting the river to its former floodplain and replanting riparian vegetation.

Recommendation: Fundable

This proposal merits high priority. The feasibility of the project and its alternatives have been carefully examined for a period of years, during which the process was conducted in phases

appropriate to the circumstances. The proposal obviously has wide support from affected agencies and entities on both sides of the international border. The proposal is very complete, thorough, well prepared, and well documented. The ISRP appreciated the photos and figures of the project site. This project is likely to have significant benefits (increase in spawning habitat) to focal species that will persist over the long-term. Wildlife species are quite likely to benefit from restoration of sinuosity in the stream channel.

Although the project would take place in Canadian waters, the anadromous fish affected pass through U.S. waters both as juveniles and adults. Adults are subject to in-river fisheries by tribal members and others. Counts of adults at Bonneville Dam will clearly accrue to the credit of the Council's Fish and Wildlife Program. Monitoring and evaluation involves eight years of pre-treatment sockeye "inventories" for treatment and control areas (upstream and downstream) and 2 years of pre-treatment inventories for Chinook and steelhead/rainbow. The proposed work includes similar monitoring "at least 10 years" after treatment. The proposal would have been improved by an explanation of the experimental design and methods of the inventories, as well as provisions for release and long-term storage of data and meta-data.

The proponents are qualified to administer the restoration work. Personnel and equipment for dike removal, etc., will be contracted. Cost sharing is proposed.

200600100 - McIntyre Dam Feasibility Study

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$1,565,050 FY08: \$428,385 FY09: \$72,360

Short description: Providing fish passage at McIntyre Dam will allow anadromous salmon access historic habitats and improve the conditions experienced by fish moving downstream through the dam. The irrigation flume will also be screened to prevent fish entrainment.

Recommendation: Fundable

Summary: This is an important project that should be funded. It was a pleasure to review this well-prepared, straightforward proposal. It should be given highest possible priority for funding as the project will likely have highly significant benefits to fish and wildlife that will persist. The M and E plan should be strengthened by better describing the study design to be used for the proposed assessment of the effectiveness of passage improvements. Generally monitoring in the basin should be covered by the Colville's project 200302200.

Technical and scientific background: This is a concise, well-written technical and scientific background. More background information on the fish and wildlife that might benefit from salmon passage in this area would be useful.

Rationale and significance to subbasin plans and regional programs: This project is a high priority in the Okanogan Subbasin Plan - described "as the largest natural increase to salmon and steelhead production for a low-cost improvement within the entire Okanogan River sub-basin."

Relationships to other projects: There are a number of ongoing related projects funded by BPA, Douglas County PUD, Grant County PUD, and others.

Project history: The project began in 2005. This section could have been expanded with more details.

Objectives: Objectives are clearly stated (facilitate upstream and downstream fish migration, screening of irrigation canal)

Tasks (work elements) and methods: These are brief, and could have included more detail. We particularly appreciated the discussion of the question whether provision for adult passage will be necessary. The decision depends upon observations of their behavior at the new overflow spill gates to be installed.

Monitoring and evaluation: There is a provision for pre-project monitoring, and there will be post-project monitoring - but detailed methods are not provided. We are concerned there might not be a scientifically sound study design sufficient to measure "before and after" effects.

Facilities, Equipment, and Personnel: An impressive number of agencies and entities are involved in this project, each of which has its particular expertise and equipment. The project might benefit from advice from a senior-level biostatistician to oversee the M&E experimental design/statistical analysis procedures.

Information Transfer: The plans seem appropriate for this type of project. The matter of long-term storage of data is not discussed and should be. Data obtained in the monitoring effort could be useful in the future for other purposes.

200302200 - Okanogan Basin Monitoring and Evaluation Project (OBMEP)

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$870,710 FY08: \$897,898 FY09: \$924,641

Short description: Monitor and evaluate important biological, water quality, and physical habitat indicators for anadromous fish throughout the Okanogan River subbasin to establish a long-term status and trend data set and determine responses from habitat restoration effort.

Recommendation: Fundable

This continues to be a fine example of a monitoring project, which the ISRP supports wholeheartedly.

There is a good description of the ongoing program, experimental design protocols, etc. The project was begun in 2004 with EMAP site selection, development of protocols, etc. There is a nice report of what was done, faulted only by not giving a summary of results. The proposal clearly places the work in the regional monitoring framework. This program is an important part

of implementing the subbasin plan. There are excellent details on other related projects in the area. This project is providing M&E for a number of related BPA projects.

The M&E objectives are clearly explained and methods are clearly outlined and stated, with references to the standard protocols. One technical caution: The proposal claims, "The health of a stream can be determined from the species of macroinvertebrates present." It goes on to say that "Benthic macroinvertebrate samples will be collected annually from each of the EMAP sites." Consideration needs to be given to the time of year when those samples might be taken. Life cycles of many aquatic invertebrates remove them from the stream environment seasonally, and/or render them difficult to sample at other times. There is no discussion of this point and its effects on the sampling protocol.

Only a brief narrative is given on facilities. Personnel are excellent. There are specific information transfer work elements (coordination, outreach). The proposal emphasizes this aspect as a major part of its effort.

This project is a critical link to evaluate the management efforts in the Okanogan basin. Benefits are expected to accrue in time as information gathered accumulates and is interpreted and acted upon. The thorough monitoring system will undoubtedly benefit the focal species in the long run, depending on actions taken to correct any problems.

199604200 - Restore and Enhance Anadromous Fish Populations and Habitat in Salmon Creek

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$371,425 FY08: \$474,922 FY09: \$1,961,653

Short description: This project is directed at reconnecting a productive tributary of the Okanogan River, Salmon Creek. This project involves a 12-year water lease with the Okanogan Irrigation District and construction of a low flow channel within the lower reach.

Recommendation: Fundable (Qualified)

Reconnecting Salmon Creek to the Okanogan River is a worthwhile project that will benefit fish and wildlife. This is an excellent, well thought-out proposal. The proposal provides good information on habitat surveys and is well associated with the subbasin plan. Successful implementation will provide an estimated 11 miles of spawning habitat. This is likely to provide long-term benefits that will persist.

The ISRP was somewhat critical of this restoration plan early on, because of the lack of water in the confluence area coupled with the obvious need to restore access for anadromous fish through the grossly damaged lower reaches of the river, which were clearly impassable to fish. This proposal, which springs from efforts undertaken since our first reviews, has considered those problems and addressed them in a logical and comprehensive manner.

The previous ISRP review raised concerns about the potential benefit compared with the extensive restoration effort needed (and associated extremely high costs), which made this a not fundable proposal. (Insufficient benefit to fish.) In our previous review, the project sponsors estimated that about a potential of 280 steelhead and chinook could benefit from this project. This present proposal describes a reduced effort and addresses some of the concerns with availability of water in the stream and treatment of the alluvial deposit blocking passage at the mouth. This project might warrant a Three-Step review.

We rate this Fundable (Qualified) because of the non-technical question whether the funding of one staff member would be sufficient to supervise this rather complex construction contract. The proposal states that no facilities and equipment are needed. Apparently, this arises from the fact that the construction work will be arranged by contract with experienced contractors.

A more detailed description of the study design for the sponsors 10-year plan to monitor adult returns would improve the proposal. It is possible that M&E activities (e.g., weir construction) might affect non-focal species. The proposal would have been improved by discussion of potential problems.

The proposal would also be improved by a better description of information transfer. The administrative form lists "electronic" transfer, but there is no discussion in the narrative. We found no discussion of long-term storage of data.

200714500 - Okanogan Livestock and Water

Sponsor: Okanogan Soil & Water Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$63,820 FY08: \$54,520 FY09: \$34,520

Short description: Provide a cost share program to assist producers in developing offsite water for livestock and provide assistance fencing riparian areas. Allowing producers to respond to and prevent complaints.

Recommendation: Fundable (Qualified)

The ISRP finds this proposal sufficiently justified to not require a response, although clarifications and adjustments might be required in the final selection process. The problem is adequately defined, although the proposal would have been improved by some review of the literature on the results of similar projects. While this is listed as a new proposal, the proponents have had experience with similar projects in the past. There are related projects funded by other agencies.

Objectives are rather general, with a process described to select specific objectives after prioritization. Methods are described only briefly, and additional information might need to be provided on how sites will be ranked for selection. Mention of the installation of artificial logjams (narrative, p. 2 and p. 4) raised some concerns in the absence of full description.

The proposal would have been improved by inclusion of a plan to monitor and evaluate their results. Section 7 of the Administrative Summary indicates "No Metrics" for several work elements. While this may be accurate in terms of Biological Objectives, setting likely targets in terms of miles of fence or quantities of water in the new sources to be developed should be possible. These will have some indirect biological effects on fish and wildlife.

The proposal refers to documents that justify the measures to be undertaken, but the citations make no mention of the expected benefits to fish and wildlife. These benefits are implied if not specified in the documents cited. It would be worthwhile for the proponents to make that connection explicitly. The Administrative Summary lists "river lamprey" as a secondary species likely to be affected. We believe the proponents meant to say Pacific lamprey. Although river lamprey may also be present, the species of most interest to tribal members is probably the Pacific lamprey, since it is (normally) the more abundant of the two.

The Administrative Summary mentions that data will be stored electronically. Further explanation in the narrative would have been useful. There should be some regional accounting of miles of fence, cfs of water added, etc. in the Fish and Wildlife Program.

200000100 - Anadromous Fish Habitat & Passage

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$186,330 FY08: \$187,502 FY09: \$190,440

Short description: The Tribe proposes continuing habitat rehabilitation efforts to decrease sediment loads and improve passage for anadromous steelhead and salmon. In addition, monitoring and evaluation efforts will assess effectiveness of ongoing activities.

Recommendation: Fundable (Qualified)

This is a well-prepared proposal for a project that has been successful. Although fundable, the ISRP raised some questions that the sponsors should consider.

The proposal provides good background on Omak Creek, including the project's history of habitat improvements. Sponsors could have given more info on the status of the stocks to be helped, however. It relates well to the subbasin plan, Council's Fish and Wildlife Program measures, BiOp, and the general rehabilitation of the threatened upper Columbia summer steelhead. The proposal describes relationships to other projects rather than just listing them. It would have been informative to see a more complete description of the relationships between this proposal and #199604200 "Restore and enhance fish populations and habitat in Salmon Creek" which is a similar project on a nearby stream.

There are good objectives. However, the ISRP questions whether the development of springs for livestock watering is possibly removing sources of clean, cold water for the creek. The sponsors may need to rethink and justify this approach. Elsewhere, other water sources have been developed to protect natural waters, such as solar powered pumps to fill watering troughs away from the creeks.

Monitoring and evaluation are described, including PIT-tag weir, photo monitoring, picket weir, infrared imaging, etc., but more detail on experimental design and methods would be useful. The administrative form describes an online database and technical reports for communicating results. The idea of providing a web site is good. Plans for long-term storage of data and meta-data are not included.

There are likely benefits to fish, but they may be slow to be realized. These are best described in the "Work Elements" Section of the Administrative portion of the proposal. The project will need adaptive management as they get the biological returns. Benefits are likely to persist over the long term.

Wenatchee

199604000 - Mid-Columbia Coho Restoration Project

Sponsor: Yakama Confederated Tribes

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$3,500,945 FY08: \$2,962,228 FY09: \$2,884,222

Short description: The long term vision of this restoration project is to restore coho salmon to the Wenatchee and Methow river basins at biologically sustainable levels that will support harvest in most years.

Recommendation: Fundable in part

This proposal is subject to concurrent Step Review with Step 1 to be completed by Aug 1, 2006. The ISRP recommends funding this project at a base level in order to proceed with the Three-Step process and development of the Step 1 documents and analysis.

The proposal presents a thorough discussion of the challenges to reintroducing coho salmon to the mid-Columbia and outlined their strategy to do so. This proposal is for a combination of fish culture operations and monitoring and evaluation investigations for ongoing initial efforts to reintroduce coho to the Wenatchee and Methow subbasins, and to move from step-1 to step-2 and 3 in the Three-Step Review to expand these operations from a feasibility evaluation to a full execution.

The proponents have reported here, and in annual reports the results of their ongoing efforts. The proponents should be encouraged to disseminate their findings more widely in the basin and in the fisheries field by publication and presentation at regional/national conferences.

The program vision on page 53: "To restore coho salmon runs to the Wenatchee and Methow river basins at biologically sustainable levels that will support harvest in most years" serves as a reasonable overarching objective. Proponents should be encouraged to change "biologically sustainable" to naturally self-sustaining. Biologically sustainable is an ambiguous term without a clear definition of success.

The sub-objectives are reasonable for the scope and scale of the project, and have numerical targets and timeframes.

The proposal is quite ambitious in its goal and timeline. The proponents presume the success of their efforts and do not seem to have factored in the inevitable problems that are going to arise. Proponents recognize on page 8: "We have found very little research documenting naturalization or local adaptation of a domesticated hatchery stock." This serves as the basis of a cautious approach to these programs that has appeared in ISRP (and other) recommendations for this type of action. The program should continue to be monitored carefully and implemented in a step-wise fashion.

The methods are adequately described. The proponents are planning on adopting a progressive reintroduction of coho to these subbasins - first transitioning from using lower Columbia River coho eggs to using returns of these fish to the Wenatchee and Methow for "in situ" egg production, then moving the egg take up stream to habitat closer to the anticipated natural spawning reaches, and then transitioning to natural spawning by returning hatchery adults and then finally natural spawning by naturally produced adults.

The general strategy is consistent with recommendations for integrated natural x hatchery programs. Proponents plan on moving toward a PNI (proportion of natural influence) that will be dominated by the natural system. This brief review as part of the 2007 solicitation precludes reconfirming many of the calculations in their proposal. Inspection of their numbers raises some questions that can be answered during step-2 and step-3 reviews.

The monitoring and evaluation proposed should be sufficient. One important point is the proponents plan on measuring adult-to-adult production for natural and hatchery populations which is a good idea. But they say their calculation will include jacks. The important adult-to-adult production is based on females. They should plan on being able to partition their production into sex and age classes to confirm that the number of eggs being laid in one generation are being replaced in the next.

Regarding facilities, an important but inadequately addressed question is the necessity of adding more acclimation ponds to the subbasins.

200303900 - Monitor Reproduction In Wenatchee/Tucannon/Kalispel

Sponsor: WDFW and NOAA

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$572,670 FY08: \$582,399 FY09: \$592,537

Short description: The project sponsors propose to continue our quantitative evaluation of the relative reproductive success and survival of naturally spawning hatchery and natural origin spring Chinook salmon in the Wenatchee River watershed above Tumwater Dam.

Recommendation: Fundable

This is a well-written proposal that was a pleasure to review. This kind of project is high priority and critical to conduct prior to larger scale implementation of supplementation projects. This project continues quantitative evaluation of the relative reproductive success of naturally spawning hatchery- and natural- origin spring Chinook salmon in the Wenatchee River watershed.

The statement on the need for this project, "All major reviews of hatchery programs have hatchery risks, including the relative reproductive success of hatchery fish, as a critical uncertainty for salmon recovery" says it all. The need for this work was also identified clearly in the subbasin plan.

The project objectives fit, except objective 2 on causes for differences, which could be considered more of an academic question, but still of great interest. Methods are appropriate and described in considerable detail. The proposal shows evidence of collaboration with related experiments in the basin and with other researchers.

The proposal includes a good summary of progress to date (2 years) and interesting unveiling of problems in sampling (hatchery progeny assignment) and proposed solutions (modeling and sampling) and study refinements (adaptive management of the experiment and the management actions already evident).

200709100 - The evaluation of limiting factors on resident and anadromous salmonids in Lake Wenatchee, Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$489,210 FY08: \$433,814 FY09: \$447,380

Short description: This project will evaluate predation, water quality and the available prey base on bull trout, spring chinook salmon and sockeye salmon survival in Lake Wenatchee. Bioenergetics modeling will quantify consumption rates of piscivores to determine impacts.

Recommendation: Response requested

In Lake Wenatchee, the sponsors propose estimating zooplankton biomass and production to establish the potential forage base and carrying capacity for juvenile sockeye, Chinook salmon (*Oncorhynchus tshawytscha*), and bull trout (*Salvelinus confluentus*); quantifying predation on resident and anadromous salmonids through diet analysis and bioenergetics modeling; and estimating predator abundance using mark-recapture and mobile hydroacoustic techniques. The purpose is to inform a lake management plan intended to maximize the number of smolts leaving the lake or available for recreational angling.

This is an ambitious lake ecosystem study whose management value is not established by the technical background. Does this study replicate other investigations of trophic and food web structure of other Pacific Northwest lakes that could be used to make management recommendations for Lake Wenatchee? Are all of the components necessary to decide which management actions to pursue?

The proposal falls short of providing sufficient information to conclude that the study, and information, is necessary. First, the background and technical section asserts that recreational angling for kokanee has decreased in recent years, and they attribute this to potential bull trout predation. But no quantitative support for this assertion is provided. Consequently there is a lack of evidence that a problem actually exists – either for the kokanee recreational fishery or for production of juvenile spring Chinook or bull trout. Second, the sponsors do not adequately justify the potential causes of decreased salmonid production – either lack of nutrients in the lake or predation by bull trout or pike minnow. Thirdly, the description of the management actions that would be employed to remedy the problem is overly vague – presumably either a lake fertilization program or a predator removal program.

In a response the proposal needs to provide evidence that kokanee, juvenile salmon, and bull trout production in Lake Wenatchee are well below the expected production. There should be a review of literature available on 1) the Lake Wenatchee ecosystem, 2) other oligotrophic lakes in the Pacific Northwest, and 3) how lake fertilization and predator control programs have affected the abundance and productivity of target species. A lot is already known that has application here. For example, Mullan's (1986) review of sockeye includes an evaluation and recommendation on fertilization. Finally, the response should identify the minimal information that would be needed to decide whether these management interventions were necessary and appropriate. The work elements and tasks would then be to collect this essential information.

Additional Comments:

When proposing to fertilize a body of water the size of Lake Wenatchee they need to consider the water quality objectives established on the lower river. There may be TMDL limits for water quality parameters in the lower river and fertilizing the lake may create problems remaining in compliance. Assurances from water quality agencies that a lake fertilization program will not compromise water quality objectives further downstream should be given; otherwise, the nutrient limitation investigations will not lead to management actions.

It was unclear what exactly the role of the cooperators (Drs. Beauchamp, Bennett, and Black) would be. There doesn't seem to be any budget requests related to their involvement, but the brief summary on page 21 of the narrative suggests that they will have major responsibilities in this project. They are all highly qualified, but their level of effort here was not specified.

200704200 - UPA Wenatchee Passage Program

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$60,131 FY08: \$501,187 FY09: \$25,931

Short description: To replace 9 barrier culverts in Alder Creek, Clear Creek and Beaver Creek with fish-friendly structures to provide 4.0 miles of spawning and rearing habitat for ESA listed Upper Columbia steelhead.

Recommendation: Fundable in part

This is a proposal to replace nine culverts on three tributaries in the Wenatchee River subbasin with pre-fabricated modular bridges. The problem of impassable or partially passable road crossings has long been known to be a problem, and there are a number of programs to correct them. According to the proposal, the three streams in question - Alder Creek, Clear Creek, and Beaver Creek - have been identified as high priority sites for barrier removal. However, documentation of species currently using these tributaries of the Middle Wenatchee and Chiwawa was not very complete, and the salmonid carrying capacity of the four miles (in total) of small streams that would be opened was not given. Other than to state that the culvert replacement projects would primarily benefit summer steelhead there was little quantitative discussion of how this work would benefit other listed species or resident fishes. Based on the information in the proposal and the photographs provided, the Alder Creek crossings appeared to be the priority candidates for replacement.

We therefore recommend that this project be funded in part with Alder Creek receiving top priority, with the understanding that additional funding may be warranted if stronger evidence for benefits to anadromous species can be presented for the Beaver Creek and Clear Creek sites.

200708500 - UPA Nason Creek Oxbow Reconnection Project

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$1,212,692 FY08: \$10,000 FY09: \$0

Short description: Project proposes to install two bottomless arch culverts in SR 207 to successfully reconnect 0.64 miles of historic oxbow habitat to the mainchannel Nason Creek. This project will increase Spring Chinook salmonid abundance by 25-50% in the Nason A.U.

Recommendation: Fundable (Qualified)

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

This project would reconnect a 0.6 mile-long oxbow that was created when state route 507 bisected Nason Creek. The proposal does a good job of describing the history of habitat alteration in Nason Creek, especially along its lower reaches. Using two long arch culverts, one at the inlet and one at the outlet of the oxbow, the site would become a large, slow flowing side-channel of the mainstream that would be connected at nearly all flows. Details of the reconnection project and the hydrological surveys were exceptionally well described. EDT analysis indicated that reconnecting this oxbow would increase Chinook productivity in the entire watershed by 25-50%.

The technical background section described two alternatives for restoring this site, neither of which was preferred. Including this information was peripheral to the overall proposal and was not particularly helpful. Additionally, the background section did not provide any estimates of the number of Chinook or steelhead currently spawning in Nason Creek, or an estimate of the

additional number of adults that might result from this restoration project, which could have been done using EDT.

The proposal includes only plans for implementation modeling, but not effectiveness monitoring. This is unfortunate, because the restoration design is such that estimates of fish coming in and fish going out of either end of the oxbow could be obtained with appropriate traps, and PIT-tagging can be used to estimate downstream survival. This site would provide an excellent place to test the EDT model prediction of a 25-50% increase in Chinook smolt yield.

Overall, the ISRP was impressed with this proposal.

200708600 - UPA Wenatchee Subbasin Riparian Enhancement Proposal

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$99,898 FY08: \$96,648 FY09: \$96,646

Short description: The Wenatchee Riparian proposal will involve planting native vegetation and fencing to establish a properly functioning riparian buffer in the Wenatchee Assessment Units. This project will benefit Upper Columbia steelhead, spring Chinook and bull trout.

Recommendation: Fundable in part

This project will construct up to 1,000 feet of livestock exclusion fence and plant up to 2.14 acres of native riparian vegetation in the Wenatchee subbasin. Two sites have been selected: a farm on the lower reaches of Icicle Creek, and the Wenatchee River at the Leavenworth golf course. Other potential sites are identified, but landowner agreements have not yet been finalized.

The technical background describes the need to restore damaged streambanks and riparian zones in the subbasin. It is not clear whether the sites selected represent high priority areas based on an analysis of riparian condition, or were selected because the landowner was willing to cooperate with a restoration project. A general list of species that might occur at the sites is given, but no site-specific fish data were presented nor were there any statements of what life history stages would benefit from riparian fencing and planting at the areas in question, or how long it might take to realize the benefits of the riparian plantings.

The fencing objective is well grounded in concept and is not very expensive. The riparian restoration part of the proposal was not adequately justified at the sites in question; specific benefits to fish populations in those areas were not described. The option of passive restoration – allowing riparian vegetation to re-grow naturally – was not considered as a lower cost option. Actively managing the riparian plant communities through planting, watering, and weeding is expensive and time-consuming, and this activity commands a major part of the budget proposal. It might be possible to achieve similar benefits without much of the expense by allowing for natural vegetation recovery. At the very least, it ought to be possible to actively manage part of the area and allow the other part to recover naturally - this would create an interesting management experiment.

The ISRP believes funding to complete the landowner agreements is warranted, and further funding can be justified for planning the projects once agreements are finalized. The sponsors note that additional projects will be pursued in the future using a proposal for each project.

200728300 - UPA Wenatchee Subbasin Access Proposal

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$1,875,348 FY08: \$1,875,348 FY09: \$0

Short description: Forty three (43) potential fish passage barrier structures are being proposed for funding to benefit Upper Columbia spring Chinook, steelhead and bull trout. Emphasis is on replacing the Mill Creek Culvert near the mouth of Peshastin Creek.

Recommendation: Not fundable

This proposal does not adequately justify the actions proposed in terms of specific benefits to fish and wildlife and description of methods and, thus, does not meet the ISRP review criteria. This proposal could have made a stronger case for replacing the culverts in question if it summarized what species would benefit from the passage improvements for each watershed, and estimated how many miles of stream would potentially be made available after road crossings were fixed. This work would replace 43 culverts in the Wenatchee subbasin. Only one of those culverts - Mill Creek in the Peshastin watershed - is described. The Mill Creek culvert is located near the mouth of the stream and is claimed to block steelhead spawning migrations and possibly other anadromous or adfluvial salmonids, although steelhead is the only species apart from westslope cutthroat that occurs in Mill Creek according to the distribution maps supplied with the proposal. No details about the other 42 culverts are given, however the map in attachment B shows they are located in clusters on Derby, Brender, Ruby, and East Fork Mission Creeks.

This proposal should have provided information about habitat conditions upstream from the fish barriers in these streams so that replacing the problem culverts would be better justified. The proposal should have also described what structures will replace the culverts and how fish passage at all life history stages will be assured. Will modular bridges be used, bottomless arch culverts, low-water crossings (crossings that are inundated at high flow), or other types of road crossing structures? The narrative says that the Upper Columbia River Regional Technical Team's prioritization scheme will influence the order of repairing the crossings, but details are not provided. If some streams have a higher priority for passage improvements than others, the rationale should be given. It is unlikely that Level 1 monitoring will reveal whether the fish passage improvements achieve their desired objective unless actual stream surveys are carried out post-replacement.

200732500 - UPA Wenatchee Subbasin Complexity Proposal

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$3,125,180 FY08: \$3,125,180 FY09: \$0

Short description: Five potential complexity projects are being proposed for funding to benefit Upper Columbia spring Chinook, steelhead and bull trout. Funds are also requested for unidentified potential complexity projects to assist in meeting UPA metric goals.

Recommendation: Fundable in part

Reconnecting potential floodplain habitats is definitely worthwhile, but this proposal does not provide enough information to enable a technical evaluation of the merits of each project individually. In some of the site descriptions there was insufficient information on how the berms/levees/roads would be breached or otherwise removed to reconnect the river with potential floodplain habitats, or what habitat conditions (e.g., acres of wetland ponds, riparian terraces, side channels, etc.) would be created after access is restored. Without this information, it was difficult to assess the potential benefits of each site scientifically.

Therefore, the ISRP recommends partial funding for this project until the plans for each site are more fully developed and landowner agreements are finalized. Given the high total cost of the reconnecting the five floodplain sites, each location should be treated as an individual project and justified more completely. It is highly likely that these floodplain reconnection projects could have real benefits to fish and wildlife in the Wenatchee subbasin, but each area deserves a more complete description, a landowner agreement, and a reasonable monitoring plan. We suggest that funding be provided for securing agreements and developing thorough engineering plans, with implementation contingent on preparation of more complete proposals for each site.

200719000 - Icicle Creek Ecological Recovery and Fish Population Monitoring

Sponsor: Washington Trout

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$213,500 FY08: \$170,786 FY09: \$170,786

Short description: (n/a)

Recommendation: Response requested

The ISRP believes this project has merit, but is requesting a response to several questions and concerns. ISRP comments on various sections/elements of the proposal are provided first, followed by a summary.

Technical and scientific background: In many respects the Icicle Creek restoration project is similar to other floodplain reconnection projects proposed for the Wenatchee subbasin, and this proposal outlines the most comprehensive post-reconnection monitoring program of any of them. The technical background section does a good job of describing the scientific rationale for the study and explaining its relationship to fish and wildlife recovery goals.

Rationale and significance to subbasin plans and regional programs: The proposal describes a clear relationship to the objectives of the Wenatchee subbasin plan, although it does not mention the Council's Fish & Wildlife Plan or the BiOp.

Relationships to other project: This proposal represents one of three related ones to study the Icicle Creek watershed as it is recolonized by anadromous salmonids. The proposal adequately describes its relationship to the other projects and shows how the information produced by them would fit together to monitor recolonization of this reach of Icicle Creek.

Objectives: Objectives are clearly stated and include a very wide range of topics, from the genetic analysis of salmon and trout, to growth and food habitats, tracing their rearing locations, aquatic insect communities, and riparian communities. Timelines are described and the objectives of each work element are tied to each other.

The proposal is to "monitor the timing and pattern of use of the channel for rearing, migration, and spawning by juvenile and adult salmonids, elements of the aquatic food web related to juvenile feeding ecology; physical and chemical characteristics of the stream channel; riparian and hyporheic zones; channel geomorphology; and changes to the riparian shrub/tree community as fish access is improved and more normative flow return to the channel." (Page 7)

Much of this statement of the objectives appears to be primarily of academic interest, whose potential benefits to fish are not specified and are difficult to assess. While the benefits to fish would be clear from accomplishment of the objectives spelled out in the first clause in the sentence, the same cannot be said for those later in the sentence. If the study documents use of the channel by juvenile and adult salmonids, why would it be necessary to analyze the food web and feeding ecology? Justification is weak or lacking for the isotopic analysis, which appears to be aimed at tracing micro-movements of the fish. What significance would this have in terms of what might lead to a benefit to the fish? Won't it be possible to deduce fish movements into and out of the restored channel by means of recovery of marked fish? The same question applies to the proposed study of geomorphology, and changes to the riparian shrub/tree community? Would any findings from those aspects be likely to lead to any adjustments in management measures? The proposal indicates that a change in the food web is expected as flow is restored, but if presence of fish is documented and their size is comparable to those outside, what would it matter whether their diet might be somewhat different from the main stream?

The justification for genetic studies of rainbow trout and/or bull trout is not clear. What significance would this have in terms of a benefit to the fish? On the other hand, there is an extremely important genetic question that applies to recolonization by spring chinook and/or coho salmon that is not addressed in the proposal. As background for this question it is necessary to keep in mind that the existing populations of these fish are themselves products of recolonization that has occurred since the early 1930s, when access to the upper Wenatchee River was restored by removal of the Lamb-Davis mill dam at Leavenworth, followed by provision of fish passage at Tumwater Dam, upstream of Leavenworth. The so-called "Grand Coulee Fish Maintenance Project" then followed in the late 1930s into the early 1940s, during

which adult salmon were trapped in the fish ladder at Rock Island Dam in the mainstem Columbia downstream of the confluence of the Wenatchee River and transported to the Wenatchee River and its tributaries. This is all documented in Fish and Hanavan, 1948.

Currently, those salmon - products of recolonization - are listed under ESA. Furthermore, the fishery agencies have concluded, on the basis of genetic analysis by Fred Utter done in the 1990s, that the White River Spring Chinook (tributary to Lake Wenatchee) represent a distinct population segment of the Upper Columbia River Spring Chinook ESU, and have proposed management measures accordingly. The basic question that could be addressed in this study is "How long does it take for recolonization to produce a stock of spring chinook that is distinguishable from others in the same drainage?" It might be found that as a result of colonization of the Icicle segment by only a few families of chinook, the stock would very soon be distinguishable from others due to limited representation of the gene pool, but that as the population grew the differences might blend. Or it might be that they would become even more different due to effects of relative isolation and local adaptations or genetic drift. The results in any case would be of considerable importance in decisions about appropriate strategies to use for recovery of endangered salmon stocks in general.

Tasks (work elements) and methods: See comments on Objectives. The methods described for direct measurement of abundance of fish populations are appropriate, although the study design for use and analysis of PIT tags is not clear. Where and how would recoveries be made? Others appear to be primarily of academic interest with little or no possibility of direct benefit to fish. Some proposed methods are quite new and innovative (untested). Some are so new (e.g., scale and otolith microchemistry) that they must be tested on a non-native species - brook trout - to ensure they work as anticipated. There did not appear to be any major weaknesses in the sampling protocols overall. Scientists from several universities will be involved in this study, although who would complete each work element wasn't always clear. Special approval will be needed for PIT-tagging ESA-listed species such as bull trout.

Monitoring and evaluation: This proposal is a monitoring proposal by nature, and the results ought to be generally applicable to other floodplain restoration projects in the region.

Personnel are well qualified for this work. The proponents appear to have made a strong effort to include university personnel.

Information transfer: Unfortunately, the subject of information transfer was not covered. Presumably much of this work will be publishable and with the university involvement that will surely be one of the goals; however, the provisions for data management were not discussed.

Benefit to focal and non-focal species: Information on focal species will likely be very helpful to understanding their recovery and recolonization in watersheds from which they had historically been extirpated. Non-focal species will also be likely to benefit from this project.

Summary: The part of the proposal dealing with direct observations of juvenile and adult use of the restored channel and description of the physical changes in the channel itself can be justified as monitoring of effects of a management measure. Objectives having to do with the food web, including isotopic analysis, are not likely to lead to benefits to fish and should be eliminated.

An objective should be developed dealing with genetic analysis of the spring chinook recolonization process.

This proposal and proposal 200734900 should be combined and funded at a reduced level to eliminate unnecessary and inappropriate objectives and methods we specified under those headings above. There should be monitoring and evaluation of the effects of this improved passage as they directly benefit fish numbers, but these proposals go beyond what is necessary or desirable.

A better literature review is needed to fill in some gaps on work that needs to be done. There are a lot of places in the technical background that could be further supported by additional literature and research.

200734900 - Monitoring resident salmonid populations and the aquatic food web in the upper Icicle Creek subbasin of the Wenatchee River basin

Sponsor: Washington Trout

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$213,404 FY08: \$203,444 FY09: \$203,444

Short description: Estimate abundance of resident rainbow, bull, and brook trout and measure benthic invertebrate community structure in conjunction with juvenile feeding ecology to characterize basin productivity and capacity.

Recommendation: Response requested

The ISRP believes this project has merit, but is requesting a response to several questions and concerns. ISRP comments on various sections/elements of the proposal are provided first, followed by a summary.

Technical and scientific background: The abstract of the proposal makes the claim that "the upper Icicle is in fact [a] far more productive system than commonly believed". This statement implies that the productivity of the upper watershed will be compared to some reference location or prior condition; however, that is not included as an objective of this proposal. The project will focus on the trophic ecology of rainbow trout, bull trout, and introduced brook trout. According to USFWS, westslope cutthroat trout also inhabit the upper Icicle watershed. Why was this species not included? We also wonder why there is no consideration of the possibility that chinook or coho salmon might appear in this portion of the Icicle River, having passed through the new channel downstream? Otherwise, the technical background section does a good job of describing the scientific rationale for the study and explaining its relationship to fish and wildlife recovery goals.

Rationale and significance to subbasin plans and regional programs: The proposal describes a clear relationship to the objectives of the Wenatchee subbasin plan, but it does not mention the Council's Fish & Wildlife Plan or the BiOp.

While the proposal addresses an identified problem in a broad sense (page 9), many of its objectives and methods are not likely to lead to production of information that will directly benefit fish. The proposal is not persuasive that the information will have practical application (i.e. benefit) in the management of fish and wildlife of concern in the Fish and Wildlife Program.

Relationships to other project: This project is one of three related proposals to study the Icicle Creek watershed as it is recolonized by anadromous salmonids. In fact, it is closely associated with proposal 20071900, submitted by the same proponents. The proposal adequately describes its relationship to the other projects and shows how the information produced by them fits together. It also refers to the M&E project of NOAA Fisheries (Chris Jordan) in the Wenatchee Basin, and discusses potential cooperative efforts.

Objectives: Objectives focus on trout food habits in the upper mainstem and four tributaries, trout movement and rearing location, stream temperature, and invertebrate abundance. The objectives for the most part, are clearly stated. Sampling locations were not shown on a map, which made it somewhat difficult to understand where samples would be taken. In some, but not all cases sample sizes were given. Seasonal timelines were provided, although it was not clear if everything would be measured for three years.

This proposal has some of the same problems as Proposal 200719000. In the proposal reviewed here, the first 4 Objectives listed on page 11 under the heading "F. Proposal biological objectives, work elements, and methods" can be justified as monitoring of the effects of a management measure (provision of passage for anadromous fishes), and can be expected to lead to measurable benefits to fish. On the other hand, Objectives 4 and 5, which propose population genetic analysis are not clearly linked in the proposal to possible benefits to fish. One objective, to measure water temperature, is likely to be of significance in monitoring the effects of this provision of passage. Effects on macroinvertebrates, proposed under objectives 11 and 12 are unlikely to lead to any benefit to fish. The questions addressed by these objectives are rather academic in their focus, and the text was not convincing that there was potential for any practical application of the information gained.

The upper Icicle Creek watershed is prone to wildfires (there was a significant burn in 2002, we believe), and fire occurrence might affect access to sampling sites and will surely affect results, if a wildfire occurs. The investigators should be aware of this possibility.

Tasks (work elements) and methods: The methods proposed for direct monitoring of abundance and distribution of juvenile and adult salmonids are adequately described and appropriately fit the objectives, but objectives and methods that go beyond a straightforward monitoring effort. For example, the fine-scale genetic analyses and the detailed attempt to describe macroinvertebrate populations, and others (See detail under Objectives review) are not

appropriate or necessary for the application here. Proposed methods are often very new and innovative. Some are so new (e.g., scale and otolith microchemistry) that they must be tested on a non-native species - brook trout - to ensure they work as anticipated. The other methods are sound and the sampling frequencies seem adequate, although sample sizes for PIT-tagging were not given, and methods for detection/recovery were not specified. There did not appear to be any major weaknesses in the sampling protocols overall. University scientists will be involved in this study, although who would complete each work element wasn't always clear. Special approval will be needed for PIT-tagging ESA-listed species such as bull trout.

Monitoring and evaluation: This proposal is a monitoring study by design.

Facilities, equipment and personnel seem quite adequate for the work.

Information transfer: Unfortunately, there was little discussion of information transfer or data management. The project cover sheet mentions website publication, progress reports, and peer-reviewed journal articles, but no details were given in the narrative. We saw no discussion of storage of meta-data.

Benefit to focal and non-focal species: This study would provide important information on trout residing in headwaters. The upper Icicle Creek watershed is in an unmanaged roadless area and receives few anthropogenic impacts (including fishing), so having population data from an area with so little human alteration can be a good benchmark.

The proposal does not present a convincing argument that many of the stated objectives and methods would result in a benefit to fish. We have identified the particular objectives and methods that can be expected to produce a benefit to fish in the sections above, and have been identified that are not likely to do so. These might be classified as basic research. Non-focal species are not mentioned but will not likely be harmed by this project.

Summary: This proposal and proposal 200719000 should be combined and the budget revised to eliminate unnecessary and inappropriate objectives and methods we specified under those headings above. There should be monitoring and evaluation of the effects of this improved passage as they directly benefit fish numbers, but these proposals go beyond what is necessary.

This proposal should be considered to be a monitoring effort that ought to measure the effects of opening passage to anadromous fishes of the reach of Icicle Creek above the channel that was dug when the hatchery was built. Proposal 200719000 deals with monitoring in the channel itself. While large effects on flow and other physical factors are to be expected in the channel, that is not the case in the upper river where the present proposal is focused. While effects of reintroduction of anadromous salmonids can be expected to affect abundance and distribution of resident fishes in the upper river, and this should be monitored and evaluated, justification is lacking for conducting genetic analysis and/or fine-scale movements of these fish, or studies of benthic invertebrate abundance or benthic species composition, or pursuing other objectives of

that sort. It is difficult to imagine a benefit to fish arising from these, and the proposal does not develop such a justification.

This project should provide important baseline information on headwater trout populations, especially populations facing reintroductions of salmon and steelhead. Possible or eventual presence of salmon should be considered. This study is not complete without the cutthroat trout.

The objectives need to be redefined. Why is the genetic testing necessary for this study? How productive is this portion of icicle creek going to be due to habitat, barriers, etc.? Is this based on sound ecological and scientific principles? How will this restoration project be monitored and by whom, will it be scientific? What will the carrying capacity be, without superimposition of redds, etc.?

Are the analyses of the options and the circumstances of those options complete? Is this consistent with the Council's Artificial Production Review and the Fish and Wildlife Program principles? The decision to open up this portion of the creek has been made. How can the upper Icicle Creek subbasin be restored and productive for the fish?

200736200 - Assessing Fish Passage Through the Icicle Creek Boulder Field Above Leavenworth National Fish Hatchery

Sponsor: Washington Trout

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$26,068 FY08: \$17,378 FY09: \$0

Short description: This proposal seeks to assess fish passage through, and road-construction impacts on, the boulder field upstream from the LNFH in Icicle Creek. Study results will include an evaluation of the need for a project to improve fish passage in this reach.

Recommendation: Fundable (Qualified)

ISRP comments on various sections/elements of the proposal are provided first, followed by a summary. The ISRP is not requesting a response, but the proposal would be improved by addressing issues and concerns identified below.

Technical and Scientific Background: The proposal does a good job of providing the background necessary to understand the problem and question that is addressed in the proposal. If the barrier to upstream migration of anadromous salmonids at the Leavenworth National Fish Hatchery is removed in 2007, steelhead, coho, Chinook, and adfluvial bull trout will potentially be able to migrate to the upper watershed. Icicle Creek contains a long alluvial valley in its upper reaches that could provide productive spawning and rearing habitat, but salmon, steelhead, and bull trout first have to migrate through a narrowly confined canyon reach that is dominated by large cascades. The "boulder field" at the mouth of the canyon reach occurs at a channel constriction made even narrower by the presence of Icicle Creek road. This project will use snorkeling and other methods to estimate whether the boulder field constitutes a migration barrier that would partially obviate the need for fish passage at the hatchery (a short distance downstream) or if some sort of passage assistance is needed. The boulder field is a natural channel feature;

however, the gradient and frequency of cascades may have been increased by road construction. This proposal raises an interesting question: Is human-assisted passage around a natural barrier to fish migration justified if there is high potential for salmon and steelhead production upstream from the site? That would seem to be a policy issue.

Rationale and significance to subbasin plans and regional programs: The significance of the proposal to the Wenatchee subbasin plan is discussed. The plan calls for implementing fish passage assistance in Icicle Creek if the boulder field is deemed a passage problem.

Relationships to other project: This project is one of a trio of projects that have been submitted by Washington Trout to study Icicle Creek and its fish populations. The other two proposals are 200719000 and 200734900. This one addresses a question that has been raised as to whether a boulder field located upstream of the now to be restored natural channel is a barrier to passage of anadromous fishes. The other two are proposals to monitor fish use of the restored portion of the natural river channel (200719000), and to monitor fish use of the river upstream of that portion (200734900).

Reference is made to Chris Jordan's M&E project in the Wenatchee Basin, and other potential sources of cooperation are cited.

On page 10 of the proposal, it is stated that Dr. Peter Bisson is a technical advisor who will "assist in the execution of the proposed work". For the record, Dr. Bisson, a member of the ISRP who reviewed the proposal, was unaware of this project until he read it on April 10, 2006, and has no involvement in this work.

Objectives: The objectives are very clear and succinctly defined. There are three: (1) examine the historical record to determine the distribution of anadromous salmonids upstream from the hatchery site prior to the hatchery's construction, (2) attempt to observe salmon and steelhead ascending the boulder field after passage is provided past the hatchery weir, using snorkeling and underwater videography, and (3) determine the influence of the road on the boulder field, to see if fish passage assistance is warranted. The project will take place in 2007-2008 only. The objectives are generally related to the Wenatchee subbasin plan.

Tasks (work elements) and methods: Fish passage would be studied by snorkeling within the boulder field weekly from August-December and March-May. Spawning and redd surveys will be conducted immediately upstream from the site. Methods are not specified. A geomorphologist will study the boulder field to determine the influence of road construction.

Snorkeling efficiency will depend on water clarity and the level of turbulence. There will be periods during spawning migrations when snorkeling will be ineffective. Additionally, no safety plan was presented in the proposal, nor was there reference to one. This is of particular concern to reviewers experienced in this area. Snorkeling in a cascade-dominated, high-energy stream can be extremely dangerous, and there was no description of the flow thresholds or turbidity

levels that would halt the surveys. Perhaps general observation from the boulder field would be sufficient to see if fish are able to pass this particular portion of Icicle Creek.

Monitoring and evaluation: This is a monitoring project by nature.

Facilities, equipment and personnel seem reasonable for the task. Facilities required are not extensive. Personnel are experienced and plan to cooperate with others doing similar work in the Wenatchee River Basin. However, the proposal does not describe whether snorkeling crews will have first-aid training or how much experience they will have had.

Information transfer: According to the cover page, the project will be publicized on the Washington Trout website and in progress and final reports, as well as peer-reviewed publications. The latter seems a bit optimistic, considering the results will primarily be of local interest. Long-term storage of data is not discussed.

Benefit to focal and non-focal species: The project is likely to be helpful in understanding how anadromous salmonids ascend a steep, cascade-dominated stream reach, or whether passage is possible only under certain flow conditions. Findings of this study will resolve an uncertainty about ability of anadromous fish to pass a large boulder field. As a result it will either lead to a recommendation for improving passage by some means, or it will show that there is no need to do so. Non-focal species are not mentioned, but will not likely be harmed.

Summary: While the proposal meets the criteria established for ISRP review, we rated the proposal Fundable (Qualified) because we are concerned about the need for inclusion of a detailed safety plan to cover the use of snorkeling, if it is to be used in this hazardous environment, and advise contracting officers to require such a plan be included. The safety of this part of the proposal is questionable. A contingency plan that specifies boundaries of flow within which it would be safe to snorkel would be good.

This is an inexpensive project that likely will resolve a controversy that has arisen over the plans of the Leavenworth National Fish Hatchery to modify their weir on Icicle Creek that has prevented anadromous fish from ascending the river beyond. Some opponents have argued that a boulder field, proposed for study in this proposal, would still block the fish not much further upstream. That argument led to some delay in the plans for the changes in the weir, until it was pointed out that the boulder field was itself a human artifact created by road construction. This finding effectively dealt with the argument posed by some that it would be contrary to the natural situation to modify the boulder field.

This project has good potential for understanding the timing of fish migrations, especially when considered as part of the trio.

Intermountain

Coeur D'Alene

200702400 - Coeur d'Alene Trout Ponds

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$201,345 FY08: \$236,007 FY09: \$220,998

Short description: Tribal trout ponds provide alternative fishing opportunities for tribal harvest while reducing/eliminating adverse pressure on native stocks within targeted tributaries on the CDA Reservation in both the CD'A and Spokane subbasins.

Recommendation: Response requested

This project is proposed primarily for building and operating two ponds for put-and-take trout fishing. These are to expand subsistence harvest beyond that provided by similar, existing ponds. The ponds are stocked annually with trout bought from hatcheries. (The proposal's budget may include purchase of trout for the existing ponds, as well as for the new ones.) Opportunity for expanded subsistence harvest of trout is needed to partially mitigate for loss of anadromous fish and to make up for tightened restrictions on trout fishing in natural waters of the area. Responses are requested to four topics as given in the following four paragraphs.

The ISRP considers the general background and logic for the put-and-take fishing project reasonable, but a response is needed with sufficient detail to justify the new ponds. The response should show an assessment of the benefits associated with the existing ponds. The proposal's Table 2, showing for each past year and pond the pounds of trout stocked and the number of trout harvested does not furnish enough information. What is the fishing pressure (angler trips and hours), harvest estimate (fraction of the number stocked that are caught, number caught per hour fished), and economics (annual program cost per trout harvested and per pound of trout harvested)?

Apparently, the proposed new ponds will resemble the ponds previously built. Thus, it is probably known what the general type of pond structure will be, whether excavated pit, dammed, combination of dam or dike and dug pit, or whatever. It would help to have the anticipated structure types and construction methods described. The proposal's methods involve providing water to existing and new ponds. Have hydrologic analyses been done to assess feasibility of the envisaged wells?

A proposed Work Element (4c) is to conduct a "feasibility" study for a central holding/transfer facility (for out-year construction) "designed to hold up to 50,000 lbs." of rainbow trout. Justification for this was not presented in the proposal. The need for such a facility and its feasibility study cannot be supported without more information. A response is needed on this issue.

In addition, the proposal does not contain adequate description of monitoring and evaluation (M&E) for the project. It was proposed only to develop a plan for M&E. A satisfactory M&E plan should be set forth before project approval. Within it, the design and procedures of creel census and data analysis need to be spelled out. What will be the criteria for judging adequacy or success of the project? Also, the procedure (and evaluation use) for the “population estimate” function that is apparently being carried out under the present program should also be described, if it is to be included in M&E.

199004401 - Lake Creek Land Acquisition

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$1,208,514 FY08: \$1,215,826 FY09: \$1,367,427

Short description: This project is intended to protect, enhance, and maintain wetland and riparian habitat in the Lake Creek drainage to provide a minimum of 760 HUs to credit against construction and inundation losses attributed to the Albeni Falls Dam.

Recommendation: Fundable

The proposal has received high marks from ISRP in the past and is excellent work. This proposal is a good response to ISRP comments in the Province Reviews and offers considerable wildlife benefits. The project has been active for many years, but the acquisition of land has been an ongoing problem. In the past the Coeur D'Alene tribe tried unsuccessfully for only one land area. The proposal would be improved by a better description of the reason for the difficulty in purchasing land. Are there confounding issues with other real estate issues?

Now they have a new list of smaller properties delineated for purchase. The justification for purchasing these properties is well described and justified. However, it's not clear when the agreements will be completed or when 760 HUs will be credited to BPA. It seems like there is still much work to be done. The project is budgeted for \$1 million in acquisition each year (next 3 years) with about \$200+K for other expenses which seems reasonable.

199004400 - Coeur D'Alene Reservation Habitat Enhancement (Coeur d'Alene Subbasin)

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$1,439,899 FY08: \$1,483,127 FY09: \$1,524,634

Short description: Enhance critical habitat to mitigate limiting factors for westslope cutthroat in 4 target watersheds in the Coeur d'Alene subbasin. Complete monitoring of populations and physical habitat and promote coordination/participation among stakeholders.

Recommendation: Not fundable

This proposal and a related Three-Step Review submittal have undergone significant ISRP review over the past decade. Despite reviewer efforts to inform modification of the project, the

results do not indicate a benefit to fish and wildlife. Indeed, the project has not adopted appropriate methods to enable assessment of success. To quote the last review:

"A central concern of the ISRP (and the 1996 Amendment to the Power Act) is project accountability. The project has been ongoing for almost a decade (total expenditures of approx. \$4 million), but the results reported do not show significant changes or demonstrate significant benefits. Therefore, benefits to fish and wildlife are only marginally justified. Adequate fish abundance data need to be collected and analyzed in order to show positive or decreasing trends."

In the current proposal reviewers are provided exquisite detail on non-relevant metrics like the number of trout eggs per skein and water temperature by stream section, but nothing to show any benefit to cutthroat trout from this project.

The project has two management goals and several elaborate research aspects. The management goals are improvement of habitat in some small streams for westslope cutthroat trout and removal of non-native brook trout from one of the streams. The research includes evaluating the effects of the management actions and measuring various fish population parameters so as to investigate differences among cutthroat trout life history types. In recent monitoring of habitat projects, treatment sites had much poorer physical values than control sites. Whether these are pre- or post-treatment values is not identified. The limited trout population data that are shown are whole-stream averages and not separated for treatment and control sites.

The proposal briefly mentions that northern pike predation in the lake phase (and river phases) of cutthroat trout life histories is probably a major problem. If so, much of the management effort of this project is futile. The authors say "additional research will be needed to quantify predator production in the lake environment so that strategies for minimizing predation effects can be developed and tested as necessary." And they refer to the Avista Corporation item in the proposal's section on relationships to other projects, but that item contains no mention of predation.

Brook trout removal attempts in 2004 and 2005 (and as proposed to continue) were spatially discontinuous and temporally gradual (annual removal). Such piecemeal removal - rather than a major, near-complete removal of the brook trout in the shortest time possible - has proved ineffective in numerous cases throughout the Intermountain Province and elsewhere. Such activity should be terminated. Also, there is no discussion of a barrier to prevent reinvasion by brook trout. Brook trout have also become well established in Alder Creek. Reviewers see no effort to integrate results from similar projects elsewhere regarding the issue of cutthroat trout population stabilization and restoration.

200204500 - Coeur D'Alene Fish Habitat Acquisition

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$1,018,210 FY08: \$1,021,167 FY09: \$1,024,283

Short description: This project aims to protect westslope cutthroat trout habitats by acquiring land management rights through purchase of easements, long term leases and possibly fee title. Priority areas have been previously defined by a Prioritization Plan (2003).

Recommendation: Response requested

The proposal is to purchase easements so that management rights can be exercised to provide protection for habitats that provide or can potentially provide instream habitats for native westslope cutthroat trout. They would be acquired from one timber company and are in the Benawah Creek drainage. A response is needed better justifying the properties that the program proposes to protect. Please substantiate how these properties would fit in with their overall restoration and protection prioritizations.

What management actions would be implemented? How would these benefit fish and wildlife, especially cutthroat trout? Please provide specific quantitative information on distribution and density of cutthroat trout, and any other trout species present, within or nearest to the property. What is the size (stream order and/or approximate dimensions) of the stream(s) involved?

Are these easements for perpetuity or limited in time? See ISRP programmatic comments on easements.

Columbia Upper

199404300 - Lake Roosevelt Fisheries Evaluation Program (formerly Data Collection)

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$1,171,031 FY08: \$1,219,306 FY09: \$1,239,716

Short description: The primary task of the LRFEP is to monitor the performance of the Lake Roosevelt hatchery programs. Other tasks included assessing hydro-operations and other factors that may impact hatchery and native fish and reservoir productivity.

Recommendation: Response requested

The proposal is substantially improved from those of the past and now is beginning to more clearly identify the long-recognized serious problem that management of the aquatic resources of Lake Roosevelt poses. Technical information regarding the scope and nature of the problem is more adequately presented here, as it is in the new Guiding Document prepared for Lake Roosevelt. There should be a continuation of this more rigorous analysis of results and potentially a redesign of the program to assess whether fishery desires are realistic given the

community dynamics and physical constraints in the system. Much future improvement is needed in such critical analysis, with more targeted monitoring, and better-organized proposals.

Responses are requested regarding two issues: the role of walleye, and the role of rainbow trout. Reviewers are still concerned that the scientific credibility of the project seems to be compromised by the complex mix of variables and the hope that fishery benefits for kokanee and rainbow trout can be enhanced without altering the predator populations. For walleye, harvest regulations are being modified, but it not possible to tell from the proposal the extent of such a change. To what extent is the regulation change expected to increase walleye harvest, and to what extent (if any) will predation on wild kokanee and hatchery kokanee be affected? A major deficiency of the proposal is lack of adequate discussion of walleye population dynamics and management. Walleye account for half of the harvest - so where is the management plan for walleye and other major predators? Please elaborate on the desired/anticipated walleye status for the near future.

Regarding rainbow trout, the intent is to increase the level of netpen rearing by about 50%, shifting from 550,000 fish released annually to about 750,000. Benefits to anglers and fish managers clearly exist, but what are the risks? In Idaho's Lake Pend Oreille, rainbow trout are emerging as the greatest predator on kokanee. To what extent would kokanee in Lake Roosevelt be impacted by the proposed increase in rainbow trout production?

The gist of the kokanee situation is that the project is trying to counteract the extremely poor results from stocking hatchery kokanee mainly by trying "fixes" of the hatchery and stocking program--and some changes in harvest regulations. None have been adequate yet, and it is far from convincing that any of those proposed will be effective. A new approach is noted in the proposal that would more closely mimic the wild kokanee population, and that appears a more defensible position. Reviewers suggest that project personnel should more vigorously investigate whether it is reasonable to try to have a kokanee fishery in the lake, other than that provided by wild (naturally reproducing) fish. All evidence to date indicates that artificial production of kokanee for this lake is futile (and probably a great waste of money) and should be stopped until the walleye population is managed appropriately (which probably cannot be done) and until lake water levels can be better managed for kokanee spawning. Reviewers welcome, but do not require, feedback on hatchery kokanee.

Other comments (not needing responses): In its most recent review the ISRP stated "the Panel remains concerned that the project does not seem to focus on monitoring specific effects from other projects (other projects list this project as the M&E for their work), but rather just conduct a general fish population monitoring in the reservoir." That concern over lack of strong connections still applies.

The proposers emphasize suitability of the lake's zooplankton supply for sustaining kokanee, but of what consequence is this if too few kokanee survive walleye predation to make adequate use of the zooplankton?

The proposal would increase redband rainbow production and move toward an entirely triploid release of rainbow trout. These are reasonable and supportable efforts.

Great improvement is seen in information transfer. It is commendable to see material being published in major scientific journals.

Reliance in various places on relative abundance data is not convincing. Change in relative abundance of a fish population can occur either because that population changed in absolute abundance or because some other fish(es) did. So changes in relative abundances alone tell us little. The data should be shown in terms of absolute values, as well as the percentages. Apparently no absolute values exist and, if so, that should be stated.

Table 2 shows figures on economic value, but the basis for these is not shown (data and equations or literature sources).

On p 11, it is said that: "High water retention times tend to decrease entrainment of fish, allowing greater numbers to remain in the reservoir, which was observed in the creel (Table 2)." Table 2 does not show a relationship between water retention times and numbers of fish. There should be such a table or graph if the proposers are trying to make this point.

A clear description of the apparently strong collaboration among stakeholders is provided, with one notable exception: the work newly proposed by the Colville Federated Tribes in the Chief Joseph Kokanee Enhancement (199501100), to assess and enhance deepwater kokanee spawning, is not included and does not appear to be part of this coordinated effort.

Suggestions regarding proposal organization: The narrative should be reorganized according to the guidelines for proposals, and it should be condensed so as to be more to the point and less repetitive. The Technical and Scientific Background section contains much essential information but is much longer and more complicated than need be. Therefore, the main points tend to be obscured. The core technical and scientific background should be sorted out and kept in this section, whereas, most of the project history presented here should be moved (in condensed form and with summarizing tables and graphs) to the Project History Section of the proposal. This section also includes material on objectives and methods, which should be left to the section on objectives and methods.

True objectives (desired outcomes) are not stated. The appearance is given that the project is seen more as a matter of performing procedures rather than obtaining results. At many points where a statement of objective should exist (i.e., preceding a series of interrelated work elements), the proposers have inserted the sentence: "Support work element." Therefore, a sense of purpose and continuity is lacking in much of this section.

Some objectives show up in the text without being labeled (or really organized) as such. For example, near bottom of p 39, it says: "Data gathered will be used to determine:" and six items follow. Five of these are objectives (or at least the beginnings of objective statements). They

(and others?) should have been listed up front as project objectives. Work elements should follow from objectives, not the other way around.

199501100 - Chief Joseph Kokanee Enhancement

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$599,802 FY08: \$681,642 FY09: \$599,802

Short description: Ongoing project to assess status and interaction of wild origin kokanee in the blocked area. Enhance wild kokanee using fry plants, spawning channel, and instream egg plants. Conduct limited feasibility studies regarding egg take and spawning channels.

Recommendation: Not fundable

The overarching goal of this proposal is "to develop deep water spawning in Lake Roosevelt at or below the normal minimum drawdown level during the critical period from egg deposition to fry emergence." Because the proposed work is a significant departure from that in the past, it would seem more appropriate to view it as a new project. In any case, reviewers (while sharing an appreciation of the extent to which the environment has changed in the last six decades) concluded that the proposed work does not address the biological realities of the Lake Roosevelt system and has little potential to benefit kokanee. It seems implied in the proposal that Lake Roosevelt is considered an ecosystem that is functioning reasonably well - or would be if the kokanee population was restored to past abundance. However, in view of the present unnatural character of the water body (largely its water level fluctuations) and haphazard mix of species, particularly introduced piscivores, it is more realistic to speak of Lake Roosevelt as a dysfunctional water body in terms of its biota or even as a malfunctioning ecosystem.

The proposal briefly summarizes the problem, and it is more thoroughly discussed in proposal 199404300 (Lake Roosevelt Fisheries Evaluation) and the Guidance Document. The overall problem seems to be a desire to establish a kokanee fishery that is not compatible with the physical and biological realities of the ecosystem. Kokanee salmon abundance is less than desired and less than it once was, but there is no clear explanation for this observation. The assumption in this proposal is that spawning habitat is limiting kokanee abundance, but the authors have not supported that belief. Reviewers suggest that kokanee may be so constrained by predation and entrainment loss that even if inducing deepwater spawning were to be successful those recruits would not survive to maturity.

There is nothing in this proposal to suggest positive results might be forthcoming. No evidence is given that increasing recruitment by deepwater spawning (should it be induced) would negate the effects of predation, entrainment, etc. It is unclear how kokanee would be forced to use deepwater spawning habitat if it is located by project staff and abandon any shallow shoreline habitat that is presumably used at present. Furthermore, reviewers suggest that if deepwater spawning habitat exists, some fish are likely already using it.

198503800 - Colville Hatchery

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$1,015,504 FY08: \$1,056,124 FY09: \$1,098,369

Short description: This proposal will provide hatchery production of resident trout that support and enhance tribal subsistence fisheries and non-tribal recreational fisheries within the Colville Indian Reservation.

Recommendation: Fundable in part

Reviewers support fundable in part for the continued fish purchase, rearing, and stocking (Task 1) and redband and cutthroat trout stream surveys (Task 3). Not fundable are Tasks 2 (creel census and diet analysis, fish marking, and fish relative abundance surveys in lakes) and 4 (monitoring of lake environment and plankton populations).

The program is a stand-alone effort to provide hatchery fish to partially compensate for the loss of aquatic resources above Chief Joseph and Grand Coulee dams and to conduct associated M&E. Some work is also done on native trout in Reservation streams. In the previous review the ISRP was critical of the cost - then about \$8 per pound of fish stocked, with an unknown fraction of those fish actually being caught by anglers. Now, that cost now has increased in the current proposal to approximately \$20 per pound.

Reviewers note and encourage continued efforts to shift stocking from non-native trout species, as has historically been done, to native redband and triploid (sterile) rainbow trout. Project M&E (proposal tasks 2 and 4) in lakes constitutes a large amount of the proposal. However, M&E results to date have never been compiled. The proposal states that annual reports for 1998/99 are in progress at the time of this proposal submittal. No data synthesis of any monitoring was included in the proposal. Most of the monitoring is designed to assess the performance (growth, catch rate, etc.) of stocked fish and does not need to be repeated annually. There is no evidence that stocking levels have ever been modified as a result of any monitoring. Therefore (although the ISRP typically supports some basic harvest monitoring – see programmatic comments) it seems reasonable to recommend the suspension of M&E efforts until they can be shown to be useful.

199104600 - Spokane Tribal (Galbraith Springs) Hatchery

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$974,000 FY08: \$640,280 FY09: \$670,720

Short description: Operate and maintain the Spokane Tribal Hatchery to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake fisheries.

Recommendation: Fundable in part

This is a hatchery program that has been in existence since 1990. The efforts to produce a viable hatchery-based kokanee program have not been successful, so the ISRP recommends "not fundable" for projects or project elements directed to rearing and stocking, or habitat

enhancement, for kokanee salmon in communities including walleye, bass (smallmouth or largemouth), northern pike, or lake trout unless populations of these predators can be reduced to and maintained at levels so low that they cannot control the abundance of kokanee salmon. Existing evidence, including results of Fish and Wildlife Program projects, does not show that kokanee populations can be successful under heavy predation. The proposal is fundable in part for the continued redband and triploid rainbow production only.

The proposal is clearly written, but much of it applies to the overall program. It is difficult to identify what applies specifically to Galbraith Springs.

199104700 - Sherman Creek Hatchery - O&M

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$280,780 FY08: \$294,816 FY09: \$309,558

Short description: Operate and maintain Sherman Creek Hatchery and the Lake Roosevelt Net Pens to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake Fisheries. SCH is a key component of the Lake Roosevelt Fishery Enhancement Project.

Recommendation: Fundable in part

Project sponsors wrote (p. 27): "The Lake Roosevelt kokanee artificial production program has been plagued with walleye predation, early maturation, skewed sex ratios and entrainment which likely contribute synergistically to reduced hatchery kokanee numbers in the reservoir. The twin goals of developing a fishery that can be utilized for subsistence and recreational purposes as well as be self-sustaining had not been reached, despite extensive monitoring and adaptive management based on study results."

This and other Fish and Wildlife Program efforts to produce viable hatchery-based kokanee fisheries from fish communities that also support fisheries for predatory fishes have not been successful. The ISRP recommends "not fundable" for all projects or project elements directed to rearing and stocking, or habitat enhancement, for kokanee salmon in communities including walleye, bass (smallmouth or largemouth), northern pike, or lake trout unless populations of these predators can be reduced to and maintained at levels so low that they cannot control the abundance of kokanee salmon. The project is fundable in part for continued production of redband and triploid rainbow trout.

199500900 - Lake Roosevelt Rainbow Trout

Sponsor: Lake Roosevelt Development Association

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$144,000 FY08: \$145,000 FY09: \$146,000

Short description: Operate and maintain the Lake Roosevelt Rainbow Trout Net Pen Rearing Project to aid volunteer efforts to participate in fishery restoration and enhancement activities.

Recommendation: Response requested

This popular program supported by dedicated volunteers appears fundable at a current release level of about 550,000 rainbow trout per year. A response is requested to provide some biological justification regarding the intent to increase the level of netpen rearing by about 50%, shifting to about 750,000 fish released per year. Benefits to anglers and fish managers clearly exist, but what are the risks? In Idaho's Lake Pend Oreille, rainbow trout are emerging as the greatest predator on kokanee. To what extent would kokanee in Lake Roosevelt be impacted by the proposed increase in rainbow trout production? Would any such impact be acceptable? This issue is also raised with the sponsors of Project 199404300, Lake Roosevelt Fisheries Evaluation Program, and reviewers anticipate a single response.

In the future, the proposal should place some additional emphasis in reporting the estimated harvest (number, or percentage, of the fish released from netpens that are caught and those kept by anglers). Those data should be gathered regularly through the Fisheries Evaluation Program. As project personnel are aware, a successful netpen project will be one that, among other things, returns a good percentage of fish to the angler, not just into the lake.

Reviewers applaud the decision to move into 100% triploid rainbow trout releases beginning after 2007.

200102900 - Ford Hatchery Operations & Maintenance

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$121,190 FY08: \$127,254 FY09: \$133,623

Short description: To operate and maintain Ford Hatchery to enhance recreational and subsistence Kokanee Fisheries in Lake Roosevelt and Banks Lake, and bolster put and take resident trout fishing lakes in region1.

Recommendation: Fundable in part

The efforts to produce a viable hatchery-based kokanee program in Lake Roosevelt and Banks Lake have not been successful so the ISRP recommends "not fundable" for projects or project elements directed to rearing and stocking, or habitat enhancement, for kokanee salmon in communities including walleye, bass (smallmouth or largemouth), northern pike, or lake trout unless populations of these predators can be reduced to and maintained at levels so low that they cannot control the abundance of kokanee salmon. Existing evidence, including results of Fish and Wildlife Program projects, does not show that kokanee populations can be successful under heavy predation.

The proposal is fundable in part for the continued redband and triploid rainbow production only.

199204800 - Colville Confederated Tribes Wildlife Mitigation Project

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$1,180,000 FY08: \$1,200,000 FY09: \$1,200,000

Short description: The focus of the CCT Wildlife Mitigation Project is the protection/restoration/enhancement of critical winter habitat, riparian, shrub-steppe, and other species and habitats on lands purchased/managed for mitigation on the Colville Indian Reservation.

Recommendation: Response requested

This proposal focuses on many habitats and includes a good monitoring program, but the analysis and applications of information from the monitoring program need to be reported. The project emphasizes game species, and it appears that efforts to increase grouse populations have been quite successful. However, data to support the asserted increase in grouse are not provided. The proposal is well written at a general level, but does not provide details on monitoring and evaluation of results. Specifically, the ISRP requests a response that provides data on project effectiveness, such as summary tables or graphs illustrating effects of the project on grouse. The ISRP believes that monitoring and evaluation is a priority for this project because of the high costs of the management. Large costs of O&M has long-term consequences for what can be invested in other efforts, such as further acquisition or protection of wildlife habitat. A step towards understanding management costs is to evaluate past work efforts.

200702700 - Colville Confederated Tribes Acquisition Project

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$1,500,000 FY08: \$1,500,000 FY09: \$1,500,000

Short description: This project will fulfill the obligation of the BPA to mitigate the remaining 11,223 HU's the CCT has left, by acquiring key habitats to be enrolled into the CCT Mitigation Project where they can be protected, enhanced and restored.

Recommendation: Fundable

The Colville Tribes' acquisition project has received high marks in the past, and the adjacent land proposed here for acquisition fits into long-term plans for wildlife mitigation. The proposal demonstrated a good history of acquiring land to meet the stated objectives at reasonable costs. Discussion of the strategy and implementation of land acquisition was thorough and well-justified, and specific pieces of land have been earmarked for priority purchase.

200711400 - Vulcan Mountain Weed Control for Mule Deer and Bighorn Sheep Habitat Improvement

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$35,465 FY08: \$33,713 FY09: \$33,713

Short description: This project will eliminate invasive noxious weeds, including hoary alyssum, spotted and diffuse knapweed, and musk thistle, from 1,500 acres of privately-owned mule deer winter and spring range and bighorn sheep habitat in the Upper Columbia Subbasin.

Recommendation: Not fundable

This new proposal calls for the aerial herbicide treatment of 1500 acres on private land. This treatment could remove all the broadleaf plants on these acres. The proposal doesn't establish that this is valuable range, or that the broadleaf plants need to be controlled. There is no quantitative description of the weeds and monitoring is not adequately described. Thus, there is no apparent way to assess the value of the project. There is no description of Integrated Pest Management. The project proposed does not seem to be the best management practice.

199502700 - Lake Roosevelt White Sturgeon Recovery Project

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$547,517 FY08: \$484,318 FY09: \$477,305

Short description: Project goals are to restore natural recruitment, implement an interim aquaculture program until natural recruitment is restored, and continue to collect baseline stock assessment data to identify and evaluate restoration and management activities.

Recommendation: Response requested

This is a very locally focused proposal for white sturgeon rehabilitation in Lake Roosevelt that is reasonable in broad view, but lacks perspective from other white sturgeon research, does not adequately document the status of the population, and does not adequately justify a conservation aquaculture program. Each of these three deficiencies necessitates a response.

The technical and scientific background provides adequate evidence of recruitment failure for the white sturgeon population in the upper Columbia River. However, the background does not provide an adequate summary of the status of the population. Is this population part of a larger Columbia River metapopulation? What is the structure of stocks and ESUs of this species? Where does this population fit in this larger picture? A number of stock assessments have been conducted in the last few years, but the sponsors do not provide any data on the estimated population size, and estimates of yearly decline, or how long this population will last. What is needed in a response is a summary of the desired stock assessment, how much is completed, and what is going to be accomplished by the work in this proposal.

The background is almost exclusively local and does not consider the broader perspective of white sturgeon research in the rest of the Columbia River basin (although later sections add some

further relationships). There is an adequate description of mostly local literature with some lower Columbia information included for comparison. The proposal does not mention similar problems in the Kootenai River nearby (many published papers by Paragamian and co-authors) or papers that attempt to sort out the same reproductive bottleneck throughout the species' range (e.g., Coutant 2004, *Reviews in Fisheries Science* 12:23-73). There is a good description of the joint US/Canada interaction, however. A response is needed to summarize how this population and this environment compare to the basinwide situation with respect to white sturgeon declines.

The background does not sufficiently justify a conservation aquaculture program. The proposal introduces the concept that a conservation aquaculture program is one of the major solutions for recovering this population and cites the Upper Columbia White Sturgeon Recovery Plan (UCWSRP) recommendation that "the immediate implementation of a conservation aquaculture program was required to preserve the remaining demographic and genetic diversity of the population and rebuild the natural age-class structure lost during the persistent recruitment failures of the last 30 years (UCWSRI 2002, Recovery Plan Measure 5.5.3)." The ISRP examined this plan and found no compelling evidence that a conservation aquaculture program was well justified other than that the Canadians were successfully rearing and releasing juvenile white sturgeon into the Keenleyside Reach since 2002. A response is needed to justify this approach.

The rationale section is fairly well done and clear links are described to the Spokane Subbasin Plan, the Council's Fish and Wildlife Program, the Upper Columbia United Tribal Measures, the UCWSRP, and the Lake Roosevelt Recovery Project. Several projects funded by BPA that this project interacts with are given. The relationships are however not clear. Projects 199404300 and 199700400 are apparently stock assessment and data management projects for resident fish in Lake Roosevelt. The data that this project contributes to those is not clear, and neither is the services those projects provide for 199502700. Sponsors assert that the research proposed in this project will benefit 198806400, 198806500, and 199700900. Specifically what 199502700 will contribute to these others is not identified. This contribution should be addressed in the response.

A general description of project activities and results is given in the project history section. Sponsors provide a succinct summary of the tasks they have completed since the project began active work in about 2003. What is lacking is evidence that the assessments that have been completed to date are sufficient for statistical analysis and will provide information needed to make management decisions. The response should address this issue.

The primary objective of this project is found in the abstract: to restore natural recruitment of white sturgeon. The tasks are to continue interim aquaculture activities and stock assessments. Most of the numerous objectives are not biological objectives and are tasks or information transfer functions (e.g. objectives # 10-14 are to produce annual reports, quarterly reports, disseminates raw data, outreach, etc.).

Methods are quite detailed and well done for objectives # 5, and especially #6, which is the real essence of this project. The stock assessment elements serve as trend monitoring, but the aquaculture portion does not have clear monitoring and evaluation endpoints. The plan for information transfer is solid, with annual reports and peer reviewed literature to be produced. It is good to see that annual reports have been done regularly in this ongoing project but there are no open-literature publications.

The project appears headed toward benefit to white sturgeon in Lake Roosevelt, but there is much to do before it is clear that there will be benefit. Putting too much stock in the artificial production element may be a waste of resources and compromise the future genetic diversity and fitness of the remaining population.

The proposal needs to do a better job of zeroing in on what they think is the major factor limiting recruitment. They end up at a vague hint that predation on early life stages may be the main problem but don't quite get there.

200737200 - Lake Roosevelt White Sturgeon Conservation Hatchery Project

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$0 FY08: \$250,000 FY09: \$250,000

Short description: This project will coordinate progression through the NPCC three-step process with Lake Roosevelt co-managers in the development of a conservation hatchery dedicated to restoring the upper Columbia River white sturgeon in the Transboundary Reach.

Recommendation: Not fundable

This proposal is to initiate a Three-Step Review for a sturgeon conservation hatchery for Lake Roosevelt in the upper Columbia River. An adequate justification for beginning a three-step review to construct a hatchery for white sturgeon for the upper Columbia River (Lake Roosevelt) is not presented. A more thorough presentation of the current population size, its rate of decline, and evidence that this can reasonably be replaced by artificial production is needed.

The proposal sponsors provide an adequate summary of the evidence that sturgeon larvae are only occasionally recruiting to a yearling age, and that in the long run, the population will become extirpated if the situation is not remedied. However, a convincing argument that conservation aquaculture is needed is lacking, as is a suitable solution. The only rationale for the aquaculture project is a recovery plan that does not appear to be peer-reviewed, and the proposal only cites the plan, without providing insight into its contents. Sound justification for artificial production does not appear in an ISRP inspection of the plan. What is needed is compelling evidence that the population is small and old, and will not remain viable while the cause of the recruitment failure is addressed. There is stock assessment and distinct population segment work that needs to be cited or completed.

The contents of the analysis for the Three-Step Review are not present, so they cannot be evaluated. Specifically, in work element 4 the sponsors state that, "We will include a Hatchery

and Genetic Management Plan for any aspect of the conservation aquaculture program that is not currently addressed under the Upper Columbia White Sturgeon Recovery Plan." The assessments in the sturgeon recovery plan need to be available for ISRP review to evaluate the suitability of the artificial production program.

200704000 - Upper Columbia Landowner Incentive Program

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$450,227 FY08: \$450,227 FY09: \$450,227

Short description: A new, competitive, incentive-based grant program, administered by WDFW, will be developed to provide financial assistance to private landowners for implementation of priority objectives and strategies of the Upper Columbia Subbasin Plan.

Recommendation: Response requested

A response is needed on M&E or oversight for this proposal. A response should describe how sponsors plan to work with local conservation districts to develop, implement, and enforce this proposal. Conservation districts have great relationships with landowners to develop and monitor this program. This is being done in other parts of Washington. Collaboration with the local conservation districts is recommended. They might consider using a selection panel, beyond agency personnel, to prioritize projects. Selection panels for similar efforts include a citizen representative and outside reviewers. Perhaps someone from an NGO, local conservation districts, extension service (with technical capabilities), etc. could serve on a selection panel for this project.

This proposal raises a policy question about cost share. Specifically is funding from the Farm Bill available for this proposal?

200727000 - Lake Rufus Woods Subbasin Area Stock Assessment, Habitat Assessment and Fisheries Evaluation Program

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$749,982 FY08: \$642,890 FY09: \$637,533

Short description: Conduct fisheries assessments and evaluations, habitat assessments, water chemistry studies and primary and secondary production studies within the Rufus Woods subbasin. Supplementation of salmonids to provide increased tribal and sport harvest.

Recommendation: Not fundable

Superficially, the components of the project purport to benefit fish resources, but in reality this appears to be data gathering only justified by a desire to accumulate data, and there is little compelling evidence that fish would benefit. Most of the proposal is an extraction from the Subbasin Plan without developing it further. There are no objectives discussed, no critical needs or biological bottlenecks described, and little logic presented. The proposal gives inadequate justification that this data gathering activity would benefit fish resources.

With regard to lacustrine habitat, there are many reasons to believe that Lake Rufus Woods is similar to Lake Roosevelt, in that both represent habitat altered in such ways to make them just about the most difficult to manage of any freshwater ecosystem. There is a long history of work on Lake Roosevelt that is very germane to the proposed stock assessment and limnological monitoring proposed here for Lake Rufus Woods; however, it is not discussed. To have any chance of success a Rufus Woods program will have to be carefully conceived and based on a clear understanding of the risks involved. In its current form this proposal falls far short. For streams, the proposal copies the worst of what is being done by others in the name of stream salmonid enhancement throughout much of the Intermountain Province.

The narrative is not properly organized. It is confusingly written in other respects, as well. Various required topics are not covered. This seems to be a project designed to carry out various procedures of fish population and habitat survey, but the underlying purposes (objectives) are not explained. Methods should follow from objectives. Design of sampling and statistical analysis procedure is largely missing.

200103100 - Intermountain Province Resident Fish Conference and E-Library

Sponsor: Lake Roosevelt Forum

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$25,000 FY08: \$45,000 FY09: \$45,000

Short description: Host conference and e-library to facilitate innovative coordination, planning and assessment of resident fish and related programs in the Intermountain Province, thus improving information exchange among managers, policy makers, scientists and the public.

Recommendation: Fundable

This proposal differs markedly from other watershed coordination proposals. It is much better than many of them. The tasks are significant and well defined. This project has an excellent track record. It does a good job of connecting appropriate parties, and it has an informative website.

The proposal's rationale and significance to the subbasin plan and regional programs are adequate. Its relationship to other projects is evident by definition. The proposal presents evidence that project activities foster strong collaboration (transboundary aspects included).

This proposal contains a more useful set of statements on broad objectives than do most of the more technical project proposals. The personnel from the rest of the projects should have such objectives firmly in mind. If the forum promotes this, it will certainly help improve the sense of purpose for the projects in this region.

The assessment of project performance occurs via compilation of attendees' conference evaluation forms (high marks received). Otherwise, the monitoring and evaluation (M&E) is unclear, and such matters as coordination and education are evaluated differently than physical and biological efforts. A response is not requested on this issue, but future proposals could be improved by additional consideration of evaluation methods.

200704400 - Kettle River Tributaries Riparian Habitat Improvement Project

Sponsor: Ferry Conservation District

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$52,617 FY08: \$32,817 FY09: \$15,817

Short description: Working in cooperation with the Colville National Forest, The project sponsors will install off-stream water sources for livestock grazing on National Forest land in the northeast corner of Ferry County. This will improve water quality, and enhance upland game range.

Recommendation: Not fundable

This proposal lacks a narrative. In addition, some parts of the administrative/budget portion of the proposal were missing or deficient. As such the proposal must be disqualified. It is neither reviewable nor fundable.

199700400 - Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** None Selected

Budgets: FY07: \$622,049 FY08: \$692,120 FY09: \$663,233

Short description: The Joint Stock Assessment Project goals are to assess the current resident fish and habitat conditions of the blocked area and implement management recommendations based on research results.

Recommendation: Fundable

The basic design of this project is collaboration; project staff subcontract many work elements with WDFW, STI and CCT. The proposal is well-written and clearly traces the history of the project. Recent efforts have been actively improving the program by a) standardizing and upgrading data collection techniques and experimental design and b) making data more available, primarily on Streamnet. Reviewers note and applaud significant progress.

That said, future activities need to begin another upgrade, namely a gradual shift in project justification. In its previous review the ISRP commented that the Panel will be looking for clear descriptions as to how managers are using the data generated, and that comment is being repeated more forcefully here. Project justification must begin to move from the current "fill data gaps" to something more scientifically meaningful, more cost-effective, and more likely to benefit fish, fish habitat, and resource managers. That means a focus on limiting factors, looking for opportunities (especially those that are time-critical) to gather data to help the resource managers actually preserve and restore the most important habitat/populations. Refer to the ISAB's report: A Review of Strategies for Recovering Tributary Habitat; ISAB 2003-2: www.nwcouncil.org/library/isab/isab2003-2.htm.

To date, project efforts seem to focus on reporting "activities performed," but should be placing more emphasis on "results obtained." Unfortunately project activities in recent history have largely been to document the invasion of one exotic fish species after another, which seems a fact of life today in the region. Proposed objectives seem reasonable for burbot and redband trout. The planning for, and discussion of, census techniques for proposed Spokane River project seems very well considered. However, the value of diet analysis and bioenergetics modeling for northern pike seems of low management value. Such work has been done repeatedly elsewhere and would not seem needed to assess the situation.

Project staff is encouraged to increase their level of publication in peer-reviewed literature in the future.

Pend Oreille

199500100 - Kalispel Tribe Resident Fish Program

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$520,815 FY08: \$544,049 FY09: \$568,061

Short description: This project works to assess and restore native salmonids in tributaries to enhance largemouth bass populations in the lower Pend Oreille River. Activities include habitat and population assessments, habitat restoration, and non-native fish removals.

Recommendation: Not fundable

The project has three major components, those for bull trout, trout habitat in tributaries, and largemouth bass propagation and habitat. Based on the proposal, all three components either are producing no benefits or are showing evidence of failure, and should not receive future funding.

In its most recent review, the ISRP indicated a concern that bass culture and stocking might be having negative impacts on native species. To quote that review: "an early assessment of the bass hatchery component is needed within three years by the time of the next review cycle. In this time there should be clear evidence of whether this project is a success or a failure. If a failure, the bass hatchery component should be terminated." No evidence is put forth in the proposal to suggest that hatchery-reared bass are contributing to a fishery. Their presence continues to put salmonids in the entire region at increased risk.

The trout components of the project show no indication of providing any benefit to native species. The project's habitat monitoring was not yielding useful information, and it was discontinued in 2003. However, habitat structures continue to be constructed without evidence that they are increasing native fish numbers. Brook trout removal by electrofishing has been done repeatedly for more than five years at the same locations yet there is no indication that enough brook trout are being removed to provide a benefit for native fish. Chemical treatment to remove brook trout, an important task that previously appeared as part of this project, is now

proposed by the Kalispel Tribe under proposal 2007149000. All in all, there is no reason to continue these efforts.

199106000 - Pend Oreille Wetlands Wildlife Mitigation Project - Kalispel

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$112,967 FY08: \$118,445 FY09: \$124,000

Short description: The Pend Oreille Wetlands project is a 600-acre property to partially mitigate for wildlife habitat losses due to the construction and inundation at Albeni Falls Dam.

Recommendation: Response requested

This project was initiated in 1992, and the ISRP has reviewed it several times. In past reviews, the ISRP has suggested not to fund this project because of the lack of reporting results or a monitoring and evaluation plan. The ISRP recommended in 2000 that the proposal be funded for one year with subsequent funding contingent on better description of maintenance and monitoring methods.

The ISRP would like a response on the following. Monitoring has been conducted in recent years, e.g., breeding Bird Surveys conducted in 1999, 2002, 2003, 2004 and 2005. It appears that bank stabilization, water management and other enhancement activities have taken place. Thus, there should be some positive findings, but "no data" is provided. After five years of Breeding Bird Surveys some meaningful information should be generated, or at least a good base.

Also, Community Similarity metrics need to be reported to determine if project goals are being met and maintained. The ISRP requests that the response include data from the bird surveys completed and a better description of data evaluation processes. Some of the management and data collection has been going on since 1993. The ISRP needs to see an evaluation of biological objectives. This has been an ongoing recommendation of the ISRP, but the proposal still does not adequately report biological findings.

199206100 - Albeni Falls Wildlife Mitigation

Sponsor: Albeni Falls Interagency Work Group

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$7,949,297 FY08: \$8,103,022 FY09: \$8,342,004

Short description: Protect, restore, enhance, and maintain wetland and wildlife habitat in Pend Oreille, Coeur d'Alene, and Kootenai Subbasins as ongoing mitigation for impacts associated with the construction and inundation of the Albeni Falls hydroelectric project.

Recommendation: Response requested

This proposal fails to evaluate project history. Rather than reporting tasks completion, the ISRP requests an evaluation of past biological results. Further, the Albeni Falls monitoring plan (which was considered very good when completed several years ago) is cited, but its relationship

to this program and specific information on the methods to be applied are not specified. It is not clear why the monitoring plan still has not been implemented. (It is slated for implementation in 2006.) The scientific methods for monitoring and the results from this monitoring are not reported in enough detail (e.g., vegetation cover data).

A response should justify the basis for purchase of land, provide a rationale for particular management approaches (e.g., blasting), and include a summary description of M&E especially reporting of results from past review.

200731200 - Albeni Falls Dam Operational Loss Assessment of Riparian Ecological Function in the Pend Oreille River Ecosystem

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$364,021 FY08: \$403,888 FY09: \$344,920

Short description: Assess the operational loss of Pend Oreille River floodplain ecological functions and processes from Albeni Falls Dam.

Recommendation: Fundable

This proposal is for a new research project and is the same as that of the Kootenai Floodplains project 200201100. The Kootenai proposal contains more thorough information on the approach, and there is clear evidence of coordination between the two proposals; given the common goals and approaches, the two projects should be closely coordinated. Additionally, funding both the Kootenai and this project would provide a more robust test of the application of this research. This is a novel and ambitious opportunity. Although the ISRP was not supportive of the CHAP objective in the HEP proposal, in the context of these research proposals the "Index to Ecological Integrity" is better justified. This proposal provides a creative, multi-disciplinary approach to restore the ecology of the floodplain.

Reviewers questioned the appropriateness of some collected data apparently being considered proprietary (p.5) and not available to the public. It is commonly accepted that data collected with public funds should be made available to the public.

199404700 - Lake Pend Oreille Fishery Recovery Project: purpose to restore fisheries impacted by the federal hydropower system within the Idaho portion of the Pend Oreille drainage

Sponsor: Idaho Department of Fish & Game

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$944,262 FY08: \$980,176 FY09: \$975,483

Short description: Proposal's primary focus is to finish studies to restore kokanee spawning habitat in Lake Pend Oreille and to meet bull trout recovery objectives by balancing predator/prey ratios in the lake and removing the threat of interspecific competition.

Recommendation: Fundable

This is a well-written proposal for continuation of work that has been productive. With the exception of the kokanee stocking, which both the sponsors and the ISRP question, the work is appropriate. There are a lot of challenges in these large lake systems. They have published work, gained understanding, and moved on. Earlier, they looked at recruitment problems with a lake level experiment looking at gravel spawning. Now they feel they have good recruitment. The study now is looking primarily at predation. Rainbow and lake trout are significant predators.

The proposal provides a good background for both the lake level work for kokanee spawning and the additional proposed studies to balance kokanee with other species. The problems are generally well described insofar as they are understood. The probable depression of reproductive fitness of wild kokanee by interbreeding with hatchery kokanee is not discussed.

The rationale includes regional bull trout conservation efforts, subbasin plan, IDFG five-year plans, and the Fish and Wildlife Program. The conceptual framework presented is helpful. The section is beautifully organized -- refers to specific plan sections for each task.

The proposal cites relationships to other Pend Oreille projects and similar project at Upper Priest Lake. The discussion does not adequately (if at all) link to proposed project 2007-060-00 (Lake Pend Oreille Invasive Fish), which would seem to deal with a major influence on matters that 1994-047-00 is trying to address. The project history gives an excellent overview showing how a well-planned program can, in 10 years, gain significant insight into a very complex system that is exceptionally difficult to sample. Map and figures were appreciated.

Objectives are nicely described and mostly justified, with good hypothesis testing in a challenging situation. Specifically, objectives 1, 2, and 3 are appropriate biological objectives. Objective 5 is for information dissemination. Objective 4, concerning kokanee stocking is the least justified and might be omitted. Research results of this project indicate that stocking hatchery-produced kokanee depresses egg-to-fry survival of wild kokanee (supposedly by stimulating excessive predation). The project should monitor possible increase of wild kokanee after the stocking program ceases and as efforts are continued to reduce rainbow trout, the main predator on kokanee (and to reduce other non-native predators). It appears there are too many objectives, i.e., the sponsor is trying to manage and measure too many things. Eliminating the stocking program should simplify matters and halt a counterproductive influence on the fishery. Methods are generally well described.

The project provides annual workshops, good communications, and good reports with an excellent link. The bottom line, after some very sound work, is that they are still trying to show real benefit to kokanee, bull trout and rainbow. Success with kokanee spawning management has led to realization that the species mix needs fixing, especially non-native lake trout.

200707300 - Dynamics of Gravel Spawning Beds in Lake Pend Oreille, ID

Sponsor: Woods Hole Oceanographic Institution

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$235,068 FY08: \$361,079 FY09: \$290,357

Short description: Observations and modeling of the effects of waves and currents on sediments in kokanee spawning habitat in Lake Pend Oreille, ID. The long-term goal is to provide tools to manage lake levels & shoreline sediments to optimize habitat for bull trout forage.

Recommendation: Not fundable

This is a well-done proposal with technically sound methods and well-qualified principal investigators, but the problem has already been addressed in Lake Pend Oreille. This proposal is likely five years too late. It is an interesting research project but geared to advancing knowledge of the dynamics of deepwater substrate, not to benefiting fish resources. IDFG proposal 199404700 shows how kokanee spawning gravel can be made available by managing lake level, which is being done, and makes it clear that there is no longer a problem for this proposal to address.

200706000 - Lake Pend Oreille Invasive Fish

Sponsor: Idaho Department of Fish & Game

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$182,400 FY08: \$190,529 FY09: \$199,035

Short description: Overall Project Goal: To insure that the recovery of native species (bull trout and westslope cutthroat trout) and sport-fish (kokanee) in Lake Pend Oreille are not jeopardized by the recent establishment of smallmouth bass and walleyes.

Recommendation: Not fundable

The presence of walleye and smallmouth bass can hardly be anything but detrimental to co-occurring native salmonids. The fact that this conclusion is publicly voiced by IDFG in an article on the situation in the Coeur d'Alene newspaper (CDA Press, 12 April 2006), but not in the proposal, leads the ISRP to question the thoroughness of this proposal. It is clear that three years of study are not needed to assess the situation. Immediate management action to suppress walleye and bass is appropriate if not already too late.

200714900 - Pend Oreille Nonnative Fish Suppression Project

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$596,785 FY08: \$405,591 FY09: \$400,959

Short description: The focus of this project is to recover native salmonids in the Pend Oreille River watershed. Primary recovery actions are nonnative fish removal and reinvasion prevention.

Recommendation: Fundable in part

There are two distinct components of this proposal: lake trout posing a threat to bull trout in Priest and Upper Priest Lakes, and brook trout posing a threat to cutthroat trout in tributaries. A similar project was previously proposed by IDFG and reviewed by the ISRP.

The brook - cutthroat trout portion (Objective 2) is fundable. This stream work (Lower Graham Creek barrier reconstruction and Cee Cee Ah Creek antimycin treatment) seems justified, and both activities have a reasonable chance for success. Reviewers agree with proposal authors that the controversy regarding proposed use of fish toxicants is a major issue and can only be successful if community members are involved from the onset. These work elements are supportable but need better M&E description. Reviewers note that the program for eliminating or reducing exotic fishes in these situations is appropriately accompanied by methods to prevent them from reinvading.

On other hand the proposed actions (all of Objective 1) intended to impact lake trout are not fundable. There is not convincing evidence put forth that either the deepwater trap netting in Upper Priest Lake, or the employment of a strobe light in the Thorofare to deter lake trout reinvasion of Upper Priest Lake, have a reasonable chance for success (and for the effort to benefit bull trout, both those activities would need to be successful).

Reviewers wonder if it is not likely that bull trout in the lake are already beyond recovery. Removal goals for lake trout harvest by netting and an appraisal of whether they would be achievable and adequate for bull trout recovery were not addressed. The brief description of the pilot evaluation of a strobe light was not convincing - there was an absence of detail and little evidence of its efficacy for salmonids in a comparable situation. In the most recent review of the project (then sponsored by IDFG) the ISRP commented: "The key to success of this project as proposed will clearly be the placement and maintenance of a barrier to lake trout in the Thorofare. But the proposal would expend a lot of money for an undescribed system. There is a real leap of faith here, and a convincing case is not made that the mystery structure will be effective, largely because of the perceived need to build something that allows boat passage." Other than substituting the words "strobe light" for "mystery structure", these comments still stand.

200703800 - Preserving/Enhancing Bull Trout and Westslope Cutthroat Trout within the Upper Pend Oreille Basin

Sponsor: Idaho Department of Fish & Game

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$373,233 FY08: \$356,401 FY09: \$330,308

Short description: This project will try to identify populations of bull trout and westslope cutthroat trout for restoration and conservation purposes. The project sponsors will also try to identify the limiting factors associated with westslope cutthroat trout population declines.

Recommendation: Response requested

This proposal is for a new project to assess the status of bull and westslope cutthroat trout in the Upper Pend Oreille Basin and to develop a plan to manage for them and for a sport fishery. The

proposal is well developed in its problem review and analysis. It establishes adequate rationale and significance to regional programs, and it explains the relationship to other projects. It states an overall goal of ensuring self-sustaining populations of these species, as well as a single objective of securing abundances of these fishes that will support numerically specified annual sport harvests.

In summary, although the overall project concept and goal are mostly worthy, and the sponsors have the necessary techniques well in mind, a response is needed to include better consideration of future monitoring and evaluation of management. The proposal's section on monitoring and evaluation (M&E) is inadequate. Vague reference to a future intent is not enough. Even if the management plan does not yet exist, the sponsors should discuss how they would go about devising the M&E element of it. They should show what its components would be, particularly in view of the life histories of the species involved and the characteristics of the ecosystem(s) in which they live, including aspects of its sport fishery and other human influences.

200702800 - Pend Oreille River Basin Watershed Protection and Enhancement Project

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$336,890 FY08: \$285,550 FY09: \$292,265

Short description: Identify and implement larger scale projects to improve local watershed conditions within the Pend Oreille Subbasin.

Recommendation: Not fundable

This project includes five miles of road decommissioning and reconstruction, dam removal and other fairly dramatic actions without specifying where these actions will occur or what results are expected except to "reduce sediment." It appears some culverts would be evaluated and perhaps replaced and that vegetation will be planted and maintained, possibly with some fencing. There is the sense that these are all possible actions in a plan that has not yet been developed. The proposed budget seems inadequate for these types of activities. Only turbidity monitoring is presented in detail, but sometimes as a monitoring technique, other times as research. Details of time, location and measurable benefits are generally lacking. There is not enough detail to assess adequacy of the methods or design. Overall, it is unclear what would be done, and where or how it would benefit fish and wildlife.

The proposal is tied to the subbasin plan, Bull Trout Restoration plan and relevant state and Tribal plans. There are 2 section Bs in the proposal. The first deals with land use impacts, the second is a mini-proposal addressing sediment issues related to roads. Most proposed actions address the second, while many situations outlined in the first (e.g., non-native fish species) suggest that the impact of addressing only sediment issues would be minor. The proposal should include analysis of specific local problems and relate functionally to focal fish and wildlife.

The vitae of two program managers are provided, but their roles aren't described. Data will be used in reports, but no mention is made of larger databases. The proposal is not specific enough

to be convincing that focal species will benefit, although that is the stated intent, especially for bull trout.

200704100 - Kalispell Riparian Road Removal

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$73,117 FY08: \$159,093 FY09: \$20,781

Short description: This project will reduce sediment delivery to Kalispell Creek, a tributary to Priest Lake in the Pend Oreille Subbasin, by 200-400 tons per year. Sediment pollution has been identified as a key limiting factor for native salmonids in Kalispell Creek.

Recommendation: Response requested

The overall project is a good idea and fairly simple. However, this proposal does not have any M&E and it needs to be included. If another project is doing comprehensive M&E this proposal should describe and link to that work. A response on this issue is needed.

200705600 - IDL Pend Oreille Area Fish Passage #2

Sponsor: Idaho Department of Lands

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$0 FY08: \$250,000 FY09: \$100,000

Short description: This project will replace two culverts in County roads associated with IDL lands that are fish passage barriers. Implementation of this project will increase the available habitat for bull trout. This project will be cooperative with Bonner County, ID.

Recommendation: Response requested

Numerous items need clarification in a response. Are these culverts actually a barrier for fish passage? How did they select the culverts they plan to work on? What is the value of the habitat they are opening up? Further it should be clarified how many miles of upstream habitat will be accessed. The proposal says 7 in one place and 16 in another. This is basically the same as proposals 200736300 and 200737300, even in that access to 7 miles of stream will be enabled. Does the latter mean that each of the project will provide that much access or that the three projects will in total?

A logical case is made to replace these culverts with bridges, but these are two of probably many in the subbasin, so it is unclear why these are the highest priority. Fish (no species indicated) have been observed below the culverts, but no mention is made of occupation of upstream habitat. What is the evidence fish are not passing now, except that culverts do not meet specs? Fish frequently do pass sub-standard structures. The subbasin plan identified fish passage problems such as those that apparently exist here. The Idaho Forest Practices Act and Snake River Basin Adjudication agreement are also cited as justification. This is a stand-alone project. However, the Kootenai Tribe, USFS and others are likely active within this watershed. Perhaps stand-alone means this is not related to any other IDL projects, but it would be useful to know if this project is related to actions on other lands within these stream systems. Collaboration with the county and USFS are listed; the nature of that collaboration is not described, but should be.

No monitoring is described for fish passage, use of habitat, or sediment production. Provision for basic M&E, probably by others, should be described in the response.

200709900 - Gold Creek (Lakeview District) Bull Trout Habitat and Migration Protection

Sponsor: Idaho Department of Environmental Quality

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$599,826 FY08: \$0 FY09: \$0

Short description: Gold Creek is critically important bull trout spawning stream in the fragmented Pend Oreille Lake watershed. Migration and spawning habitat is threatened by a massive sediment source. The project would remove this threat and enhance water quality.

Recommendation: Response requested

The sponsors propose to restore as bull and westslope cutthroat trout habitat a section of stream that has long been buried in a pipe beneath mine tailings. The proposal is clear and to the point in its problem review and analysis. It establishes adequate rationale and significance to regional programs, and it explains relationships to other projects. The project would remove the waste rock that covers the former channel and flood plain, and then establish channel and floodplain configurations that should function as habitat for bull trout. The methods are adequately described. It is clear that the focal species would benefit from the project as long as chemical contamination does not interfere. In addition many non-focal species would likely benefit.

A response is needed to clarify two items. First, will this project lure fish and wildlife, especially birds, into a toxic environment? The second item is M&E. The proposal describes the general types of physical and biological monitoring and evaluation that are planned. However, it does not explain in sufficient detail how the field measurements would be made or how the resulting data will be analyzed and interpreted. Please elaborate and include discussion of likely statistical designs.

Reviewers are concerned that chemical contamination by leachates from the mine tailings may be a major consideration in this stream -- not only from materials of the stream's present overburden, but also from mine wastes that may persist elsewhere in the area. Therefore (if proposal authors are in concurrence with reviewers), the M&E for this project needs to include statistical monitoring of water quality, of the levels of lead, mercury and other metals such as zinc in fish tissues, and of capabilities of the fish to breed in this chemical environment. In particular, liver and kidney concentrations of such pollutants should be analyzed. In addition to concerns for fish and wildlife, this issue needs to be monitored to protect the human population from mercury and lead contamination.

200724600 - Restoration of bull trout passage at Albeni Falls Dam using a trap-and-haul approach in conjunction with investigations to assess effectiveness of rapid genetic analysis in assigning natal tributary

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$756,658 FY08: \$385,662 FY09: \$411,495

Short description: The goal of this project is to provide temporary upstream passage for bull trout at Albeni Falls Dam, Pend Oreille River. Effectiveness of the action will be evaluated using RM&E.

Recommendation: Not fundable

The sponsors propose a project to pass bull trout over Albeni Falls Dam, Pend Oreille River, and to evaluate the effectiveness of a trap to collect upstream-migrating bull trout adults for this. Reviewers see this proposal as being out of phase. According to the proposal, the USFWS 2000 Biological Opinion directed the action agencies to evaluate the feasibility of restoring passage at Albeni Falls Dam, and those agencies are to begin evaluating the associated costs and issues. The agencies' plan should contrast all options for solving the bull trout dam passage problem. Thus, absent such an evaluation, it is premature to fund the proposed work at the present time. Consideration of whether to fund the proposed action should be delayed until the passage plan is done, and a clear outline of the research can be developed and an implementation strategy adopted.

The proposal is data rich but is excessively long and not convincingly written. The project purpose is, in practical terms, the development of the trap. Piggybacked on that are provisions for research, much of it scientifically interesting but having little pertinence to aquatic resource recovery in the basin. In future proposals, the research aspect should be pared back to essentials for monitoring and evaluation (M&E).

One difficulty reviewers have with the project rationale is the assumption that all the individual tributaries are each a demographically independent population and at risk for inbreeding depression. Most critical is the assumption that the return of a few individuals that originated from these streams is critically important genetically to prevent extirpation. The authors note that within tributary analysis typically reveals little genetic variation, and that between tributary variation is greater. If the returning (adfluvial) adults were from a different stream and required to mix things up to prevent inbreeding it would be a more convincing argument. As it stands now, the argument should be based on demographic collapse, not genetic collapse. So, there is a question whether short-term extirpation can be remedied by this action. The authors do not provide a compelling quantitative presentation of a viability assessment to support that main thesis.

Biologic and economic cost-effectiveness of the proposed project seem questionable to reviewers. The proposal seems to imply that every bull trout is so valuable to the system's population (ESU?) that each fish that passes downstream over or through the dam and survives

to maturity needs to be moved back above the dam. Is this really so? The proposal states that, unless gene flow between populations is more than thought, only 3 of the 18 spawning tributaries above the dam probably have an adequate number of spawners (100 or more) to maintain proper genetic characteristics of their populations. Based on the proposal's table showing estimated spawner population in each tributary, it is evident that passing the hoped-for 27 to 40 adult bull trout per year over the dam is unlikely to boost more than one or two (and probably not any) of the 15 needy populations into the adequate-spawner category. It might be worth trying, however, on the chance that many more adults are captured below the dam than anticipated—and that the project budget can be greatly reduced.

On a dollars-per-spawner-gained basis, the proposal looks impractical as presently written. A three-year budget of \$1.55 million for passing an anticipated maximum of 120 bull trout (40 per year) over the dam amounts to \$12,900 per fish. Other dams in the Columbia Basin pose similar problems for bull trout and other native resident trout species – should trap and haul be implemented there also? Reviewers note two additional complications. One is that bull trout passage over other dams (PUD and Avista owned) is involved in the system, so a more jointly supported solution than proposed seems appropriate. Secondly, the operation of a largemouth bass hatchery on the lower Pend Oreille River (BPA Project 199500100) by the proponents of this proposal would seem to be at odds with bull trout recovery. A more thorough analysis of the bull trout situation is needed.

200736300 - IDL Pend Oreille Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$75,000 FY08: \$90,000 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable crossing structures. This will make available existing fish habitat.

Recommendation: Response requested

This project is likely to have major benefit (fish were present, but no numbers provided below the barrier culverts) despite shortcuts taken in proposal writing. Note that throughout the proposal, the wording is mostly (or entirely) similar to that of Proposals 200705600 and 200737300, even in that access to 7 miles of stream will be enabled. Does the latter mean that each of the projects will provide that much access or that the three projects will in total? More specific information is needed in the response about the amount of habitat above the present barrier. Also, a measure of project success should be made after the barrier was eliminated (no M&E is included). A response is needed on monitoring and assessment of the project (e.g., evaluation of whether fish successfully pass or how many fish pass, and how much habitat is upstream waiting to be utilized).

200737300 - IDL Priest Lake Fish Passage

Sponsor: Idaho Department of Lands

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$55,100 FY08: \$53,320 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable structures. This will make available existing fish habitat.

Recommendation: Response requested

This project is likely to have major benefit (fish were present, but no numbers provided below the barrier culverts) despite shortcuts taken in proposal writing. Note that throughout the proposal, the wording is mostly (or entirely) similar to that of Proposals 200705600 and 200737300, even in that access to 7 miles of stream will be enabled. Does the latter mean that each of the projects will provide that much access or that the three projects will in total? More specific information is needed in the response about the amount of habitat above the present barrier. Also, a measure of project success should be made after the barrier was eliminated (no M&E is included). A response is needed on monitoring and assessment of the project; e.g., evaluation of whether fish successfully pass or how many fish pass, and how much habitat is upstream waiting to be utilized.

Sanpoil and Spokane

199001800 - Lake Roosevelt Rainbow Trout Habitat/Passage Improvement Program

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Sanpoil

Budgets: FY07: \$641,886 FY08: \$742,850 FY09: \$542,850

Short description: The Lake Roosevelt Rainbow Trout Habitat/Passage Improvement Project is a resident fish substitution project to mitigate for anadromous fish losses above Chief Joseph and Grand Coulee Dams. The goal of the project is to increase natural production.

Recommendation: Not fundable

All elements of the proposal are in need of such revision that a response is not warranted. The Panel repeats the comment from the previous review that "it is essential that project staff secure the services of a senior level scientist with expertise in data acquisition and interpretation." The reporting of results continues to be inadequate, and there is no evidence of benefits to fish populations. Fifteen years of results are briefly mentioned without supporting information or data synthesis. Some are positive (discovery of "extensive" redband distribution, stocking of only triploid rainbow trout, use of QHA in prioritization, but results of that effort are never identified). Some are inconclusive (results of monitoring years of instream habitat "improvement" efforts were "inconclusive"). And at least one will probably prove negative (creation of a new channel through braided section of Bridge Creek). Presentation of that data analysis (summary tables and graphs) is needed.

The "objectives" and methods provided are, word for word, identical to the Colville Confederated Tribe's Lake Rufus Woods proposal 200727000. For consistency, pertinent reviewers' comments for 200727000 are appended:

"Superficially, the components of the project purport to benefit fish resources, but in reality this appears to be data gathering only justified by a desire to accumulate data, and there is little compelling evidence that fish would benefit. Most of the proposal is an extraction from the Subbasin Plan without developing it further. There are no objectives discussed, no critical needs or biological bottlenecks described, and little logic presented. The proposal gives inadequate justification that this data gathering activity would benefit fish resources.

The narrative is not properly organized. It is confusingly written in other respects, as well. Various required topics are not covered. This seems to be a project designed to carry out various procedures of fish population and habitat survey, but the underlying purposes (objectives) are not explained. Methods should follow from objectives. Statistical design of sampling and analysis procedures is largely missing."

199106200 - Spokane Tribe Wildlife Mitigation

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$2,360,000 FY08: \$2,363,300 FY09: \$2,366,700

Short description: The project is the Spokane Tribes Wildlife Mitigation Project that acquires property as partial mitigation for construction and inundation losses at Grand Coulee Dam. FY07-09 will focus on the acquisition of Forest Capital lands on the Reservation.

Recommendation: Response requested

This proposal fails to present evidence of the effectiveness of past purchases and similarly fails to adequately describe how purchases will be prioritized. The priorities appear to be simply repeated from the subbasin plan, with little description of the process that was used to prioritize purchases. The ISRP requests a response describing the prioritization process and to justifying the land purchases. Additionally, the ISRP requests a description of the success of past purchases (i.e., an evaluation of project success), a reasonable expectation for a program with a long history of funding.

199800300 - Spokane Tribe Wildlife Mitigation Operations & Maintenance

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$287,588 FY08: \$295,522 FY09: \$303,710

Short description: Proposal will be for continued Wildlife Mitigation O&M and enhancement for lands acquired as partial mitigation for Grand Coulee Dam wildlife losses. Project will focus on the management of existing and/or new lands acquired during the project period.

Recommendation: Response requested

This proposal provides the needed information to justify most sections, with procedures for wildlife monitoring (i.e., what is done and when) described well. The description of past monitoring and data collection activities is thorough. However, with five years of data collection completed, the proposal should report the results: summary of analyses, evaluation of results, and the management implications stemming from the data analysis. To justify continued funding, these results of monitoring and evaluation and their applications should be provided in a response.

200103200 - Coeur D'Alene Fisheries Enhancement, Hangman Creek

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$542,020 FY08: \$607,168 FY09: \$671,139

Short description: This project will restore Redband trout (*Oncorhynchus mykiss gairdeni*) habitat in Hangman Creek and its tributaries.

Recommendation: Response requested

A response is requested to supply information regarding two items not covered by the proposal. First, trout abundance: approximately how many trout are there in these Hangman Creek tributaries? What fraction of those fish are on the Coeur D'Alene Reservation?

Second, has a watershed analysis been done? The proposal did not present an analysis of the specific causes of the habitat problems that are described. A response should indicate what will be done to reduce or eliminate the causes, not just treat instream symptoms.

200103300 - Hangman Restoration Project

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$1,359,863 FY08: \$1,500,050 FY09: \$1,507,841

Short description: This project will manage approximately 1,200 acres in the Upper Hangman Watershed for wildlife HU crediting against Albeni Falls Dam and protect additional native trout habitats through purchase of conservation easements, leases and possibly fee title.

Recommendation: Response requested

A response is needed on two issues. The first is the extent to which this project is expected to benefit fish and wildlife and the second regards the monitoring and evaluation for the proposal.

Regarding the first issue, how would fish and wildlife use the properties protected by the easements? The project history section describes activities, not results or management implications. A response should describe these results and how they have been shown to benefit fish and wildlife.

“Enhancement opportunities” are mentioned in the section on objectives, work elements, and methods. Techniques to “enhance” stream channel for trout are not discussed in the narrative. From the description of work elements, \$400K would be used to realign 0.7 miles of Sheep Creek and \$400K would be used to change the channel morphology of 2 miles of upper Hangman watershed. Passive restoration appears not to be considered. Why? This seems to be an attempt to implement such activity without appropriate analysis and review. No cogent information is provided to indicate these activities would benefit redband trout. Please clarify.

Regarding the second issue, the ISRP was critical in the past review of this project’s lack of monitoring and evaluation (M&E), and M&E still is not adequately described in this proposal either. A response should describe these procedures.

Other reviewer comments (not requiring response): This project could eventually work out in the long term, but the proposal does not give confidence that the effort is being soundly implemented. The sponsors do not present an adequate strategy for the project. The section on technical and scientific background is not clearly organized. It contains much information that should be in the project history section instead. The project seems to be a mix of land purchase and land managements; the latter is not clearly described. The purpose of the project is not stated up front. The problem is not clearly defined.

On pages 5 and 6, the purposes seem to be expressed in the “primary goal” of a previous version of the project as “Protect and/or restore stream habitats throughout the Hangman Watershed . . . to support the restoration or reintroduction of native fish populations that are reduced from their original abundance,” and in a more recent (but previous) goal: “Protect and/or restore riparian and priority upland habitats within the Hangman Watershed . . . to promote healthy, self-sustaining wildlife populations.” It is later stated (page 9) that the project “proposes to restore and protect habitats that will benefit both fish and wildlife populations, and is intended to complement the Objectives and efforts of the Coeur d’Alene Tribe’s Project that focuses more directly on fish populations and stream habitats in the Upper Hangman Watershed (#2001-032-00).”

Significance to the subbasin plan is adequately shown.

With respect to objectives, the goals are not explicit. They seem to be to manage the acquired property and to acquire “management rights” on other property (with \$2.6 million). No objectives are stated in the narrative, so they are not really discussed there. They appear on the

spreadsheet outline. Objective E, "Stabilize Entrenched Stream Channels," needs better description and justification. The idea of stabilization may be counterproductive with regard to fish habitat. The dynamic processes in streams form and reform habitat for fish. And halting or impeding the processes by artificially over stabilizing the system could (and often does) prevent much habitat from forming.

No science is evident in the proposal's presentation of methods. The subject of work elements is mentioned repeatedly, but no work element is explicitly identified in the narrative except "Manage and Administer Projects" and "Outreach and Education," and none is discussed.

Middle Snake

199505701 - S Idaho Wildlife Mitigation

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Boise

Budgets: FY07: \$21,614 FY08: \$21,570 FY09: \$22,131

Short description: This is for on-going coordination within the Council's CBF&W Program; and for on-going annual operation, maintenance, and monitoring for the Krueger property, purchased by BPA 1999 as part of the Southern Idaho Wildlife Mitigation Project.

Recommendation: Response requested

It appears that these funds are already contractually committed, but if that were not the case, this proposal is not fundable as currently written. The scientific background section focuses more on mitigation policy than science. For instance, it is not clear in the current proposal that any species will benefit now or in the future. Authors must make this link explicit. The proposal should be rewritten to be specific to the parcel in question, the parcels role in the landscape, and benefits to both focal and non-focal fish and wildlife. Management should be linked to State program goals relating to threatened and endangered or sensitive species. Currently there is no indication of any Federal or NGO collaboration although shrub-steppe is a priority with the Nature Conservancy.

Objectives are stated as activities rather than outcomes and it appears objectives have been unchanged for some time and are continuous rather than goal oriented. It seems that some of the text is being recycled from earlier proposals, with reference to revegetation and monitoring that "will be" done, but apparently already have been. There is no mention of monitoring results to date, or the success in general of revegetation, weed management, and site protection. Are any species besides deer being monitored - this is not clear? There are sagebrush obligate species that should be monitored such as shrike, jackrabbits, and others mentioned in the proposal background. Objective 3 is unclear. It would be difficult to measure outcomes, yet this is the largest portion of the budget. All objectives should be stated in terms of measurable biological outcomes. Work elements are too general. Integrated weed management is discussed, but there is no indication that this is being pursued as only spraying has been conducted. The ISRP

requests an evaluation of the results from spraying. Towards this goal, authors should address if annual spraying is on same sites year after year, or if previously sprayed sites have improved. Spraying alone is rarely the best method of weed control without being part of an overall Integrated Pest Management (IPM) strategy in coordination with neighboring land managers. In general, details on monitoring are not sufficient to determine what is being done and if results are being used in adaptive management.

200721000 - Mores Creek Watershed Floodplain and Habitat Restoration: Design and Implementation

Sponsor: West Central Highlands Resource Conservation and Development Council

Province: Middle Snake **Subbasin:** Boise

Budgets: FY07: \$1,042,400 FY08: \$830,800 FY09: \$868,300

Short description: The Idaho City Ranger District is teaming with the WCH RC&D and numerous partners to develop a comprehensive, long-term, watershed-scale strategy to restore mining impacted reaches within the Mores Creek watershed in southwestern Idaho.

Recommendation: Fundable (Qualified)

This is a strong proposal for a well-considered program that demonstrates the value of collaboration, especially in linking with the RC&D to reach landowners who might otherwise be unresponsive. It is unlikely that any but a hard restoration approach could ever restore function and habitat quality in this watershed (Mores Creek is a tributary of the Boise River upstream of Boise, and lies in a fairly constrained small canyon through much of its course). This proposal might accomplish the transformation while recognizing and preserving evidence of the area's history, and creating community support. The implied adaptive management built into a phased sequence of projects and up-front efforts to create fiscal and logistical efficiencies are evidence of the thoughtful design of this program. Because the project is designed to become self-sustaining through operation of natural hydrologic and biological processes it would be a bargain over the long-term. Extensive cost-sharing and in-kind contributions demonstrate successful, ongoing collaboration. It is probable that focal species and other aquatic and riparian species will benefit long-term from this program.

Provisions have been mentioned for moving channels and reducing silt inputs during in-stream activities. Could this hazard be further reduced by working in winter or low flow? Disturbed gravels and cobbles can support vigorous weed populations. Efforts should be included to control weeds before, during, and after manipulations to avoid downstream spread and invasion of adjacent uplands. Other than the largely discounted concern about mercury, are there other toxins in the substrate that might be released, and should be managed? It is possible that costs will expand well beyond the current proposal. Including funds for financial and technical assistance to private landowners for projects contributing to the overall effectiveness of the program might augment their cooperation and leverage project investments.

The objectives are very broad as expected when additional assessment is proposed. The complexity and level of detail required for the NEPA and permitting processes will demand more specific objectives. The proposed sequence and assignment of work elements seems realistic.

Little reference to specific techniques is made, or justified, at this point. Support for the proposed actions is based exclusively on agency technical and scientific reports. Without casting doubt on these sources, they should use the primary literature as well, particularly as pertains to short-term effects on aquatic life of intensive in-stream disturbances.

Local outreach to date has been via mail, however, formation of a semi-formal collaborative group such as a Coordinated Resource Management group could be an effective strategy to educate the parties involved and leverage the efforts of each party. An effective Coordinated Resource Management group builds long-term commitment to sustaining project accomplishments once incentive funding and other resources are no longer available. Idaho Resource Conservation and Development Councils and the US Forest Service have a strong track record with Coordinated Resource Management groups.

Collaboration with the USFS Rocky Mountain Research Station for monitoring is an excellent idea. However, the best monitoring may not be scientifically innovative; hence careful communication will be needed to assure the project gets the data it requires. The Station has experienced staff and is well qualified to oversee the M&E portion of the study. It is unclear if outcomes, in terms of fish and wildlife, will be monitored. This project could be a model for many other western rivers if actions result in desired population responses. Either way, this project will add to understanding of limiting factors and improve future efforts. Facilities and personnel are adequate. It is not clear if there will be fish data, or other data that should go into wider networks. Current data availability procedure is admirable.

More specific comments on the proposal are described below.

The overall project phasing as described in Figures 3 and 5 seems logical; however, there is a jump between objectives and monitoring that is not filled by "evaluate Phase 1 metrics". In Fig 3, the success criteria in Fig 5 do not appear. It is important to include the definition of success criteria, particularly since what is missing is an appreciation of what restoration means at the watershed scale. What has been done is to identify general issues:

1. The large cobble dredge spoils restrict channel migration and prohibit establishing riparian vegetation, especially the larger overstory species like cottonwood.
2. Channelization and channel incision have reduced the length of river channel, increasing the water velocity and preventing deposition of fine sediments on the floodplains.
3. The lack of riparian vegetation has contributed to streambank instability, accelerated erosion, increased width-depth ratios, and reduced shade and cover habitat for riparian-dependent wildlife and fish.
4. Complex instream habitat (pools, riffles, overhanging banks, woody debris) are largely non-existent.

5. Water temperatures are elevated by solar and thermal radiation from the tailing and exposed banks in the spring and summer months due to the wide, shallow channel and lack of riparian vegetative cover.

6. Degraded in-stream habitat and water quality conditions create seasonal passage barriers and limit utilization by bull trout and redband trout.

While these issues may well be widespread in the watershed, restoration approaches may well vary between reaches, and will be interdependent in a geomorphological sense. So the demonstration site will, we hope, demonstrate the success of a watershed approach to identify appropriate remedies in this reach. However, it will not provide a blueprint for the entire watershed in terms of remedies.

In Fig 5, restoration “options” are listed. However, we assume these options are not mutually exclusive and may all apply to the demonstration site and elsewhere. What we would like to see is a “leitbilt” for the watershed as a whole, showing the deficiencies and likely remedies throughout the length of the streams. We would also like to see a short discussion of the range of remedies to be considered; the predominance of rock-and-root-wad engineering in the several proposals we've seen and the absence of soil bioengineering using live woody materials to recapture floodplain fines (and provide nursery conditions for returning cottonwoods) is disappointing. This is not using the best science and technology that is available, and relies overmuch on engineering, rather than bioengineering.

For example, Figure 2 - the aerial photo of the proposed Demonstration Site - is a classic “blown-out river” such as is found extensively in California (e.g., the moonscape caused by gravel mining in the Russian River). In that instance, stabilization of the river using willow mattresses and baffles is working well to regain the landscape prior to gravel mining, with only two root wads in 1000 feet length of reconstituted bank.

200000900 - Logan Valley Wildlife Mitigation Site

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$146,840 FY08: \$146,840 FY09: \$146,840

Short description: Logan Valley Wildlife Mitigation Site is an ongoing project allowing the Tribe to manage 1760 acres of wet meadow, wetland, forest and sagebrush steppe habitats at the headwaters of the Malheur River while addressing multiple goals for fish and wildlife.

Recommendation: Response requested

The logical need for the project is explained. Multiple fish and wildlife species could possibly benefit from these restoration activities. The proposal demonstrates the significance of the project to the Malheur subbasin. The history of the project is clearly reported. The context includes cultural justification that complements the biological justification. This project is in a good topographic position to influence water and riparian conditions downstream as well the proximate area. So in concept this is a supportable project, but more details are necessary.

Measurable benefits to fish and wildlife should be more extensively identified. Monitoring is mentioned, but it is unclear if this is a rigorous scientific enterprise. The sponsors need to provide a response that better explains provisions for monitoring and evaluation, including details of past monitoring. This continues to be an issue identified in past ISRP reviews. Specifically, details concerning monitoring and evaluation are needed on 1) benefits to fish and wildlife, especially focal species, including an evaluation of how persistent the benefits will be; 2) possible adverse effects on non-focal species as it appears possible that some would exist; 3) the short and long-term success of habitat manipulations.

Relationship and collaboration with other projects are noted but plans for information transfer should consist of more than preparation of annual reports. At the very least, some method to share successes and lessons learned with others involved in similar monitoring and restoration activities should be identified.

Most objectives seem appropriate given the detail presented. The ISRP hopes to see more adaptive management as the project proceeds. Results of an irrigation study are anticipated, and this may provide information that can be useful in the future. Maintenance and repair of ranch buildings and preparation of annual reports are not appropriate biological objectives but are work elements. The presentation of work elements is not very detailed as to actual methods. Authors should provide some justification for the methods they will use.

The description of facilities, equipment and personnel is well written. The facilities, equipment, and personnel are generally reasonable but it is unclear how effective the contribution of the Fisheries and Wildlife Director will be with only 0.08% (=0.0008) of time committed to the project. The personnel appear quite adequate for routine management, but the ISRP encourages the sponsors to identify additional resource personnel to assist with setting up and evaluating the monitoring program.

200002700 - Acquisition Of Malheur River Wildlife Mitigation Project

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$324,607 FY08: \$324,607 FY09: \$324,607

Short description: Malheur River Wildlife Mitigation Site is an ongoing project allowing the Tribe to manage 6385 deeded acres of wet meadow, wetland and sagebrush steppe habitats along the Malheur River while addressing multiple goals for fish, wildlife and tribal members.

Recommendation: Response requested

The logical need for the project is explained. Multiple fish and wildlife species could benefit from restoration activities. The proposal demonstrates significance of the project to the Malheur subbasin. The context includes cultural justification that complements the biological justification. The project history is clearly recounted.

The sponsors need to provide a response that better explains provisions for monitoring and evaluation. This continues to be an issue identified in past ISRP reviews. Details concerning monitoring and evaluation are needed on: 1) benefits to fish and wildlife including an evaluation of how persistent the benefits will be, 2) possible adverse effects on non-focal species, 3) short and long-term success of habitat manipulation. More discussion of management implications and benefits to fish and wildlife should be included in a response. The ISRP encourages more adaptive management as the project proceeds.

Relationship and collaboration with other projects are noted but plans for information transfer should be expanded. The outreach and educational activities are encouraged. However, some methods to share successes and lessons learned with others involved in similar monitoring and restoration activities should be identified.

Most objectives seem appropriate given the detail presented. The presentation of work elements is not very detailed as to actual methods. Some justification for the methods chosen should be provided.

The description of facilities, equipment and personnel is well written. The facilities, equipment, and personnel are generally reasonable but it is unclear how effective the contribution of the Fisheries and Wildlife Director will be with only 0.08% (=0.0008) of time committed to the project. The personnel appear quite adequate for routine management but the ISRP encourages the sponsors to identify additional resource personnel to assist with setting up and evaluating the monitoring program.

200717100 - Malheur River Subbasin Habitat Restoration and Fish Enhancement / Stinkingwater Project

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$3,965,560 FY08: \$99,972 FY09: \$194,887

Short description: This project proposes to acquire approximately 8,463 acres of the Lamb Ranch located 39 miles East of Burns, Oregon.

Recommendation: Not fundable

This proposal does not justify land acquisition in terms of benefits to fish and wildlife. The problem is defined as mitigation and acquiring this property is aimed at providing harvestable fish and wildlife until native salmonid runs are restored in the undetermined future. A put-and-take fishery is contemplated for subsistence/cultural foods. Very specific food production objectives, or outcomes are described. Why is this particular parcel important relative to other land in the area? Is there other tribal ownership nearby, or is it because the land is available - a point which the proposal never establishes. If a monitoring project has been going on somewhere in this watershed since 1997, what has been learned? How might these results support the proposed action? Where is the monitoring occurring relative to the subject property? Does BLM have any work going on that would complement the Tribe's objectives: juniper control, range survey, etc? What about ODFW or neighboring land managers? This parcel is not placed into a

larger landscape context that might bolster the justification for acquisition. The presumed eventual restoration of anadromous fish would - by this argument- preclude future need for these lands.

Another goal is "restoration" of redband trout habitat. It is unclear if redband live above or below the reservoir, but the presence of potential predators in the reservoir might be counterproductive to efforts to restore the redband. The reservoir has been stocked with trout and bass, is that what the future plan would be? An intent is stated to do restoration work but insufficient detail is presented to evaluate.

General tasks are identified and put into sequence, but actual methods are not described or cited. Some goals mentioned earlier are not included in the objectives, such as increasing in-stream flow or improving grazing management. Perhaps this is not appropriate until baseline data and a management plan are in place, but it would be useful to outline the type of approach envisioned. Developing a monitoring plan is included, but not what will be monitored: habitat conditions, harvest, or compliance. Lack of results presented or reference to techniques from previous monitoring is worrisome.

Legal or realty expertise will be needed, but is not mentioned, nor is any terrestrial expertise noted for management of upland species or manipulation of rangelands. Information transfer plan is missing.

200712000 - Malheur Subbasin Habitat Restoration and Fish Enhancement / Logan Valley Project

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$2,029,209 FY08: \$91,206 FY09: \$246,181

Short description: This project proposes the acquisition of up to 1120 acres of deeded land in the headwaters of the Malheur River to restore and protect native species habitat and provide an opportunity of the development of interim fishery for the tribe.

Recommendation: Not fundable

There are likely some good wildlife benefits to this project, but the justification for fish is not adequate. The brief proposal is not clear, with little committal on what fish and wildlife management efforts sponsors would undertake and to what extent management would differ from that exercised historically. It appears that livestock grazing would continue on the property.

It was unclear how this connects with other properties, and with other protected areas. It is difficult to assess the potential fish benefits from this brief proposal with no photos, maps, etc. The stream is a migratory corridor for bull trout, and they might benefit if additional water were to be kept in-channel. But it is not completely clear that such would occur.

Ponds would be constructed off-channel for put-and-take fish harvest, but possible risks to native fish (which could be kept very low) are not discussed. HEP is proposed to be used for baseline

assessment of terrestrial habitat, but no details are provided. The ISRP does not support the use of HEP and recommends consideration of other techniques (see programmatic comments).

199701900 - Evaluate the Life History of Native Salmonids in the Malheur Subbasin

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$352,558 FY08: \$312,261 FY09: \$257,719

Short description: The proposed project is to collect critical information for the effective management of native salmonids in the Malheur River Subbasin. The project will identify and provide a monitoring and evaluation plan to track population trend of native salmonids.

Recommendation: Response requested

The proposal includes some evidence of progress since the provincial reviews. The sponsors have submitted one manuscript on previous work, and the project effort is being re-directed with more focus redband trout than on bull trout. This is responsive to the ISRP previous comment that they move on.

However, in sum, the proposal does not give a clear indication of a strong consistent program making significant progress. The basic objectives of protecting and restoring native fish and their habitat are clear and appropriate; however, the project seems to be progressing very slowly. Much of the proposed work is still involved in setting work plans. The proposal does not provide complete enough information to evaluate the benefit to fish and wildlife.

Similarly, the proposal reports results of previous work that focus on preparing annual reports rather than increased scientific information leading to actions to benefit native fish. There is little indication of results to date and little or nothing on limiting factors. No specific information is given on fish populations and habitat and their change over time as a result of project actions. A response should indicate how the information obtained in the past has been used and how it has influenced the direction of the current proposed work.

A response should also address how each of the objectives and their associated work elements will be used. Justification for the number of sites to be sampled and the number of fish used in the genetic work should be provided. Some probabilistic sampling is proposed; however, more details about the proposed plan for a developing monitoring and evaluation plan are necessary. Specifically, what will be monitored, what type of evaluation is proposed, and what adaptive management strategies may result? How will the results of the project be shared? Plans for information transfer should be specified beyond preparation of an expensive annual report.

Project assessments should be linked to the IDFG Native Snake River Salmonid Assessment - 199800200.

200302900 - Assess the feasibility of the Upper Malheur Watershed to support the reintroduction of anadromous Fish populations above the Beulah and Warm Springs Reservoirs

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$91,384 FY08: \$91,385 FY09: \$0

Short description: Assess the feasibility of the Upper Malheur Watershed to support the reintroduction of anadromous Fish populations above the Beulah and Warm Springs Reservoirs. Complete a pathogen study on all existing pathogens in the Malheur Subbasin.

Recommendation: Not fundable

In the previous funding cycle the ISRP's recommendation was "Fundable as a planning and prioritization exercise," but on further consideration the ISRP considers the current proposal as only marginally justified, at best, as a planning exercise. Given the current context of the Snake River Complex, the benefits to fish and wildlife from this project are not justified. The pathogen component of the study is out of phase (it should follow an assessment of the feasibility of reintroduction) and not justified in a compelling fashion. The remaining objective is to "Develop a comprehensive plan to detail the feasibility of reintroducing salmon in the Malheur Subbasin. This plan will consist of an adult salmon survivability and spawning success, egg to fry survivability rates, fry to smolt/juvenile survivability, and juvenile migration behavior and survivability rates. This study will also address the effects salmon reintroduction will have on native resident fish." Most of the issues involved with this proposal are outside the realm of science, and what science there is has not been convincingly presented.

199501500 - Duck Valley Fisheries Project - Operations, Maintenance, Monitoring and Evaluation

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$508,497 FY08: \$518,066 FY09: \$527,779

Short description: The Shoshone-Paiute Tribes propose to continue with the operations, maintenance, monitoring, and evaluation of three closed reservoir systems on the DVIR as partial mitigation for the loss of anadromous fishes.

Recommendation: Fundable

Reviewers were pleased to note a proposal that is substantially improved by the inclusion of synthesized results, providing important evidence that the project is meeting its goals. About 188,000 trout are annually stocked in three impoundments and about 32,000 caught (4,000 killed, reflecting lots of catch and release). Relatively comprehensive, up-to-date data from creel census are presented, as they should be but seldom are for similar projects. Staff should be commended. Data from limnological surveys are also included. Such information yields a proposal that is of higher quality than in the past.

Sterile non-native rainbows are being stocked and that is commendable. Based on information in the proposal it appears that growth, especially of medium and larger fish, is slower than might be expected. Either the temperature-dissolved oxygen "crunch" is more severe than believed (the apparent poor survival of larger fish supports that), and/or forage for larger fish might be limited. If a forage base of prey fish does not currently exist, consideration might be given to developing one.

More specific performance goals should now be developed for each fishery (for fish growth, survival and harvest) so success/failure can be monitored and biological bottlenecks identified that may need management attention. The reliance on annual gillnet CPUE data will probably prove to be of limited value. Extra care is necessary because of their size selectivity. Trapnets might be useful.

Data are transferred to Streamnet.

199505703 - Southern Idaho Wildlife Mitigation

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$2,581,215 FY08: \$2,664,071 FY09: \$2,668,763

Short description: The Shoshone-Paiute Tribes propose to protect, enhance/restore and maintain native habitats through land acquisition in the Middle Snake Province as mitigation for the construction of Anderson Ranch, Deadwood, and Black Canyon hydroelectric projects.

Recommendation: Fundable

This is a cogent and compelling proposal. Where relevant, scientific resources are used well. The maps add clarity regarding benefits to sage grouse and mule deer and associated species. The technical and scientific background is complete, and even includes policy and cultural elements. The proposal is linked closely to the goals of the Program and subbasin plans involved. There may be some threatened and endangered and State agency programs that complement this proposal as well. The proposal identifies that the Tribes have a key leadership role and strong collaborations with many other stakeholders. Objectives are clear, measurable, and realistic. The tribes' approach to locating suitable property was sound and yielded several prospects. Until the tribes reach the management planning phase, most of the described work is administrative and plans for this are appropriate. History to date is primarily administrative and development of collaborative links. Pre-acquisition work was technically and scientifically well grounded.

Focal species include riparian species, sage grouse and mule deer. Potential links to other efforts are not fully explained, but proximity of USFS and Reservation lands implies opportunities. The isolation of these sites and location within watersheds will provide some protection from other, possibly deleterious activities in the basin. Fire management goals will be needed and fire protection and off-road vehicle use are threats that are not addressed. Elimination of livestock grazing (presumed?) may cause some invader and weed plants to become more problematic, but if properly managed these impacts should be minor. The need for monitoring is recognized and

a preliminary plan is in place. Plans for storing and sharing data are included. Riparian PFC is not a monitoring tool so cause-effect relationships cannot be detected using this tool. Facilities and equipment are adequate and it appears they have well-trained staff.

200709600 - Wildlife Inventory and Habitat Evaluation of Duck Valley Indian Reservation

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$159,480 FY08: \$162,666 FY09: \$142,228

Short description: The purposes of this project are threefold: (1) to gather information on wildlife species composition, distribution and relative abundance on the DVIR; (2) to assess the condition of existing habitat; and (3) to disseminate this information.

Recommendation: Response requested

Completion of this extensive inventory is an important step in providing benefits to fish and wildlife in the subbasins involved. The proposal demonstrates the significance of the project as a high priority in two subbasins. This project as initially described is consistent with the Program and subbasin plans, as well as sound management practice. The need for the inventory is justified, but the sponsors need to respond to several important concerns. The proposed solution is reasonable and well thought-out, but the objectives and work elements do not seem to match the problem described.

A stated objective is to inventory populations and habitat. The methods describe two phases: 1) plan & design, and 2) monitor & evaluation. However, the monitoring and evaluation is actually an inventory and not monitoring. As described, the purpose of the inventory is so that the Tribal Business Council can use the inventory in decision-making. This use is different than monitoring management effectiveness. The authors must more clearly identify the relationship among inventory, management planning, monitoring, and adaptive management.

In general, work element methods were not adequately described. There is no mention of sampling intensity, stratification or modeling that might be used to complement field techniques. Some of the species that are to be inventoried will require very precise techniques and assumptions. ESA species may need administrative approvals for handling. The ISRP strongly recommends that advice be sought to ensure that the baseline inventory for species and habitats be well connected to specific objectives and work elements.

The ISRP requests more details about adequacy of facilities (e.g. computer resources) for all phases of the project. The personnel needed for this amount of fieldwork will likely involve several crews that would all need vehicles and equipment. The ISRP requests more details about how the proposed work will be completed.

199701100 - Shoshone-Paiute Habitat Enhancement

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$309,587 FY08: \$315,926 FY09: \$323,149

Short description: The Shoshone-Paiute Tribes propose to continue O&M and implementation of spring and stream enhancement projects that protect wild fish stocks and improve the function of key watershed processes.

Recommendation: Fundable (Qualified)

The proposal flows from outputs of the rather thorough, detailed, and interesting Owyhee Subbasin Plan. The proposal contains a (rather vague) description of the project by the Shoshone-Paiute Tribes to continue operation and maintenance (O&M) and implementation of spring and stream enhancement projects that protect wild fish stocks and improve the function of key watershed processes. Accomplishments since 1997 were largely related to protection of headwater areas, some stream habitat improvements recently, and development of the monitoring and evaluation (M&E) plan, at a cost of approximately \$300,000 per year, with no end in sight, according to the sponsor's statement on future costs.

The proposal is reasonable and has a good M&E plan that the ISRP reviewed following the province reviews in response to the ISRP recommendation that the project was not fundable. This M&E plan is the strongest part of the project. The project also includes some good education/outreach activities. Overall, the general quality of the proposal has improved over the years of review. However, the ISRP's "fundable" recommendation is qualified because the sponsors have not provided evidence of many concrete accomplishments during the nine-year project funding duration, and most of the proposed effort is for O&M on what seem to be marginal activities.

The proposal does a reasonable job of listing the task-oriented accomplishments of the past nine years. However, a summary of biological results is not provided. Past accomplishments refer to extensive monitoring and data collections, so one would hope that some habitat trend responses could have been reported on. The proposal, however, indicates the data and statistical analysis to support effectiveness monitoring and evaluation is forthcoming as the M&E Plan is executed. Despite this forthcoming report, a narrative or at least a summary of the results is needed. Even the listing of project accomplishments could have been presented in a manner more helpful to reviewers in understanding the project's timeline toward overall DVIR objectives. For example, it could have listed the number of springs on DVIR, followed by the number that need protection, and then a listing of those that have been protected (by calendar year), then a projected listing of the number of springs to be protected out into the future by year. The same goes for riparian exclosures, cattle crossings, stream crossings, etc.

Other biological accomplishments are presented without explanation or reference documents, such as the statement that genetic analysis identified three pure redband populations (how was this determined, what lab determined it, and what documents are available for review that describe these results and analysis).

Biological objectives listed are actually work elements, and consist of fishery and habitat surveys, and protection of springs and streams from impacts. The latter refers mainly to work on culverts, fencing, and road crossings. Additional work involves ensuring previous works remain functional. Section F of the narrative (proposal biological objectives, work elements, and methods) was incomplete, and the weakest of the proposal, and requires more detailed description, including measurable outcomes.

Only one person is listed in Section I (Key Personnel). This section and sections on objectives and project history are incomplete.

Overall the proposal has merit but is deficient in reporting of past results and couching future plans in a larger overall context for DVIR goals.

200733200 - Mitigation of marine-derived nutrient loss in the Boise-Payette-Weiser subbasin

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Payette

Budgets: FY07: \$351,037 FY08: \$360,084 FY09: \$367,509

Short description: The project replaces marine derived nutrients using salmon carcasses and salmon carcass analogs in the Boise-Payette-Weiser subbasins. Aquatic and terrestrial effects of nutrient treatments will be monitored using isotope and lipid analysis.

Recommendation: Response requested

This is a basic research project with implications to similar high elevation headwater areas. The project could provide additional information on trophic chains from salmon carcasses. The proposal relates this work to objectives in the subbasin plan and other regional programs. The proposal does not directly relate the work to other projects with BPA funding. Collaboration with IDFG, U.S. Forest Service, and Idaho Power Company are noted.

Justification should be provided to demonstrate that this work is still needed in spite of other research recently published and currently underway in Columbia River Basin. Does this project address uncertainties or is it designed to try an approach that has already been tested elsewhere? Consideration of long-term management applications also should be included in a response.

A response is needed to provide additional information on the experimental design. The response should provide details that indicate appropriate sites are available and that the sample sizes are adequate for detecting meaningful differences between treatment and control sites, before and after treatments, and between treatment levels. Sponsors are requested to address not only statistical significance but also whether sufficient data will be available to detect meaningful biological effects. Also clarification is needed concerning whether baseline data would be collected for all variables of interest before treatments are applied.

The personnel are well qualified. Plans for information transfer include publication in peer-reviewed journals, but efforts to share lessons learned and successful results to others in the region on a more timely basis should be identified.

200706900 - Determine status of migratory bull trout in the South Fork Payette River

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Payette

Budgets: FY07: \$137,197 FY08: \$108,061 FY09: \$107,955

Short description: The project is designed to evaluate population status migratory populations of bull trout in the South Fork Payette River.

Recommendation: Not fundable

The proposal identifies the problem of lack of information concerning bull trout distribution in the subbasin. The need to collect data to identify sites for monitoring bull trout population trends and evaluating the contribution of core areas to bull trout recovery is defined. The summary does not identify any other related projects but the narrative connects this proposed work to cooperative efforts by the Bureau of Reclamation, Idaho Department of Fish and Game and the Boise National Forest to identify the status of migratory bull trout in other core areas within the Southwest Idaho Recovery Unit. This project is designed to inform additional investigations to help identify sites that could be used to determine population trends for bull trout in the future.

The only biological objective defined is to determine abundance and habitat use of migratory bull trout in the South Fork Payette River. This objective is tied to the subbasin plan. Specific timelines should be provided in a response. The management value to be derived from the information obtained in this project should be clearly identified. It is also not clear that the sponsors have considered work done elsewhere on bull trout ecology and how that work differs from what is proposed here. The big question is, how will this project advance our knowledge of migratory bull trout and facilitate their management?

The methods described in the work elements should be expanded to address the adequacy of installing weirs on three streams rather than less or more. Also, justification of the target of tagging 40 adult bull trout is necessary. Is this number reasonable to establish reasonable population estimates using capture recapture methods? One of the objectives is related to habitat, but no methods are described for selecting sampling sites, determining sample sizes, or collecting data. No statistical procedure is described for analysis of these data or extrapolation beyond sample sites. Some discussion of how the results will be monitored and evaluated is necessary. How much confidence can be placed in abundance and distribution estimates based on the sampling proposed?

More details concerning facilities, equipment, and personnel are necessary. It is unclear what the time commitment of the supervisory personnel will be. The exact duties and qualification of the three fishery technicians are also not specified. Will they all have similar qualifications and

duties? Will project personnel have the quantitative skills to complete the data analysis?
Purchase of a trailer for only eight months use in a short study should be better justified.

Plans for information transfer include storage of data in StreamNet, annual reports, and reporting of incidental takes to USFWS. Will there be results worthy of broader reporting in regional scientific or technical outlets?

199800200 - Snake River Native Salmonid Assessment

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Snake Upper Middle

Budgets: FY07: \$341,520 FY08: \$351,766 FY09: \$362,320

Short description: The goal is to secure long-term persistence of native salmonids in the Upper Snake River Basin, ideally at self-sustaining harvestable levels, by: 1) assessing current status; 2) identifying limiting factors; 3) developing recovery plans where necessary.

Recommendation: Fundable

This is an exemplary outstanding proposal that continues the high standard of work and proposal writing previously presented by the sponsors. They are to be commended on a project that is clearly laid out, is marching steadily along toward its well-defined objectives, and is setting a standard for such work in the interior Rocky Mountain West. It should serve as a model for proposal writing and reporting of results for an ongoing proposal. The relationships to other projects section is exceptionally strong. The project history is very nicely done, with a truly impressive set of reports and manuscripts in press and already published.

Upper Snake

200737500 - Does the Decline of Idaho Sockeye Salmon Correlate with a Mountain Beetle Infestation?

Sponsor: bluefish.org

Province: Upper Snake **Subbasin:** Snake Headwaters

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: This proposal aims to study the nutrient recycling question: Does the decline of Idaho's Sockeye contribute to ecosystem stress in the upstream habitat where their marine-derived nutrients were historically deposited?

Recommendation: Not fundable

This is an inadequate proposal based on purported correlations between lack of sockeye nutrient deposition in lakes and the infestations of pine beetle. The proposal contains no review of the literature, citation of ongoing research, or evidence of scientific expertise needed to conduct the study. Also, no explanation or itemization of the \$10k budget is provided.

The background to this proposal consists mostly of an excerpt from an abstract on nutrient recycling. The proposal states that it seeks to test the hypothesis that an Idaho mountain pine beetle outbreak may be related to the decline in sockeye salmon returns. However, there is no reference to or citation of regional work in this area on the part of scientists at the USFS, private firms, or academic institutions.

The rationale for the work consists of extensive excerpts from the Lower Snake and Salmon Subbasin Plans, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These have general but not specific relevance to the work proposed here. The work elements list several steps to obtaining GIS data on infestation in order to make GIS-based comparisons. The proposal does not explain how the GIS data will be used to test the hypothesis, beyond "neural network analysis." There is also no discussion of the limited utility of correlations in contributing to a broader understanding of the relationship between sockeye abundance and beetle infestation.

200713700 - Open Channels

Sponsor: Friends of the Teton River

Province: Upper Snake **Subbasin:** Snake Headwaters

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$0

Short description: Open Channels has 3 elements: 1. Removing fish barriers to improve connectivity of tributary headwaters to the River. 2. Improving flow conditions in tributaries during critical YCT reproduction. 3. Stream bank restoration, improved habitat & less sediment.

Recommendation: Response requested

The exclusive focus of this proposal is on Yellowstone cutthroat trout, but other components of the community need to be taken into consideration including food sources. The sponsors take a habitat-based approach, and it is not clear what the fish benefits would be. Specifically, the actions proposed for the Yellowstone cutthroat trout would also benefit brook trout. So is there an overall benefit to the Yellowstone cutthroat trout? Reviewers suggest that consideration of fish populations be included, and collaboration with fish-centric groups like Idaho Fish and Game is needed for, among other things, effective M&E.

The pilot habitat project is not adequately justified in terms of fish benefits. This area of the watershed has a long history of being de-watered and populated by non-natives. The portion of the project dealing with irrigation management strategy seems valuable. What more would this funding add to outcome of Idaho Department of Water Resources contract to develop an irrigation management plan? Irrigation planning methods seem reasonable, but what types of changes are envisioned that would provide the needed water? And what are the water rights implications of these? How many cfs are needed to restore flow and connectivity?

The restoration proposal might be worthwhile, and the problem identification sounds reasonable. However, a response is needed on several questions related to the lack of an accurate description of where the restoration area is and how it functions in the larger landscape. How much stream habitat is degraded? Why is Trail Creek given highest priority for a pilot habitat restoration

effort? No information was given on fish populations, and no specific information was provided regarding limiting factors. What gains in fish populations could be expected after project completion? How much sediment is being produced by damaged banks? Are these actions alone sufficient given the trout problem? Are there conditions up- or down-stream that might negate improvements? Who owns the land to be restored, and how will the improvements be maintained? Will the water saved be reserved for instream use? See the Columbia Basin Water Transaction Program's criteria. Without such detail, it is difficult to assess suitability of the ("widely accepted") riparian restoration techniques selected. In-stream structures often do more harm than good and apparently no independent engineering assessment or review is planned. Permit reviews would not be sufficient in this regard.

Most sources of technical and scientific background are in-house. The proposers note the subbasin plan and cite its objectives. It seems there are only Friends of Teton River projects and general partnerships, except for the contract with IDWR. The Irrigation District is not mentioned. Personnel appear experienced and qualified, but their role and degree of involvement is not explicit and the personnel section of budget is modest for this stable of personnel. Major equipment will be needed. Will this be contracted? Information transfer is not explicit, nor are any data issues addressed.

Effectiveness monitoring is needed, and project objectives would need to be more specific to develop a sound monitoring and evaluation plan. It seems all that will be monitored is implementation of the irrigation plan. No plan to monitor fish response is proposed, nor any parameters associated with fish population declines. A response should better describe their monitoring and evaluation plans.

200717000 - South Fork Snake River Yellowstone cutthroat trout recruitment and survival improvement

Sponsor: Idaho Department of Fish & Game

Province: Upper Snake **Subbasin:** Snake Headwaters

Budgets: FY07: \$1,105,100 FY08: \$1,107,400 FY09: \$1,011,700

Short description: Increase juvenile Yellowstone cutthroat trout recruitment and survival in the South Fork of the Snake River by minimizing entrainment losses and side channel stranding mortality, and by restoring tributary habitat.

Recommendation: Fundable

This is a new proposal from IDF&G focusing on native Yellowstone cutthroat trout in the South Fork of the Snake River in eastern Idaho. The proposal is well written and logical, and refers to relevant recent studies and results within the South Fork system.

The project proposes to upgrade existing picket weir traps in four important upper river spawning tributaries for Yellowstone cutthroat trout. The weirs allow managers to keep introduced rainbow trout out of the tributaries and to therefore avoid hybridization - at least in these major tributaries. Rainbow trout are now well established in the mainstem and are a significant threat to the genetic integrity and population viability of the South Fork cutthroat

trout population. A second important objective of the proposed project is to install irrigation screens on four lower river feeder canals where entrainment of juvenile Yellowstone cutthroat trout is thought to be a limiting factor in their abundance in the lower river section.

The proposal does not justify, with data, that entrainment in the diversions is actually a problem. But this is likely a good assumption considering the volume of water being moved. The proposed project fits extremely well with local and regional planning documents. This is a new project, but linkages are made to other existing projects within the drainage. A strong collaborative effort is ongoing to preserve native cutthroat on South Fork

There are two clearly stated Objectives - to screen one lower river diversion per year, and to replace pickets in one existing weir per year. Screening the diversions should reduce entrainment losses, but reviewers are asked to take that on faith. Tasks (work elements) and methods are clearly stated -- straightforward engineering. Facilities, equipment, and personnel are excellent

Monitoring of trout populations to verify expected results is referred to within the proposal but is not explicitly detailed. This is not particularly surprising, as the project is primarily a capital expense and facilities upgrade project, rather than a research project. Nevertheless, several assumptions are made that monitoring could be used (and should be used) to verify. One such assumption is that keeping the Yellowstone populations in the upper river tributaries (Pine, Rainey, etc.) free from rainbow trout introgression (via the picket weirs and genetic sampling) will be adequate to keep rainbow numbers down and Yellowstone cutthroat trout abundance high. This may be correct - and monitoring would show that - but it may also be overly optimistic. Information transfer is adequate. One also hopes that peer reviewed publications will emerge from this larger study.

199505700 - S Idaho Wildlife Mitigation

Sponsor: Idaho Department of Fish & Game

Province: Upper Snake **Subbasin:** Snake Upper

Budgets: FY07: \$400,738 FY08: \$406,360 FY09: \$371,961

Short description: This is for on-going coordination within the Council's CBF&W Program; and for operation, maintenance, monitoring and evaluation at wildlife mitigation properties previously acquired with BPA funding, for the Southern Idaho Wildlife Mitigation project.

Recommendation: Fundable

This proposal cites more appropriate literature than most wildlife proposals and demonstrates an emphasis on use of science in management. The authors clearly stated the problem. The ISRP wonders whether the proposed acquisitions link to other current or future parcels, perhaps under other ownership, that create a landscape level habitat network. Is there such a thing here, or could there be?

The objectives are generally clear and measurable, but timelines are continuous. Work elements regarding monitoring protocols are especially clear and appear sound. Focal species' links to the landscape are not presented. Persistence of benefits to fish and wildlife is implied, given

continuing support. Could some of these sites become more self sustaining, for example, convert irrigated sites to native vegetation?

It is not clear that monitoring data already being collected for prior acquisitions have been evaluated for adaptive management and achievement of Program goals. Information transfer is not mentioned, nor any published outputs. By the next review this proposal should report monitoring results in biological terms and applications for adaptive management based on the results.

199505702 - Southern Idaho Wildlife Mitigation

Sponsor: Shoshone-Bannock Tribes

Province: Upper Snake **Subbasin:** Snake Upper

Budgets: FY07: \$2,050,000 FY08: \$2,050,000 FY09: \$2,050,000

Short description: Shoshone-Bannock Tribes Admin. and O&M projects . Continue acquisition of mitigation projects and conduct required operations and maintenance activities on Soda Springs Hills and Rudeen Ranch mitigation projects

Recommendation: Not fundable

No narrative information is provided as a basis for evaluation. The goal is to acquire and manage land, but the entire budget is in personnel.

199201000 - Habitat Improvement/Enhancement - Fort Hall, Idaho

Sponsor: Shoshone Bannock Tribes

Province: Upper Snake **Subbasin:** Snake Upper

Budgets: FY07: \$245,641 FY08: \$295,641 FY09: \$283,718

Short description: Provide conditions to maintain a self-perpetuating trout fishery for the tribal membership and general public through implementation of habitat restoration, enhancement, and protection projects on the Fort Hall Reservation.

Recommendation: Response requested

The proposal is improved from past proposals in terms of readability. However, as the ISRP noted in its previous review of this project, an issue with livestock management remains unresolved; namely, a bison herd in the upper basin compromises the work proposed by this project in the lower basin. A response is needed on strategies and alternatives to deal with this dilemma.

Previous comments: Fundable. The response provided valuable information and clarified several items from the proposal. In spite of the long history of the project (start date of 1992), livestock management issues still appear to be unresolved (as discussed in the response) and may be limiting the benefits of the past habitat improvement actions. These issues need to be resolved before further funding of the project can be justified from a technical perspective.

Mountain Columbia

Bitterroot, Blackfoot, Clark Fork, Columbia Upper

200726500 - Complete and Coordinate a Subbasin Plan for the Bitterroot Watershed

Sponsor: Montana Water Trust

Province: Mountain Columbia **Subbasin:** Bitterroot

Budgets: FY07: \$50,000 FY08: \$50,000 FY09: \$50,000

Short description: The Montana Water Trust proposes to coordinate the subbasin planning process in the Bitterroot Watershed during FY 2007-2009. The project sponsors will work with local, state, federal, and tribal groups, as well as the public, to complete an effective plan.

Recommendation: Not fundable

This subbasin has been altered by man and the alteration is believed to have caused a decline in its productivity for valuable fishes. While a worthwhile proposal, it is naive in terms of what needs to be done. Currently, there is not enough collaboration to do this project and not enough science presented for the ISRP to make a “fundable” recommendation. The primary issue is policy related, does the Council want to fund a Bitterroot Subbasin planning effort? If so, the following comments would pertain.

The proposal is not linked directly to Fish and Wildlife Program, but to Clean Water Act and other relevant public concerns. Although collaboration is described, details are few and a lack of cost-share suggests limited knowledge of, or buy-in by partners at this point. Further, not citing any plans being used by collaborators, neighboring subbasin plans or Council planning guidance suggests this effort is early in its development.

Actions needed to restore lost productivity are difficult to identify in such basins because flushing flows, stable hillslopes, and flood plain dynamics no longer exist as they did in the past. Strategies for improving productivity in comparable basins are not producing desired benefits for fish. Proposers need to become thoroughly familiar with this background and develop innovative new strategies with greater probability for success (e.g., see Palmer et al. 2005. Standards for ecologically successful river restoration. *Journal of Applied Ecology* 42, 208-217 and cited references).

Many allied aquatic and terrestrial species are likely to benefit if focal species do. Objectives are clear and measurable, but preliminary to any species benefits that may flow following successful plan development and implementation. Work elements are social and organizational rather than scientific or technical, but are reasonable for the immediate task at hand. Personnel appear well qualified although relatively new to the job. Actual time to be committed by each responsible person is not indicated and subcontract amounts appear inadequate to likely needs. They will likely require assistance from a geomorphologist and population/conservation biologist. Only completion monitoring applies now, but they should plan eventual subbasin wide monitoring.

Information transfer is not addressed. The budget seems insufficient for the likely magnitude of the effort, especially lacking substantive cost sharing. Sponsors might benefit from study the Blackfoot subbasin proposal as an example.

If the Council wants to pursue this idea, perhaps they could offer one year of planning support to pull the project together and submit a more detailed plan, or fund the plan, with the understanding that additional requests would be entertained after 1 year of satisfactory progress building partnerships, outlining a plan, inventorying useable data, identifying data needs, and building a public process.

200705300 - Upper Lolo Creek Watershed Restoration

Sponsor: US Forest Service: Lolo National Forest

Province: Mountain Columbia **Subbasin:** Bitterroot

Budgets: FY07: \$447,453 FY08: \$184,553 FY09: \$142,953

Short description: Decommission roads in the Upper Lolo Creek Watershed for resident fish benefit. The primary objective is to reduce cumulative effects associated with roads and road-related management activities, in large part fine sediment generation and delivery.

Recommendation: Response requested

This appears to be a good proposal, but the ISRP requests a response on a couple of issues. Is this proposal going to reduce the overall road density of the watershed within 300 meters of the river? If new roads are going to be put in, are they going to be further than 300 meters from the rivers? The ISRP needs assurance that other (new) roads will not impact the system, or that impacts will be addressed. Good monitoring and evaluation is included in the proposal. Sediment monitoring is a critical aspect of evaluating this project, and the reactivation of the earlier sediment-monitoring program is applauded. The proposal should also emphasize a weed management plan. There is no subbasin plan to frame this project, but the general strategies in the proposal are consistent with the Council's 2000 Fish and Wildlife Program. Perhaps this project would lend itself to a Ph.D. Dissertation because much useful information should be generated.

Please respond to reviewer's questions outlined in the previous paragraph.

200723500 - Proposal to Create a Sub-Basin Plan for the Blackfoot River Sub-Basin

Sponsor: Trout Unlimited

Province: Mountain Columbia **Subbasin:** Blackfoot

Budgets: FY07: \$32,133 FY08: \$29,133 FY09: \$32,134

Short description: In this proposal, Trout Unlimited will coordinate a planning effort to create a sub-basin plan for the Blackfoot River sub-basin.

Recommendation: Fundable

The primary issue is policy related: does the Council need a subbasin plan for these areas? If they do, this is a fundable proposal and it is advisable to expand the plan to include the Clark Fork/Bitterroot Basins. A current proposal for the Bitterroot is not as well developed as this one. This is a good proposal for a subbasin plan, and they have the capability to create it: most of the work has already been done. The methods are appropriate and consistent with those used to develop earlier subbasin plans. The results should increase the effectiveness of future projects and provide a model of collaborative restoration.

This project will leverage existing work, at very reasonable cost with almost 50% cost share from existing partners. Further, this is not anticipated to be an unending obligation, just a 1-term project. It is not clear that the Tribes are as involved as they could be, but this is noted in the proposal.

There is no stated relationship to other BPA projects, but the proposal relates to adjacent sub-basin plans as well as a number of efforts undertaken by partners using funds other than those from BPA. Planning objectives are clear, measurable and feasible in the time proposed. As the sponsors develop methods and strategies, they need to assure they are based on sound scientific evidence that they will, in fact, increase distribution and abundance of the target species. Human activity is believed to have caused a decline in this system's production of valuable fishes. Actions needed to restore lost productivity are difficult to identify because flushing flows, stable hillslopes, and flood plain dynamics no longer exist as they did in the past. Strategies for improving productivity in similar basins are not producing desired benefits for fish. Sponsors of this proposal need to be thoroughly familiar with all such strategies and develop innovative new ones with greater probabilities for success (e.g., see Palmer et al. 2005. Standards for ecologically successful river restoration. *Journal of Applied Ecology* 42, 208-217). All exotic species should be assessed as potential threats to the natives.

The monitoring and evaluation component is a major strength of this project, proposing to link a number of current and future efforts in the subbasin with a unique, integrated monitoring scheme. It seems highly likely that focal species and other associated species will benefit as projects come on-line that are carefully prioritized and planned and whose results are monitored.

200724700 - Priscilla Peak Wildlife Habitat Restoration (Prescribed Fire)

Sponsor: US Forest Service

Province: Mountain Columbia **Subbasin:** Clark Fork

Budgets: FY07: \$103,000 FY08: \$103,000 FY09: \$104,500

Short description: The project sponsors would like to apply prescribed fire to about 4,800 acres of forest and grass-shrub communities that have been degraded by fire suppression. Prescribed fire will enhance habitat for bighorn sheep and improve the potential for grizzly bear reoccupancy.

Recommendation: Response requested

This is a discrete, short-term project with likely immediate benefits to bighorn sheep, and possible longer-term benefits for grizzly bear reoccupation. While designed to benefit bighorn sheep, surely late seral species on the site would also be affected, as would any downstream aquatic species if severe erosion were to result. The proposal describes its relation to planning in the area but Habitat Units to be gained are not identified. The proposal notes that this is not in a planned subbasin, but cites surrounding plans. The proposed action is consistent with the Program and with other relevant Federal and State initiatives and is related to projects on the same USFS district and adjacent National Forest. Montana Fish and Game seems to be involved, but not to any State or any BPA programs. Habitat Units likely would accrue, but the USFS may not be accustomed to viewing their activities in this light. The methods section of the proposal repeats the justification, but elsewhere the general burn procedure is described, but not the entire project, including pre-burn surveys, environmental clearances etc. The USFS probably has the ability to complete the planned project. The ISRP would like a description of how this site fits into the year-long requirements of the sheep and if proposed work is part of a larger, integrated plan.

The proposal states effectiveness monitoring is omitted due to recent research showing the approach is sound. However, the authors should consider conducting follow-up monitoring on direct vegetative response to the burns. The ISRP requests a response to how vegetation on the burn areas will be monitored. This doesn't need to be a research-level effort. The goal of sampling would be to allow comparison of vegetation change and animal use over time. The ISRP also request a discussion of erosion and sedimentation, and noxious weed invasion, all of which might occur.

The ISRP requests a more complete description of "Information transfer will be electronic." Please describe what information, to whom and why?

It would be valuable to develop this into a fundable proposal. Many of the subbasin plans identify fuel and forest succession problems, but controlled burn proposals are scarce. Prescribed fire as a treatment would be widely applicable; however, few of the proposing agencies have the fire management experience of the Forest Service.

200729500 - Crow Creek BPA Powerline Channel Restoration Project

Sponsor: US Forest Service: Lolo National Forest

Province: Mountain Columbia **Subbasin:** Clark Fork

Budgets: FY07: \$50,000 FY08: \$0 FY09: \$0

Short description: This project will focus on restoring approximately 1/2 mile of Crow Creek to a more proper functioning channel. Work will include extensive revegetation, reconstruction of the channel to more natural conditions, and addition of habitat structures.

Recommendation: Response requested

The banks appear to be well vegetated and stable. Crow Creek is already well vegetated and has a nice riparian edge, especially considering that there is a power line above the creek, but there may be an issue concerning the width of the channel for specific fish species. The photographs seem to indicate that succession is moving towards a normal environment, especially with a power line present.

The ISRP needs more information and a response back concerning the importance of this site and following questions. Are weeds part of the concern in terms of riparian vegetation? Why is this site important (high priority) compared to other areas for this type of work? Is this project really needed? This project may have greater potential to have negative effects than positive effects. Fish surveys have found more fish in this reach than in other local reaches. No explanation was provided as to why the passive recovery of vegetation (at least as much as will be tolerated by the power people) will not be acceptable. There is no presentation of existing analyses to support the proposed work (e.g., what highly convincing evidence can be provided to show that these changes will yield the predicted benefits?). What was the inter-agency strategy that resulted in the high priority assigned to this project? The only information provided was that several agencies got together to provide a strategy of action, this project came out on the top of their list, and the location has no non-native fish species.

200704800 - Transboundary Watershed Coordination in the Kootenai River Basin

Sponsor: Kootenai River Network, Inc.

Province: Mountain Columbia **Subbasin:** Columbia Upper

Budgets: FY07: \$300,000 FY08: \$300,000 FY09: \$300,000

Short description: Fosters "grass-roots" public involvement and interagency cooperation for habitat restoration to offset deleterious impacts to the Kootenai River watershed fisheries by information transfer and public interface.

Recommendation: Admin (see comments)

In spite of designation as a new project, this is clearly a follow-on/expansion of previous projects offering environmental education and outreach for the Libby Dam project - 199500400. There is no cost-sharing, yet such a collaborative project should be able to generate cost sharing and/or grant support in addition to BPA, leveraging BPA investments, increasing buy-in and reflecting growing value and relevance to partner organizations. Coordination functions look reasonable, but the other projects don't mention this group. There is not much science to review in this project. Benefits to species are indirect and have not been measured.

The proposed objectives are not very concrete. This is an operational or social approach rather than a technical or scientific one; however, there is substantial research documenting the long-term effectiveness of such approaches to improving natural resource management, especially in cases of mixed ownership and jurisdiction. This program seems to bring together more interests and activities in the subbasin than any other proposals from the subbasin even hinted existed. An extensive list of accomplishments supports their credibility.

Monitoring and evaluation consists of names, dates, and numbers of participants in activities. Would an overall program effectiveness evaluation be advisable? The proposal is to hire existing staff at higher FTE levels and do more of same activities. What larger goals would be possible if this were funded and how might the accomplishments resulting from this increased level of support be documented? As an outreach program, almost all they do is information transfer. Data in the scientific sense are not generated, but program ideas, successes and such might be shared at conferences or in semi-technical publications.

Flathead

199101903 - Hungry Horse Mitigation Program

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$1,655,000 FY08: \$1,815,000 FY09: \$1,905,000

Short description: Fisheries mitigation for the construction and operation of Hungry Horse Dam. Implements habitat restoration, improves fish passage, protects and recovers native fish populations and reestablishes fish harvest opportunities.

Recommendation: Response requested

The Hungry Horse Mitigation Program is an ongoing project that addresses the mitigation programs associated with construction and operation of the Hungry Horse Dam and impoundment. Impoundment has led to an annual loss of 250,000 juvenile bull trout, 65,000 juvenile westslope cutthroat trout, and nearly 124 km of critical habitat. The project is proposed to fulfill requirements of the CSKT and MFWP mitigations plans of 1991 and 1993.

The Project recognizes priorities outlined in the Flathead-Kootenai Subbasin Plan and uses a combination of the 4-H's on-site and off-site to mitigate these and other associated losses. Approximately one-half of the mitigation is addressed through improvements to operation of the hydrosystem. The remainder of the losses are to be addressed through removal of non-native species and their hybrids with natives, reintroduction of native fish (Objective 1 and sub-objectives), habitat improvements (Objective 2 and sub-objectives), return of normative flow regimes (Objective 3), monitoring of fish populations and habitats (Objective 4), and administration of the entire project including information, facilities, and personnel management (Objective 5).

This is a well-written proposal including a good literature review and synthesis. It would be helpful if they had a mitigation rationale with each action/work element. Even though not required, it would be very helpful if this lengthy list of projects and activities had better individual justification for mitigation responsibility. The subbasin has gotten some mitigation by changed operation at the dams. The other half of mitigation must come through these other actions. With this in mind, the ISRP identified several concerns that should be addressed.

The sponsors need to provide a prioritization of tasks (by objective). The subbasin plans for Kootenai and Flathead were comprehensive and of high quality. It seems the prioritization efforts from the subbasin plans (QHA) could be better applied to prioritize the various proposed actions in this project.

The response needs to include details of the specific monitoring designs, hypotheses, and metrics to evaluate effectiveness and benefits of the efforts. Five specific objectives (with detailed sub-objectives) are identified. Most are measurable and amenable to monitoring and evaluation, although specific hypotheses and metrics are not included.

The response needs to include data to show that this project is making progress in attaining the numerical goals in fish abundance. Monitoring of stream channel alterations for fish in the Flathead system do not show great benefit to-date from the enhancement strategies employed. The response needs to include convincing evidence to show that the continued application of these strategies is warranted.

The different components of this proposal are not all equally relevant to mitigation efforts. The proposal would benefit if the disparate projects were ranked for relevancy to accomplishing program goals. Some of the proposal components would probably drop out.

A major component is the master planning for the renovation and operation of the Sekokini Springs Hatchery, which is intended to provide for westslope cutthroat trout conservation and restoration. Sekokini Springs will still need to be dealt with in the Three-Step process. The proposal and ISRP review of the proposal do not get to the detail of the Three-Step review. A number of issues associated with this plan are presently under discussion by the ISRP and sponsors.

199101904 - Hungry Horse Mitigation - Stocking of Offsite Waters - Creston NFH

Sponsor: Creston NFH

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$139,393 FY08: \$143,619 FY09: \$148,001

Short description: The Creston National Fish hatchery produces fish for offsite stocking locations to mitigate for losses to the Flathead Lake and River system caused by the construction and operation of Hungry Horse Dam.

Recommendation: Response requested

The Creston NFH- stocking of offsite waters project is identified as part of the Hungry Horse Mitigation Plans (1991, 1993) intended to mitigate for loss of recreational fishing opportunities in the Flathead/Kootenai Basin from Hungry Horse Dam construction and operation. This ongoing project produces ~200,000 4-inch fingerlings for stocking into recreational lakes that have no aquatic linkage to the subbasin's restoration areas. The primary intent is to redirect recreational fishing pressure and harvest away from populations of conservation or restoration interest. The proposal is identified as a priority in the Flathead and Kootenai subbasin plans and meets mitigation criteria in the 1991 and 1993 mitigation plans adopted by Council.

This project has been rated as fundable in recent history. It is likely still fundable for operations at Creston, but there are some basic uncertainties associated with risks v. benefits that need to be addressed.

The sponsors indicate that they are not responsible for biological monitoring, that it's the responsibility of the receiving agencies. However, the project proposal needs to show how these agency's activities are coordinated among co-managers. Given the history of this project, MDFWP and CSKT should have data that can be analyzed and summarized. If such data are not readily available, M&E needs to be strengthened. Within this context, appropriate measurable objectives need to go beyond numbers produced and released to other outcomes or endpoints. The response needs to include an outline of specific objectives stated in terms of the desired numerical benefits expected and a strategy for assessing whether these objectives are being met.

It remains unclear as to why native cutthroat trout are not the entire focus rather than non-native rainbow trout. Are there creel or survey data to indicate that anglers demand or desire rainbows over cutthroat? Have there been centralized surveys of anglers? Moreover, the work element identified as "Produce Hatchery Fish (rainbows) indicates that the program will "include acquisition of genetically appropriate rainbow trout eggs..." The ISRP challenges the sponsors to define what is conceived as a "genetically appropriate" non-native species or genome. (We refer sponsors to the ISRP Retrospective Report regarding focus on native gene pools – not simply native species - for inland salmonids).

Recent ISRP reviews have challenged the inclusion of non-native rainbow trout, which ultimately have been accepted because release locations are not connected to waters targeted for restoration or conservation. The basic tradeoff is defined as providing redirected recreation thus diminishing pressures or harvest elsewhere on populations of conservation or restoration concern (including bull trout). This supposition is testable through creel and survey methods (i.e., do these fisheries attract you away from more sensitive areas and populations? etc.). Even if demonstrable, it remains unclear as to why native cutthroat trout are not the entire focus rather than non-native rainbow trout.

One justification for renovating Sekokini Springs has been a limitation of rearing space, is there not some opportunity to take advantage of Creston NFH for this purpose?

The sponsors do not list the source(s) of the cutthroat trout. These may be identified in the HGMP, but not here. Are they a local stock or perhaps a stock requiring potentially additional ex situ refuge populations? This needs expansion.

200600800 - Evaluation of the Biological Effects of the Northwest Power and Conservation Council's Mainstem Amendment on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams, Montana

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$396,500 FY08: \$396,500 FY09: \$336,500

Short description: The Northwest Power and Conservation Council (Council) directed the region to test, implement, and evaluate an interim summer operation, called for by the Mainstem Amendments, that implement new drafting limits at Hungry Horse and Libby Dams.

Recommendation: Fundable

This is a well-prepared proposal that rates high marks for all ISRP review criteria. The project is well justified and deserves continued funding.

The ISRP previously reviewed this proposal; see ISRP 2004-6, Second Review of Proposal to Evaluate the Biological Effects of the Council's Mainstem Amendments on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams; www.nwcouncil.org/library/isrp/isrp2004-6.htm.

In that report the ISRP recommended continued support for the project and had some suggestions to improve the project:

1. More explicitly plan the strategy for using the existing data and models with updated data and models, and
2. Identify key indicators of trends in biological responses for early judgments about the nature and magnitude of biological effects.

The ISRP is pleased to note that the project sponsors responded to these ISRP suggestions by revising Objectives 1 and 2 to more explicitly include the model simulations of reservoir trophic responses and river habitat availability to provide the most immediate comparisons for assessing the biological consequences of the Council's operation strategy per Mainstem Amendments. The proposal (Objective 5) also emphasizes incorporating benthic community productivity (recolonization rate) into the river models to help inform policy on dam operations designed to benefit the fishery in many river systems affected by hydropower operations. The radio telemetry study (Objective 7) is designed to test the null hypothesis that hourly and daily discharge variation does not influence fish movement. This will be another key indicator of a relatively quick time-sensitive biological response to changes in discharge within the Kootenai and Flathead rivers. They anticipate that a before-after and control comparison could be used as the experimental design to test the null hypothesis.

Other comments:

Project history: Extensive details were provided in this section and results indicate that the project appears to have achieved many of its objectives. However, we would have expected more for a project that has been continuing this long. A list of technical products and peer-reviewed papers produced would be helpful in this section (e.g. like the list of references given in the preceding rationale section describing the interactions with Dr. Taper's lab, but including the full citations).

Have the reservoir models been peer reviewed and published? We couldn't find anything other than a BPA Report, where they are cited.

Tasks (work elements) and methods: On page 34, the paragraph at the bottom states a null hypothesis that seems to be unrealistic. The statistical analysis seems inappropriate for the situation. Wouldn't the objective be more appropriately stated as measurement of the effects of discharge variation on behavior of fish? What would be an appropriate statistical test? The proposal says that distances moved would be the measurement used. Perhaps the initial observations might suggest that distance is not as important as location of movement - from where to where? This deserves further thought, particularly from the standpoint of developing recommendations for modification of discharge patterns. So what if the fish do move further? Would we want to do anything about that?

On page 41, there is a typographical error in the top line. The word "no" has been omitted from the statement about requirements for Objective 8.

199101901 - Hungry Horse Mitigation/Flathead Lake

Sponsor: Salish & Kootenai Confederated Tribes

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$174,000 FY08: \$408,000 FY09: \$412,000

Short description: This project mitigates the impacts of Hungry Horse Dam on downstream aquatic environments within the Flathead Indian Reservation. It includes components of monitoring, research, and implementation.

Recommendation: Not fundable

The project sponsors report that "The project began in 1992 with monitoring emphasis in order to evaluate the success of on-going mitigation efforts within the sub-basin." Further, "Monitoring of ecosystem and biological responses to our mitigation projects is ongoing since 1992, and has grown to address targeted tributaries as well as biological population changes in the lake trout of Flathead Lake." However, the results provide no basis to assess progress in these original and expanded goals and objectives.

Their results to date were described as follows:

"Monitoring Results:

- (1) detailed monitoring of a five year kokanee reintroduction experiment (1993-1997) in Flathead Lake that identified and quantified the reason for the failure of the experiment.
- (2) accurate and repeatable quantification of baseline angler use of the Flathead Lake fishery in 1992-3 and development of a continuous dataset from 1998 to present.
- (3) continuation of annual trend monitoring of native westslope cutthroat and bull trout in Flathead Lake to establish a 24 year period of record.
- (4) quantification of parameters of lake trout biology used to measure population changes based on trends in mortality rates, age at maturity, growth, and fecundity.

Research Results

- (1) Development of a bioenergetic model to quantify consumption rates of planted kokanee by lake trout in Flathead Lake resulting in the conclusion that lake trout consumed 87% of planted kokanee within one year of their release
- (2) Determination of limiting factors in *Mysis relicta* population dynamics resulting in the conclusion that the *Mysis* population is not resource limited but is top-down controlled.
- (3) Development of a lakewide, multispecies bioenergetic model that quantifies predation rates on bull and westslope cutthroat trout)
- (4) Quantification of erosion rates in South Bay of Flathead Lake and correlation with wave climates and reservoir pool elevations"

This project needs to be justified based on results. The project has expended more than \$1 million in just the past three years, and few results were provided. Only a brief list of activities with inadequate substantiating background detail or data synthesis was provided. Reviewers previously concluded, "...the funding agency should be assured that monitoring in a series of tributaries is rigorous and continuing so that diminishing returns from habitat renovation can be identified. If habitat measures are effective, there should be a tendency for juvenile abundance to increase at any given parent density. If efforts to improve escapement to the spawning grounds are successful there should be a tendency for parent numbers to increase along the curve (relating parents and offspring) described for the improved habitat conditions. The funding agency needs to be confident that strategies and methods exist for obtaining these data." This proposal provides no such assurance and no demonstrated progress toward initial objectives; thus, there is no basis for continuing the project.

199608701 - Montana Focus Watershed Coordi

Sponsor: Salish & Kootenai Confederated Tribes

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$95,650 FY08: \$101,460 FY09: \$106,450

Short description: This program fosters "grass roots" public involvement, interagency cooperation and cooperative cost-sharing for habitat restoration to offset impacts to fishery resources in the Flathead watershed.

Recommendation: Admin (see comments)

This is a coordinator position description. Objectives are very general and stated in terms of improving various conditions associated with fish habitat, but there are no endpoints from which real progress can be assessed.

No monitoring results for project effectiveness are provided. Objectives are not described in measurable terms. Responsibilities do not seem to include any assessment to guide an adaptive management approach. There is only a brief statement for 2005 results regarding development of an offstream watering well, a project to divert wastewater, and funding negotiated for stream improvement of the Jocko River. Reviewers are provided no basis for assessing whether there is continued need/benefits from the position.

Since the purpose of the position is to coordinate projects in the basin, perhaps it could be incorporated in Project 200200300.

200200300 - Secure & Restore Resident Fish Habitat

Sponsor: Salish & Kootenai Confederated Tribes

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$5,265,000 FY08: \$5,905,000 FY09: \$5,911,000

Short description: The Confederated Salish and Kootenai Tribes and Montana Fish, Wildlife & Parks will jointly pursue the protection of fisheries habitat through land acquisitions and conservation easements to offset losses due to the construction of Hungry Horse Dam.

Recommendation: Response requested

As submitted this is not a scientifically reviewable project, but it should be. The sponsors plan to acquire properties. The proposal would benefit by including descriptions of the properties to be purchased and the species to benefit, and/or the criteria to be used for selection of the properties targeted for protection. Please provide a response on these issues.

A response is also needed to show how selected properties will help restore fluvial functions (e.g., see Palmer et al. 2005. Standards for ecologically successful river restoration. Journal of Applied Ecology 42, 208–217, and cited references). This is basically the same issue raised in our previous review.

Previous ISRP comments were: "Do not fund in its present form. This request is for 'base funding' rather than 'project funding' oriented to specific topics, the norm for most BPA-funded work. The proposal does not include the elements expected in a technically sound program. It should include clear and specific objectives, detailed methods, and how the progress in attaining specific objectives will be tracked and evaluated. The reporting of results is inadequate; progress in past activities of the project need to be included as a basis for continuing similar work. Adaptive management requires data for regular assessments and decisions regarding the project strategy."

200707200 - Flathead Subbasin Flowering Rush and Yellowflag Iris Project

Sponsor: Salish Kootenai College/University of Montana

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$332,640 FY08: \$291,358 FY09: \$291,360

Short description: This research, demonstration, and education project on the environmental impacts of flowering rush and yellowflag iris on wetland and aquatic habitats will help determine the biological potential and identify the future impact and test control measures.

Recommendation: Not fundable

This proposal is well written, technically sound, and thoughtfully constructed but the benefits to fish and wildlife are not sufficiently demonstrated.

This proposal does not make a strong case that this is a problem outside of the Flathead Subbasin (perhaps they are a problem in the Flathead). The sponsors describe a case in the St. Lawrence where the rush exploded and subsequently died back.

However, without evidence to the contrary this seems to be a regional problem. Neither plant species seems to gather more than passing mention, if that, in other subbasin plans. The iris has been present for many years in other basin provinces (Hells Canyon Dam complex in Idaho, for example), and has not become dominant.

Discussion of the plant species with which the iris and rush interact, and the extent to which the iris and rush impact other plants and an ecosystem would be useful.

Kootenai

200201100 - Kootenai Floodplain Operational Loss Assessment

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$774,699 FY08: \$785,361 FY09: \$801,901

Short description: Produce an Operational Loss Assessment Tool to estimate aquatic, riparian and associated terrestrial ecological losses due to Libby Dam operations in the Kootenai River floodplain and is applicable to other post-development large river-floodplain systems.

Recommendation: Fundable

This 116-page proposal reads more like a dissertation and would probably be more effective if edited to eliminate non-essential (from review standpoint) background and explanation of terms and processes. Eliminating redundancies would streamline the proposal, making its strong structure more apparent. The proposal clearly relates to Program, subbasin plan and other initiatives in the region. Focal species and habitats are considered in model development. This is a highly technical proposal involving many cooperators and consultants. Including staff training is an excellent move to keep staff growing with the project, fostering ownership of the process

and products. The budget for travel does seem excessive, however, even given the training component. This proposal should be closely coordinated with Albeni Falls Operational Assessment, 200731200, from the Kalispel Tribe. Major accomplishments are lost in reams of detail in narrative. Summary in form is more useful as an overview. The plan to report results in peer reviewed outlets is laudatory. M&E is actually part of the design process rather than an after-thought, consistent with the exploratory nature of the project.

198806400 - Kootenai River Native Fish Restoration and Conservation Aquaculture

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$1,970,800 FY08: \$2,739,146 FY09: \$3,523,054

Short description: Prevent extinction and begin rebuilding healthy age class structure of sturgeon and burbot using conservation aquaculture techniques with wild broodstock. Reintroduce kokanee into westside tributaries. Provide fisheries program outreach.

Recommendation: Response requested

This is an excellent proposal in many respects. The project has a history of being well managed and productive. But its breadth and complexity can be confusing and have led to questions and concerns.

The summary of the Kootenai River system and associated fish species was well done. The maps were particularly helpful. The technical and scientific background is a bit long, but could be improved by adding a very brief sentence or paragraph on what action is going to be taken to address each of the identified problems, and why the sponsors think it is an appropriate action. The linkage of project objectives and limiting factors (page 13) is good but would have been more appropriate in the rationale or objectives sections. The proposal addresses species identified in subbasin and regional plans using restoration strategies identified in those plans. Discussion of some material seemed tangential, such as the BEF 10 Model Watershed Program.

There are clearly many projects that are ongoing in the Kootenai River subbasin that are related to this proposal, and many are identified. The overall level of collaboration on this project is very good. It is well integrated into other activities in the basin and communication and cooperation is very good among agencies, non-governmental organizations (NGOs), and Tribes. A particularly constructive element in this section of the proposal is Table D1. However, in addition to the elements present in the table, it would be helpful to have a row identifying the main action that will be taken by each project. This section would be more useful if the strategy(ies) for restoration in the basin were established, and the tasks needed to fulfill those strategies were then identified and linked to different projects.

The project history, which was interesting but overly long, shows that there is significant potential for intermediate term benefits for white sturgeon. Because of the long lifespan of sturgeon it is possible that cultured individuals released into the wild could provide gametes or embryos to maintain the population for several decades. Artificial production for conservation of

long-lived fish may have a more reasonable basis than artificial production for conservation of short lived fish like salmon. Nonetheless, there is considerable concern about the long-term prognosis of this project. It is not clearly established that the Kootenai stock was ever strong, nor that under existing habitat conditions, that it can recover to a level envisioned. The lack of clear evidence for stock distinctiveness is an issue as well. For burbot, however, at this time the results of efforts to collect broodstock and culture juveniles was discouraging and not promising. Less than 1% of the eggs survive.

The summary of kokanee reintroduction is confusing. Several streams have been monitored and apparently have very low abundance of spawning kokanee, even though eggs have been introduced into streams since 1997. It is not clear that these streams are the same as those that have been surveyed for redds. It is also not entirely clear from the text that these "lower Kootenai tributaries" are also the "south arm tributary stream" where reintroduction is desired. Because kokanee are abundant elsewhere in the system and kokanee have been introduced throughout the western US in reservoirs and lakes, it seems like there are survival factors here that need to be corrected before expecting their reintroduction to this area to be successful.

The proposal adopts the overarching objective from the Kootenai subbasin plan. The weakness is that neither a timeline for numerical abundance is provided, nor is there evidence that the objective is achievable using the strategies employed. The project is very broad in scope. Some of the work elements are appropriate and employ the best available scientific techniques. For other work elements the experimental design and approach is not entirely defensible. Because of the breadth of activities in the proposal the objectives and work elements are considered below individually. Responses are requested where indicated.

Objective 1. Sturgeon conservation aquaculture (1.a.1 - 1.a.8) was considered generally sound and acceptable.

1.a.9. A justification for monitoring genetic variation in hatchery white sturgeon was not established in the scientific and technical background. The basis for this work element is not clear. The rationale for increasing production ("Release up to 10,000 fish per family from both facilities. Release fish at smaller sizes") because the next generation will be largely derived from hatchery fish is not convincing. The sponsors should perform a quantitative justification before implementing this action. Please respond.

A portion of the proposal suggests that natural embryos are regularly caught. The project sponsors have not discussed catching naturally produced embryos and rearing them until 1 or 2 years and then releasing them. This could perhaps circumvent the juvenile period when mortality is thought to be severe, and at the same time avoid the domestication effects of broodstock collection and artificial mating. Why has this not been evaluated as an approach? Please respond.

1.a.10. Why are 50 broodstock being maintained? Is domestication not an issue? Please respond.

1.e.1., 1.e.2, 1.e.3. The proposal plans to conduct white sturgeon index sampling on the Kootenay River in B.C. The description of the sampling is insufficient to judge whether the precision and accuracy of the data can serve the management needs of the program. Additional statistical validation seems necessary. Please respond.

1.e.5. The proposal plans to maintain a base station telemetry array to monitor adult and juvenile sturgeon. The explanation of how the data will inform management is lacking. A better linkage between understanding the biological attributes of the species and decision options for management is needed. Collecting more data on life history is good science, and using state-of-the-art technology is exciting. But if it does not inform management choices then it may be an expensive luxury. There is also no clear identification of what is going to be performed under this work element. Is it the seven new VR2 receivers identified in the final paragraph on page 98? A better explanation of the role of the array and its needs are warranted. Please respond.

1.g. Cryopreservation research is proposed. The need to develop technology to use primordial germ cells (PGCs) implanted into embryonic fish to expand the genetic variation in the female germ line is insufficiently established. Wouldn't the PGCs frozen for implanting simply reflect sibs that were reared to full term and released into the wild? How will this approach quantitatively expand the genetic base of the population? This portion does not appear sound. Please explain in a response.

1.h. Monitoring the effects of contaminants is proposed but there is insufficient scientific justification presented for this effort. Please respond.

1.i. Evaluation of an experimental non-essential white sturgeon population does not appear to be justified at this time.

Objective 2. Burbot Conservation Aquaculture.

2.a.1. Optimize adult collection. It is not sufficiently clear what specific actions are being proposed. A response is required.

2.a.2. Spawning. Sufficient detail is not presented. Please provide.

2.a.3. Repeat/confirm incubation trials. It would be better if a new incubator design for testing were provided here, not just a statement that "other possible incubator designs be tested." In general, the burbot culture work needs to identify the tasks (steps) needed to be developed to move culture from an experimental to production phase, what stage they are at for each of these tasks, and the specific experiments to be conducted during this project solicitation cycle. Can this be provided?

2.a.7. Development of burbot cell lines for virus isolation is not yet justified. Please justify or delete?

2.b.1. Obtain adult burbot and gametes for fish culture experiments. It is not clear what experiments will be performed with the adults collected and transported to the University of Idaho. Is this the source for the earlier work elements under 2.a? Please clarify.

Population indexing needs more justification. It is not clear from the presentation that the precision and accuracy of the estimates will support management decisions. Reintroduction work is premature at this time. Please clarify.

2.d. Planning for implementation of burbot conservation aquaculture seems premature at this point. It does not appear that the primary culture techniques will be established during this funding period. Please respond if you believe such planning is justified?

Objective 3. Reintroduce Kokanee. The data provided in the project history section of the proposal seem to suggest that kokanee reintroduction is not succeeding. An interpretation of progress to date is needed, an explanation of what the limiting factors are believed to be and that they have been addressed. A timeline for evaluation and reappraisal is needed. Please respond.

Objective 5. A 3-step process and Master Plan for Kootenai white sturgeon and burbot does not seem justifiable at this time. This should be reconsidered based on a revised aquaculture proposal, and considering continued progress in meeting both improvements in natural production of white sturgeon and hatchery production of burbot.

Monitoring and evaluation are important in this project. But there are several elements to this proposal. A more thorough review would be required to determine if the M and E is sufficient to determine if the projects achieved their goals and benefited fish and wildlife. There is a strong need to stay on top of actual progress on this project, because the long lifespan of the sturgeon can result in progress measurable over many years.

Facilities are fine, and communication has been excellent among the Kootenai projects. The sponsors are encouraged to publish in the open literature.

Some concluding general comments:

This work must be determined to not duplicate other agency work proposals in the basin. There are many players working on the few white sturgeon in the basin. In light of what is known (and not known) about Chondrosteian life histories and the limited genetic information to date, there are legitimate questions about the rationale thus far of favoring and relying on a conservation hatchery program for the Kootenai over a simpler and potentially much cheaper stocking program from downriver stocks. This option should at least be reconsidered as the years pass. Since 1988, numbers of wild fish in the Kootenai continue to decline, and costs increase yearly. This stock has the same fundamental genetics as other proximate stocks, but with lower genetic diversity than the other groups.

The Kootenai is an abnormal system so fish will do things in an abnormal way. White sturgeon are slow to evolve. In this and other Kootenai proposals, there may be overemphasis on the uniqueness of these fish, which may simply reflect the abnormal environmental conditions now present. Because the proposal has become so complex, it may be better for the burbot work to be separated into another proposal.

198806500 - Kootenai R White Sturgeon Inventory

Sponsor: Idaho Department of Fish & Game

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$1,165,360 FY08: \$1,169,924 FY09: \$1,179,198

Short description: The main goals of this Kootenai River investigation is to determine limiting factors of key fish species, including threatened and endangered, and provide recommendations to their recovery as well as ecosystem rehabilitation through nutrient restoration.

Recommendation: Fundable

This proposal is long and rambling, and covers so many species it is a challenge to provide a quality evaluation. The title (on white sturgeon) does not represent the content of the proposed work. This proposal is so broad in scope -- covering sturgeon, burbot, salmonids, and ecosystem rehabilitation -- that it is difficult to follow the logic of the sponsors. It would be easier to evaluate if each species had a stand-alone proposal. There is much redundancy among proposal sections. There appears to be a mix of stock assessment, habitat assessment, aquaculture, and nutrient enhancement. The connection between sturgeon, burbot, and salmonids is not established, and why ecosystem rehabilitation is a separate category is not clear. The proposal is to address species and problems identified in the subbasin plan and regional and recovery plans for sturgeon and burbot, but one gets the impression that the project staff wants to do anything and everything related to fish in the Kootenai (which may be true, since this is IDFG's portion of the overall large Kootenai River effort). Sponsors would be better served if they had submitted a succinct proposal that is half the length and twice as clear.

Nonetheless, the project has been exceptionally productive at evaluating problems with key species in the Kootenai River, and the work has been well reported in workshops, symposia, and the peer-reviewed literature. There are obvious linkages between this project and others in the Kootenai Subbasin. The overarching biological objectives -- to restore natural recruitment of white sturgeon, rehabilitate burbot, etc. are fine (although time elements are missing). Given the inherent uncertainties surrounding these species in the Kootenai Basin, the objectives are clear. Sponsors include hypothesized limiting factors and key strategies from the subbasin plan. What they are actually going to try to accomplish toward those objectives is less clearly presented.

There is status monitoring of the species but the portions of the project that include habitat manipulations do not have clear methods to evaluate effectiveness. What seems needed is a very brief problem statement, followed by the action that is going to address the problem, followed by the analysis that will permit evaluating whether the action actually contributed to solving the problem.

Additional information on the focal species obtained from the proposed work will add to the understanding of their limiting factors. However, with at least a decade of investigative work completed to date, little progress has been made to improve natural recruitment of either sturgeon or burbot. So, realistically, there is not a basis for optimism that solutions will be found in the near-term.

No response is requested, but in future ISRP reviews a more succinct and well-ordered proposal would be appreciated.

As a general comment, there are many projects in the Kootenai and several project sponsors. What is needed is a brief list of what needs to be done in the subbasin for these species in the near term and then a listing of which projects are completing which tasks. From the presentation in this proposal (and others, as well) it is difficult to know whether all the tasks are identified, and that a particular project(s) is actually completing the work. This was likely worked out in the subbasin plan, but a succinct presentation for proposal purposes would be helpful for reviewers and program administrators.

200200200 - Restore Natural Recruitment of Kootenai River White Sturgeon

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$3,452,000 FY08: \$3,642,000 FY09: \$3,593,000

Short description: Design, implement, and evaluate habitat improvement and creation actions and altered hydro operations, monitor responses, and refine physical and hydraulic models to characterize sturgeon recruitment requirements, implement actions to restore recruitment.

Recommendation: Fundable in part

This was a generally well-prepared proposal for a multitude of simultaneous research, modeling, data assessment, and on-the-ground habitat restoration work in the Kootenai River where white sturgeon have spawned historically, but now are unsuccessful. The premise is that multiple approaches are necessary because the reason(s) for recruitment failures is still uncertain and the population is in precipitous decline.

We question the strategy of concurrently pursuing multiple (very expensive) directions. We fail to see the urgency, although we agree with the ultimate desirability of restoring suitable spawning and rearing habitat. The conservation hatchery project gives time to test possible habitat remediation approaches sequentially. Doing all these efforts at once will make it more difficult to tell what actions were successful and what ones were not. One might argue that successful recruitment is the objective, however achieved, but managers need to know which actions were effective in order to sustain long-term habitat and population management. Everything tested cannot be maintained in perpetuity.

The ISRP recommends that funding for the habitat modifications be funded in stages, with periodic independent review of syntheses of the work to date and identification of major findings, before committing to modest scale engineered habitat modification.

A priority order can be established from the following notes. Work elements (WE) 1-4 for trial habitat modifications to increase channel and flow complexity would seem to be high priority, with elements 1-3 (different sites) done sequentially and incrementally. WE 5 (improving the hydraulic model) seems better suited for a later time, because the present model seems sufficient for early habitat trials. WE 6 to analyze sediment input seems premature until sediment modifications show the importance (or lack thereof) of channel sediment for recruitment. To the extent that WE 7 differs from WE 6 (difficult to distinguish), evaluations are high priority. It is unclear how WE 8 on turbidity will be productive since turbidity changes occurred historically along with flow, temperature, and channel modifications. WE 9 on habitat correlates seems high priority. WE 10 seems premature until the results of trial habitat modifications are available and synthesized. WE 11 on egg transport dynamics seems to be contrary to the normal adhesive egg environment and of low priority. It is unclear why one would want to carefully quantify the dynamics of an adhesive egg that has failed to attach to solid substrate and has been abnormally transported in silty or sandy sediment (likely to its death). WE 12, an engineered habitat side channel, might be of sufficient scale to require a Three-Step Review. This could be started, with implementation later. WE 13 and 14 on larval predation are not fundable as presented. They need much better justification. The other elements are administrative.

The background is well written and provides a comprehensive summary of the status of efforts to understand the factors limiting reproduction and/or recruitment of white sturgeon in the Kootenai River. The background includes the sponsor's justification for simultaneous adaptive management approaches as recommended by an interagency workshop.

Sponsors identify that the project is consistent with the Kootenai Subbasin plan, Council's Fish and Wildlife Program, and various other regional plans. The proposal provides a good narrative on specific plans and programs with table of specific recovery plan items. A good and very helpful table links most of the projects.

There is thorough presentation of the relationship of this project to others in the subbasin and in nearby subbasins (Lake Roosevelt). Tables 2 and 3 are particularly helpful. However, this work seems poorly integrated into the themes of the other Kootenai River work. Is stocking hatchery fish the key, or is wild recovery the key? Or both? A successful hatchery program will buy 15-50 years, given the long lifetime of white sturgeon. How does this reconcile with the expressed urgency of this work? A succinct summary of the project history is provided, including reports, papers, and presentations. What is lacking is a succinct summary of the conclusions of the work and the management implications.

The primary objectives are determining the requirements for natural recruitment and restoring natural recruitment. These are fine, but contrast with the conservation aquaculture program. Reviewers were not convinced that the rationale for the objectives on spawning substrate are valid but agree that they should be tested. Continued reference to "spawning substrate" seems inappropriate for a water column spawner that disperses eggs for adhesion to solid surfaces that

are encountered. Sturgeon likely do not seek substrates for spawning the way salmon do, although substrate is highly important for egg attachment and free embryos (larvae).

The strategy and methods are generally adequate. For several of their work elements (i.e. #2) they have a good subsection "Expected outputs and how they will be measured". There were questions about other tasks. Task 9.2.c on page 49 should probably be 10.2.c, as this work should be implemented based on suitable completion of preliminary investigations. Work element 12--construct an artificial habitat channel--does not seem to be justified by either the technical background or the project history. The proposal could have better explained that where white sturgeon recruitment is successful in its range, there are multiple side channels for spawning and early life stages (e.g., lower Columbia River, Fraser River). They were once present on the Kootenai but have been lost to diking and channelization. The basis for executing work element 13--effects of predation on recruitment failure--is not convincing. Work element 14--larval behavior/dispersal experiments is not sufficiently explained to make an evaluation.

For most work elements there are identified metrics to evaluate the experiments. The sponsors have demonstrated excellent facilities, equipment, and personnel. There are excellent communication plans and the project sponsors have a record of producing annual reports, peer-reviewed publications, and presentations.

199404900 - Kootenai River Ecosystem Improvements Project

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$1,785,104 FY08: \$1,782,556 FY09: \$1,831,206

Short description: The Kootenai River Ecosystem Improvements Project proposes to continue monitoring key ecological functions of the Kootenai River ecosystem and to mitigate for nutrients lost to hydro operations at Libby Dam. Habitat complexity evaluation is proposed.

Recommendation: Response requested

This is a seemingly worthwhile proposal that suffers from lack of results to support its continuation and expansion. The problem identified is loss of productivity (at all ecosystem levels) as a result of land and water management practices. Early studies have led to the conclusion that nutrients limit production of valuable fish populations. Justification includes the Fish and Wildlife Program, Kootenai subbasin plan, FWS BiOp for white sturgeon, and the Kootenai River Network. The narrative and tables on interactions with the several other projects on the Kootenai are helpful.

Fertilizer application is used experimentally in this project to test whether nutrients are limiting productivity at various levels in the Kootenai River ecosystem, including the fish. Results of the 2004 application are available but not yet provided for review. It seems essential that project proponents have these analyses completed and presented at the earliest possible date even at the expense of forgoing further (sequential) applications.

The proposal would benefit from greater discussion of other potentially important limiting factors such as discharge, and opossum shrimp abundance trends and relations with kokanee salmon populations.

The proposal demonstrates much enthusiasm for ecosystem improvement with an impressive list of potential contributors. It is not clear at what point the project is moving from experiment to large-scale implementation. Before moving to implementation the sponsors need a synthesis of the results of their research. The proposed implementation objectives should not be funded until the results of the experiment are reported and reviewed by the ISRP. This is an important project that has precedent and application for river fertilization in other areas. A response is needed for better reporting of results.

The proposal provides a fairly clear presentation of project history but no data are presented regarding fish abundances and diversity. No data were found to describe *Mysis relicta* abundance and trends. For a project of this size and longevity the history is remarkably devoid of results in terms of synthesized data and evidence of benefits to fish. The proposal states: "The first year of experimental river fertilization was a success, and in addition to preparing FY07-09 project proposals, project personnel are busy analyzing 2005 experimental data to quantify and characterize the biological and ecological responses to the long-awaited first year of experimental nutrient addition in the Kootenai River." Data should be provided to show why the river fertilization was a "success." Results from this experimental river fertilization are needed before the project moves into full implementation.

The ISRP would like to see evidence to support statements like: fish abundance, fish body condition, and invertebrate abundance in project area "lags well behind similar-sized regional rivers" (p 2, 31) with the implication that Libby Dam is the cause. This is simplistic and at best misleading in that it disregards edaphic factors. To imply that Kootenai River invertebrate numbers should be similar to those of streams like the Henrys Fork in Idaho is not well supported.

Objectives seem mixed. The project seems to be described in some instances as a continuing mitigation project and in others as a research project. It really is a research project that should be associated with providing evidence for decision end-points. The data are now available but not included here to evaluate the 2004 fertilizer application. These data should be made available as soon as possible to provide guidance as to whether or not there is any reason to continue the treatment - a treatment that could have unintended consequences.

Objectives include things such as restoring productivity to pre-dam levels including abundances of several species of fish, but timelines are not associated with objectives. The project apparently intends to continue on into the foreseeable future and to alter its direction via adaptive management as results of various trials become available. This seems pretty loose.

One objective is to build a spawning channel; this doesn't seem justified if the limiting factor is nutrient levels. A response is needed on justification for the spawning channel.

It is not clear how the kokanee egg planting fits with the rest of the proposal. The methods are questionable for the egg planting. Sponsors should provide justification for the egg planting in general and for putting 60,000 eggs in one place.

Monitoring and evaluation for success are not well described. The project description reported that sampling will provide the statistical rigor necessary to make reliable decisions. Results of monitoring to-date were not presented to show what level of change would be detectable in the post-treatment sampling.

Reviewers need to see results from the experimental river fertilization before this project moves into full implementation. A response should estimate how many years of trial fertilization is needed for an appropriate experiment before the research results warrant a management decision whether to implement routine fertilization. Sponsors should provide a timetable for a synthesis of research results, which would lead to a proposal for implementation.

199500400 - Libby Mitigation Program

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$816,935 FY08: \$841,925 FY09: \$843,710

Short description: Fisheries mitigation for the construction and operation of Libby Dam. Implements habitat restoration, improves fish passage, protects and recovers native fish populations and reestablishes fish harvest opportunities.

Recommendation: Response requested

This is a reasonably thorough proposal for mitigation via habitat enhancement that nonetheless needs better justification through monitoring results for continuing its “hard” stream restoration approaches.

The proposal provides generally good background, from general Libby Dam effects to specific project streams. The work is largely related to the Council's Fish and Wildlife Program and Libby Mitigation Plan, although justification might have gone broader. There is a rather good narrative of interrelationships with other projects. The objectives for the proposed work include continued stream restoration, removal of non-native salmonids with toxicants, and burbot stock assessment. Soundness of the techniques depends on the results produced. Results of the enhancement actions presented here do not provide convincing evidence that the methods are generating benefits.

The proposal provides a good history that emphasizes actual results not just tasks undertaken. Results of the recent phase of the Libby Creek lower Cleveland restoration are given in good detail for physical and biological attributes. Results of this one restoration effort were presented and reviewers were asked to seek results of other projects in reference material. Detailed results of the one project were useful, but it would have been helpful had some statements been included to summarize results of other projects.

The previous ISRP reviewers were concerned that stream restoration efforts seemed to be following too much of a "hard-engineering" path. That concern is heightened by the proposal's reporting of the lower Cleveland results. These results call into question the "hard" fixes/active restoration, but the proposal continues to emphasize heavy equipment, logs, and rocks. The cutthroat trout seem to be responding to the restoration activities as a disturbance and avoiding the area.

Response is needed to address: a) the extent to which passive rehab has been considered, and why the approach was discounted, and b) reasons why proposed stream work (nearly 1/2 of funding requested is for heavy equipment and structural materials) is expected to produce better results than shown so far. The proposal needs to judge whether the sponsors see the lower Cleveland project as "successful" with reasons why or why not. Monitoring should be enhanced until the present projects show the strategy described is beneficial.

200000400 - Monitor, Protect, and Rehabilitation of Bull Trout and Westslope Cutthroat Trout Habitat in the Upper Kootenay River Subbasin

Sponsor: Ministry of Environment

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$63,000 FY08: \$180,000 FY09: \$297,000

Short description: Protect Upper Kootenay River bull trout and westslope cutthroat trout from inappropriate reservoir operating regimes and other resource practices by monitoring bull trout spawner returns, their habitat and then rehabilitating their habitat where required.

Recommendation: Response requested

The project is intended to mitigate for fish and fish habitat losses attributed to the construction and operation of Libby Dam. It proposes to continue baseline population monitoring of bull trout spawning in the upper Kootenai River and tributaries of Lake Koocanusa to assess the impact of reservoir operations and fishing/harvest opportunities. The new components for physical rehabilitation need to be more clearly justified. Is the proposed strategy consistent with emerging ideas regarding requirements for a successful restoration project (see Palmer et al. 2005. Standards for ecologically successful river restoration. *Journal of Applied Ecology* 42, 208–217, and references cited)?

The narrative includes a significant amount of data produced by the project so far. It includes a good synthesis of monitoring results. The sponsors should include a description of what they think these results mean with respect to the project's goals and objectives. For example, an increasing trend in population size was described. Can it be shown that this trend is a result of the habitat work being conducted? Reasons offered for the recent drop in redds included a recent slide and/or increased fishing pressure. How are these factors separated in analysis? It is important for the sponsors to show that this project has potential for producing quantitative relations between habitat engineering and fish abundance that could have widespread application.

Please respond to the questions and statements included in the previous paragraphs.

The ISRP also seeks clarification on what types of actions are eligible for funding in Canada. What is BPA's mitigation responsibility in Canada for such projects as Libby Dam? Is there any Council or BPA policy on this?

200200800 - Reconnect Kootenai River with the historic floodplain

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$241,500 FY08: \$512,000 FY09: \$551,500

Short description: Investigate and implement actions to reconnect the Kootenai River with its historic floodplain. Project objectives are based on ecosystem restoration principles consistent with the subbasin plan, Biological opinion, and White Sturgeon recovery plan.

Recommendation: Fundable in part

Past ISRP comments were that this is a high priority effort, in principle at least, but there were lots of weaknesses and evidence of areas of concern in the earlier proposal. All that seems to hold true now and the red flags are still waving.

The proposal provides a fair write-up of the general aspects of the current feasibility study, but it raises more questions than it answers. The hypothesis guiding this effort is a belief that they can take what is available in the target reach and increase its productivity for fish and wildlife (in a cost effective manner and with the limitations imposed by no new water, adjacent private land ownership, and existing/past management). Progress to date includes a conclusion that what they propose is feasible, but they have not made a convincing case that the cost-effectiveness component of their hypothesis is feasible or reasonable. The arrangements for one creek fell through, and they won't be using the same location for proposed work. But the planning experience will be used at another site. Use of the new site is assumed for the proposal, although much arranging still needs to be done.

This is not fully supportable at this point. The narrative is incomplete and contains many redundancies. There is only sketchy budget itemization and individual personnel responsibilities are unclear. Credentials of the sponsors are impressive, but several fluvial geomorphologists should review a completed proposal before it is approved.

Sponsors assume that the preferred alternative will be constructed, but it is clear that this would be a compromise on channel length, with restoration of the original not being feasible. Are there any suitable alternatives?

Sponsors should provide an assessment of ecosystem "productivity" that presently exists and provide estimates of the benefits expected from their proposal along with the projected cost. Sponsors cite references that passive restoration may take decades or centuries once a change is in place, but an explanation of basis for their conclusion that it can be accomplished in less time should be included.

A complete proposal will show clear evidence of real community buy-in. The Nature Conservancy is always deeply involved with anything on its property but they are hardly mentioned here. Is there any cost-share with the Nature Conservancy or others? An M&E section needs to be developed and included in the proposal.

This project may have some potential for producing desired benefits, but a cautious approach is needed. The proposal is really not much farther along toward implementation than was the previous one. The implementation objectives are not justified at this time. There is no water to restore the historical floodplain, suggesting they should focus on areas where they can get water.

The project is fundable to complete the design.

200710900 - Aquatic Nuisance Species monitoring and outreach program for the Mountain Columbia province (Montana portion) of the Columbia River Basin

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** None Selected

Budgets: FY07: \$51,739 FY08: \$43,473 FY09: \$43,473

Short description: Establishment of an Aquatic Nuisance Species (ANS) monitoring program, identify potential ANS vectors and continue and expand ANS public awareness efforts within the Mountain Columbia province.

Recommendation: Fundable

This proposal has a focused and practical approach and is at a good location for early detection and prevention of invasive species, i.e., those arriving from the eastern US. This is a good operation with the concept "find them early and get rid of them before they proliferate." This type of work requires high priority, and Montana seems to have done their homework and is out in front on this issue. The Columbia River basin would benefit from enhanced surveillance on invasives possibly moving west. More details are required on the sampling program in lakes and reservoirs to make sure the investment in this aspect of the work is scientifically defensible.

An approach other than trawls may be more useful for Zebra Mussels. In Tennessee, the use of plastic plates was an effective way to sample. This and other methods might be explored by the project sponsors as alternatives to the trawls.

Technical and scientific background: The problem is adequately identified and is described with appropriate references. For example, the proposal contains a better than adequate review of invasives in Montana subbasins. The current work seems to be being done on somewhat of a shoestring and there is a need to bolster the surveillance, given that invasives such as zebra mussels could move into the Columbia River from the east.

Rationale and significance to subbasin plans and regional programs: The logic for this action is detailed and is appropriate in all subbasin plans with specifics mentioned.

Relationships to other projects: Montana seems to be out in front on this issue and realizes that they need to stop the nuisance species quickly or there will be nothing meaningful that they can do. They have received some funding in the past, which was reduced resulting in this request for funds. The context of the project is described, but linkages/collaboration with USGS and Portland State University projects are not identified.

Objectives: Use of trawls to determine presence of zebra mussels in lakes is their highest priority (details are presented). They also propose to sample for aquatic invasive weeds (cited methods), monitor for mudsnails near major fishing access sites, work on illegally stocked private fish ponds, and study angler movement patterns to help understand risk of introduction of various species. They intend to prevent spread by inspecting boats, trailers, and other equipment, and to increase public awareness of harmful impacts of nuisance species. They will also evaluate the effectiveness of their outreach efforts. This seems like a grassroots operation that is mostly common sense and logical.

Tasks (work elements) and methods: The methods to evaluate the situation are fairly basic and do not need much elaboration. Perhaps more details could be presented and additional information made available about the findings in a database or annual reports. The proposal would be improved if the methods for choosing sample sites were better explained. The proposal states that all major lakes and reservoirs will be surveyed but locations within the water bodies may be critical. In addition, small lakes and reservoirs may be as important as major ones. The surveillance level intended for hatcheries, boat trailers, etc should be quantified.

Detection of zebra mussel larvae in the water column of lakes may be a hit and miss operation.

Monitoring and evaluation: The proposal is to set up a monitoring and surveillance program. Success will be measured by the number of invasives that are detected and prevented from spreading into the Columbia River basin. However prevention will require intervention and the proposal could expand on that aspect. The proposal would benefit by including more detail in descriptions of methods and procedures for collecting and analyzing the data.

Facilities, equipment, and personnel: Some additional equipment is needed including a boat and trailer (less than \$10,000).

Information transfer: A public education program was mentioned as one of their objectives. A plan is in place to secure information in the USGS invasives database.

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