

Middle Snake Subbasins Inventory

May 2004



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Compiled by
Ecovista

Contracted by
Shoshone-Paiute Tribes

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Acronyms and Abbreviations Used in This Series of Documents

AAHU	average annual habitat unit	kg	kilogram
ACEC	Area of Critical Environmental Concern	km	kilometer
AFS	American Fisheries Society	KSU	Kansas State University
AOU	American Ornithologists' Union	LSRD	lower Snake River
BBS	Breeding Bird Survey	m	meter
BCI	Bat Conservation International, Inc.	methhg	methylated mercury
BCP	bird conservation plan	mg	milligram
BLM	Bureau of Land Management	NAC	Nevada Administrative Code
BMAS	Biodiversity Management Area Selection model	NAWQA	National Water-Quality Assessment
BMP	best management practice	NDOW	Nevada Department of Wildlife
BPA	Bonneville Power Administration	NH ₃	ammonia
CBBTTAT	Clearwater Basin Bull Trout Technical Advisory Team	NHI	Northwest Habitat Institute
CBI	Conservation Biology Institute	NMFS	National Marine Fisheries (now NOAA Fisheries)
CDFG	California Department of Fish and Game	NNHP	Nevada Natural Heritage Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NOAA Fisheries	National Marine Fisheries Service (formerly NMFS)
cfs	cubic feet per second	NPCC	Northwest Power and Conservation Council (formerly Northwest Power and Planning Council)
CI	confidence interval	NPDES	National Pollutant Discharge Elimination System
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	NPPC (or NWPPC)	Northwest Power and Conservation Council (formerly Northwest Power Planning Council)
cm	centimeter	NRS	Nevada Revised Statutes
CWA	Clean Water Act	NWI	National Wetlands Inventory
dbh	diameter at breast height	OAR	Oregon Administrative Rules
DO	dissolved oxygen	ODEQ	Oregon Department of Environmental Quality
e.g.	for example	ODFW	Oregon Department of Fish and Wildlife
EHD	Epizootic Hemorrhagic Disease	O-G	oil and gas
ESA	Endangered Species Act	ONHP	Oregon Natural Heritage Program
et al.	and others	PIF	Partners in Flight
FERC	Federal Energy Regulatory Commission	rkm	river kilometer
FL	fork length	RM	river mile
FO	Field Office	RNA	Research Natural Area
FR	Federal Register	SD	standard deviation
FSM	Forest Service Manual	SIA	Special Interest Area

GAP	Gap Analysis Program	SITES	an upgraded version of BMAS (Biodiversity Management Area Selection model)
GIS	geographic information systems	sp.	species (singular)
GMU	Game Management Unit	spp.	species (plural)
HEP	Habitat Evaluation Procedure	ssp.	subspecies
HSI	habitat suitability index	TL	total length
HU	habitat unit	TMDL	total maximum daily load
HUC	hydrologic unit code	TNC	The Nature Conservancy
i.e.	that is	TY0	target year zero
IBIS	Interactive Biodiversity Information System	USACE	U.S. Army Corps of Engineers
ICBEMP	Interior Columbia Basin Ecosystem Management Project	USAF	U.S. Air Force
IDCDC	Idaho Conservation Data Center	USBR	U.S. Bureau of Reclamation
IDEQ	Idaho Department of Environmental Quality	USEPA	U.S. Environmental Protection Agency
IDFG	Idaho Department of Fish and Game	USFS	U.S. Forest Service
IDOC	Idaho Department of Commerce	USFWS	U.S. Fish and Wildlife Service
IDWR	Idaho Department of Water Resources	USGS	U.S. Geological Survey
INPS	Idaho Native Plant Society	USRD	upper Snake River
IPC	Idaho Power Company	var.	variety
ISHS	Idaho State Historical Society	WHT	wildlife habitat type
IWRB	Idaho Water Resources Board	WSU	Washington State University (Pullman)
JSGWG	Jarbridge Sage Grouse Working Group		

1 Introduction

The *Middle Snake Subbasins Plan* was produced as part of the Northwest Power and Conservation Council's (NPCC, formerly called Northwest Power Planning Council or NPPC) Fish and Wildlife Program. This plan will help direct Bonneville Power Administration's (BPA) funding of projects that mitigate for damage to fish and wildlife caused by the development and operations of the Columbia River's hydropower system. Subbasin plans are to be developed in an open public process that includes the participation of a wide range of state, federal, local, and tribal governments; local managers; landowners; and other stakeholders—a process that the NPCC hopes will ensure support of the final plan and direct funding to fish and wildlife projects that will do the most good.

An adopted subbasin plan is intended to be a living document that increases analytical, predictive, and prescriptive ability to restore fish and wildlife. This *Middle Snake Subbasins Plan* will be updated every three years to include new information that will guide revision of the biological objectives and strategies and the implementation of the plan. The NPCC views plan development as an ongoing process of evaluation and refinement of the region's efforts through adaptive management, research, and evaluation. More information about subbasin planning can be found at <http://www.nwcouncil.org>.

The Middle Snake subbasins were originally two of 62 subbasins in the region. Discrepancies exist between the maps, textual descriptions, and work plans for the subbasins on the NPCC's website (NPCC 2003). The boundaries for the subbasins used here—from Shoshone Falls to Hells Canyon Dam, including the Wood River drainage—are consistent with those used in the subbasin summaries. They also provide for ecological continuity to the historical upstream distribution (Shoshone Falls) of anadromous fish stocks (see map on the management plan cover).

The *Middle Snake Subbasins Plan* includes three interrelated volumes that describe the characteristics, management, and a vision for the future of the Middle Snake subbasins:

Assessment (Volume 1)—The assessment examines and analyzes the biological potential of the Middle Snake subbasins to support key habitats and species, as well as the factors limiting this potential. These limiting factors provide opportunity for restoration. The assessment describes existing and historic resources and conditions within the subbasins, the focal species and their habitats, environmental conditions, impacts outside of the subbasins, ecological relationships, limiting factors, and a final synthesis and interpretation. A Technical Team was formed to guide the development of the assessment and technical portions of the management plan. It was composed of scientific experts with the biological, physical, and management expertise to refine, validate, and analyze data used to inform the planning process (see assessment section 1.1.8).

Inventory (Volume 2)— A component of the assessment process is the examination of previous and current management actions (projects) that seek to address the limiting factors in the Middle Snake subbasins. The Inventory provides a list of fish and wildlife restoration activities being conducted in the Middle Snake subbasins and, to the degree possible, information as to who is responsible for funding projects. Inventory information was collected from technical and

planning team participants, and from websites of funding and implementation agencies. Due to the size of the subbasins, and the number of agencies, nonprofit organizations and private parties actively engaged in fish and wildlife restoration activities it is unlikely that all activities that have taken place in the last 5 years have been captured. However, the information provided is representative of the types of activities taking place. The information includes programs and projects as well as locally developed regulations and ordinances that provide fish, wildlife, and habitat protections.

Management Plan (Volume 3)—The management plan defines a vision for the future of the subbasins, including biological goals and strategies for the next 10 to 15 years. The management plan includes a research, monitoring, and evaluation plan to ensure that implemented strategies succeed in addressing limiting factors and to reduce uncertainties and data gaps. The management plan also includes information about the relationship between proposed activities and the Endangered Species Act (ESA) and Clean Water Act (CWA). Finally, the plan includes a gap analysis that outlines which programs and projects currently address the objectives and strategies and where additional work needs to be developed. A Planning Team composed of representatives from government agencies with jurisdictional authority and other stakeholders in the subbasins was formed to guide the development of the management plan (see management plan section 1.1.5).

The plans for this and each of the subbasins are developed through a process designed to involve the public and natural resource management within the subbasins. A Project Team composed of staff from Ecovista, the Idaho Department of Fish and Game (IDFG), and the Idaho Council on Industry and the Environment (ICIE) was formed to develop and document, under the guidance of the Technical and Planning Teams, the *Middle Snake Subbasins Plan*—the assessment, inventory, and management plan—including public comments (see management plan section 1.1.4). The completed plan was submitted to the NPCC by the Shoshone-Paiute Tribes. The following sections detail the entities involved in resource management within the Middle Snake subbasins and describe the planning, public involvement, and review procedures.

2 Current Management

2.1 Management Entities and Agencies

Multiple agencies and entities are involved in managing and protecting fish and wildlife populations and their habitats in the Middle Snake subbasins. Federal, state, and local regulations, plans, policies, initiatives, and guidelines are part of this effort. The states and tribes share comanagement (Oregon) or cooperative management (Idaho) authority over the fisheries resource. Federal involvement in this arena stems from ESA responsibilities and management responsibilities for federal lands. Numerous federal, state, and local land managers are responsible for multipurpose land- and water-use management, including the protection and restoration of fish and wildlife habitat. Major management entities involved in developing the *Middle Snake Subbasins Plan* are outlined below. This list is not all inclusive with regard to resource management, planning, or interest groups active within the Middle Snake subbasins.

2.1.1 Shoshone-Paiute Tribes of Duck Valley Indian Reservation

The Shoshone-Paiute Tribes served as the lead entity for subbasin planning in the Middle Snake subbasins. They contracted with the NPCC to deliver the *Middle Snake Subbasins Plan*. They ensured the opportunity for participation in the process by fish and wildlife managers, local interests, and other key stakeholders, including tribal and local governments, and submitted a completed subbasin plan for NPCC review and approval on May 29, 2004. For more information about the overall project, please contact Guy Dodson, Sr., at 208-759-3246.

The Shoshone-Paiute Tribes are responsible for managing, protecting, and enhancing fish and wildlife resources and habitats on the Duck Valley Indian Reservation (which encompasses portions of the Owyhee and Middle Snake subbasins), as well as on surrounding areas in the Lower Middle Snake Province where the tribes held aboriginal title. They are self-governance tribes as prescribed under Public Law 103-414. A seven-member Tribal Business Council is charged with making decisions on behalf of 1,818 tribal members.

The tribes' Wildlife and Parks Department, with direction from the NPCC, is responsible for fish and wildlife species monitoring and management, recovery efforts, mitigation, and research; management of the tribal fisheries; and enforcement of fishing and hunting regulations. The department implements fish and wildlife restoration and mitigation activities towards the goal of restoring properly functioning ecosystems and species assemblages for present and future generations to enjoy.

2.1.2 Northwest Power and Conservation Council

The NPCC has the responsibility to develop and periodically revise the Fish and Wildlife Program for the Columbia Basin. In the 2000 revision, the NPCC proposed that 62 locally developed subbasin plans, as well as plans for the mainstem Columbia and Snake rivers, be adopted into its Fish and Wildlife Program. The NPCC will administer subbasin planning contracts pursuant to requirements in its Master Contract with the BPA. The NPCC will be

responsible for reviewing and adopting each subbasin plan, ensuring that it is consistent with the vision, biological objectives, and strategies adopted at the Columbia Basin and province levels.

2.1.3 Bonneville Power Administration

The BPA is a federal agency established to market power produced by the federal dams in the Columbia River basin. As a result of the Northwest Power Act of 1980, BPA is required to allocate a portion of power revenues to mitigate the damages caused to fish and wildlife populations and habitat from federal hydropower construction and operation. These funds are provided and administered through the Lower Snake River Compensation Plan (also known as LSRCP).

2.1.4 Bureau of Land Management

The Bureau of Land Management (BLM, under the U.S. Department of the Interior) administers federal lands in the West that were not claimed by the end of the homesteading era of the 19th century and not set aside as National Forests, National Parks, or other special federal land-use designations. The BLM took over the functions of the Grazing Service (established in 1934 by the Taylor Grazing Act) and the General Land Office in 1946 when these agencies were merged. Lands administered by the BLM consist primarily of dry grasslands and desert within the Intermountain West. These lands are currently managed for multiple use under authority of the Federal Land Policy and Management Act of 1976. Primary commodity uses are grazing and mining. Wildlife, wilderness, archaeological and historic sites, recreation, and mineral leasing are also managed on BLM lands. The BLM manages 69.8% of the land in the subbasins.

2.1.5 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS, under the U.S. Department of the Interior) administers the ESA for resident fish and wildlife species. The USFWS also enforces the Lacey Act (1900), to prevent interstate commerce in wildlife taken illegally, and the North American Migratory Bird Treaty Act. The USFWS distributes monies to state fish and wildlife departments from a federal tax on the sale of hunting and fishing equipment under the authority of the Pitman-Robertson Federal Aid in the Fish and Wildlife Restoration Act (1937) and the Dingle-Johnson Act. The USFWS manages a national system of wildlife refuges and provides funding for the restoration of riparian areas, wetlands, and native plant communities through the Partners in Wildlife Program.

The USFWS is active in the subbasins. The agency has conducted research and monitoring activities on the Idaho Springsnail. It has provided funding for research on the spotted frog, a federal candidate species.

2.1.6 Idaho Department of Fish and Game

Under Title 36 of the Idaho Code, the IDFG is responsible for preserving, protecting, perpetuating, and managing fish and wildlife in the state of Idaho, as well as providing continued supplies of fish and wildlife for hunting, fishing, and trapping. IDFG utilizes management plans and policies relevant to fish, wildlife, and habitat in the Middle Snake subbasins.

Idaho Conservation Data Center, located within the IDFG, collects and maintains information on the status of rare, threatened, and endangered plant and animal species; exemplary ecological

reference and natural areas; and terrestrial and aquatic habitats and plant communities using standardized methods and protocols in the framework of an integrated, relational data management system (IDCDC 2004).

2.1.7 Resource Conservation and Development Councils

The Southwest Idaho and West Central Highlands resource conservation and development (RC&D) councils are nonprofit corporations sponsored by local government, communities, and groups and can have a special role in subbasin plans through coordination and facilitation of projects. Their mission is to assist sponsors in implementing projects by providing technical and financial information and coordinating activities through communication, education, and networking. They also determine and represent the views of citizens in setting priorities and provide input for the development of area plans. These organizations strive to improve the natural resource setting, environmental conditions, economics, human development, and, in general, the quality of life for all citizens of southwest Idaho and the “west central highland” area.

2.1.8 Project Team

In addition to using its own staff, the Shoshone-Paiute Tribes hired two contractors to help with both the planning process and writing plan documents: Ecovista to work on the assessment, inventory, and plan and the ICIE to organize and carry out public involvement and public relations tasks for the Middle Snake subbasins. Under a separate contract, the Idaho Department of Fish and Game (IDFG) helped develop the assessment and inventory for the subbasins. Staff from these contractors served on the Project Team. For information concerning the assessment, inventory, and plan, please contact Ecovista at 509-334-9438. For information concerning the public involvement process, please contact Pat Barclay at 208-336-8508.

Project staff from Ecovista, IDFG, and ICIE (Table 1) are not Technical or Planning Team members. Project Team staff facilitated meetings and participated to accurately represent the decisions made at the meetings by the Planning and Technical Team members.

Table 1. Members of the Middle Snake subbasins Project Team and their affiliation.

Name	Affiliation	Position
Darin Saul	Ecovista	Project coordinator, technical writer and editor
Tom Cichosz	Ecovista	Fisheries biologist, technical writer
Anne Davidson	Ecovista	Wildlife biologist, GIS analyst, technical writer
Lisa Audin	Ecovista	Aquatic ecologist, technical writer
Lance Hebdon	Idaho Department of Fish and Game	Fisheries biologist, technical writer
Jon Beals	Idaho Department of Fish and Game	Wildlife biologist, technical writer
Tim Dykstra	Shoshone-Paiute Tribes	Wildlife biologist, technical writer
Pat Barclay	Idaho Council on Industry and the Environment	Public involvement coordinator

2.1.9 Planning Team

The Planning Team for the Middle Snake subbasins is composed of representatives from government agencies with jurisdictional authority in the subbasins, fish and wildlife managers, county and industry representatives, and private landowners (Table 2). The Planning Team's primary responsibilities were to guide the public involvement process, develop the vision statement, review the biological objectives, and participate in prioritizing subbasin strategies. Regular communication and input among team members occurred at the inception of and throughout the planning process. The Planning Team met monthly throughout the project period.

Table 2. Members of the Middle Snake subbasins Planning Team and their affiliation.

Name	Affiliation
Guy Dodson, Sr.	Shoshone Paiute Tribe
Tim Dykstra	Shoshone Paiute Tribe
Peggy Browne*	North Powder, OR
Marilyn Hemker	US Fish & Wildlife Service
Scott Koberg	Idaho Association of Soil Conservation Districts
Thomas Grant	IDWR
Steven Lysne	US Fish & Wildlife Service
Scott Short	IDWR
Gayle Batt	Idaho Water Users Association
Dick Bass	Rancher, Homedale, ID
Dennis Myhrum*	Oregon Farm Bureau
Dennis Tanikuni	Idaho Farm Bureau
David Ward/Tom Rein	Oregon Department of Fish & Wildlife
Bill Moore	Southwest Idaho RC&D
Jerry Hoagland	Rancher, Wilson, ID
Lyle Umpleby*	Powder Valley Water Control District, North Powder, Oregon
Scott Grunder	Idaho Department of Fish & Game
Robert Lipskoch	Bell Rapids Irrigation, Hagerman, ID
Lesa Stark	U.S. Bureau of Reclamation

* In February, 2004, the decision was made by the Oregon Level II coordinators not to participate in the Middle Snake Subbasins process and the Oregon participants on the Planning Team left the planning team to participate in the Oregon process.

2.1.10 Technical Team

The Technical Team includes scientific experts who guide the development of the subbasin assessment and management plan (Table 3). This team has the biological, physical, and management expertise to refine, validate, and analyze data used to inform the planning process. The Technical Team also guides and participates in developing the biological objectives, strategies, research, monitoring, and evaluation sections of the management plan and reviews all project documents. The Middle Snake subbasins Technical Team met monthly throughout the process and participated in workshops that were one or more days long and focused on inputting professional judgment to fill data gaps.

Table 3. Members of the Middle Snake subbasins Technical Team and their affiliation.

Name	Affiliation
Steven Lysne	US Fish & Wildlife Service
Marilyn Hemker	US Fish & Wildlife Service
Gina Glenne	US Fish & Wildlife Service
Cary Myler	US Fish & Wildlife Service
Jeff Dillon	Idaho Department of Fish & Game
Mike McDonald	Idaho Department of Fish & Game
Chuck Warren	Idaho Department of Fish & Game
Kevin Meyer	Idaho Department of Fish & Game
Tim Dykstra	Shoshone Paiute Tribe
Guy Dodson, Sr.	Shoshone Paiute Tribe
Tom Rein	Oregon Department of Fish & Wildlife
Ray Perkins	Oregon Department of Fish & Wildlife
Jeff Zakal	Oregon Department of Fish & Wildlife
Walt Van Dyke	Oregon Department of Fish & Wildlife
Eric Tinus	Oregon Department of Fish & Wildlife
Jill Holderman	Bureau of Land Management

2.2 Public Outreach and Government Involvement

As the *Middle Snake Subbasins Plan* was developed, four methods of outreach and public and governmental participation were used in the Middle Snake subbasins:

- Technical Team meetings
- Planning Team meetings
- Public meetings
- A website

2.2.1 Technical Team Participation

The Technical Team was composed of members that have technical expertise in fish, wildlife, and habitat resources in the Middle Snake subbasins. The meetings were held mornings of the third Wednesday of every month in Boise at the IDFG state office and were open to the public. Meeting agendas and minutes were posted on the Ecovista website (2003a) and provided at public meetings. The Technical Team reviewed and gave input on the technical aspects of the subbasin plan, and this input is in large part documented in the subbasin assessment.

2.2.2 Planning Team Participation

The Planning Team was composed of members that have expertise and knowledge of the management of natural resources and socioeconomic issues in the Middle Snake subbasins. The meetings were held afternoons of the third Wednesday of every month in Boise at the IDFG state office and were open to the public. Meeting agendas and minutes were posted on the Ecovista website (2003a) and provided at public meetings. The Planning Team reviewed and gave input on the management aspects of the subbasin plan, and this input is in large part documented in the subbasin management plan.

2.2.3 Public Meeting Outreach

Three public meetings were held to introduce the subbasin planning process to local people and resource managers and provide them an opportunity for input. Pat Barclay of the ICIE coordinated public meeting announcements and logistics for the Middle Snake subbasins.

On December 17, 2003, the first public meeting for the Upper and Lower Middle Snake subbasins was held in the Trophy Room at the Department of Fish & Game in Boise. Attendance at the meeting was poor since many of those who were interested had attending the Boise Payette Weiser meeting the evening before

The purpose of the second public meeting was held in Weiser, Idaho on March 17, 2004 to present the draft subbasin assessment and solicit comment from local land and natural resource users. The comments were used in the draft subbasin assessment. Those in attendance included one person representing the City of Weiser, two Washington County commissioners and members of the Weiser River Watershed Advisory Group.

The purpose of the third public meeting (held in Glens Ferry, Idaho on April 21, 2004) was to present the entire subbasin plan (assessment, inventory, and management plan) and obtain comments from local people and resource managers. The comments were documented and presented to the planning team for incorporation into the draft subbasin plan. This meeting was attended by two local businessmen who are working with Idaho Department of Fish & Game to help re-establish white sturgeon in this stretch of the Middle Snake, an Elmore County Commissioner and an Idaho State Representative representing this district.

Overall, attendance at the public meetings remained small, in part because this process was not controversial. There was not enough time to educate people in the rural communities about their stake in this process. The NPCC is very well known among the tribes, groups such as electric cooperatives, federal and state fish and wildlife agencies and some sportsmen groups; however,

the general public seems to have little knowledge of the Council's programs—especially in the areas like the Upper and Lower Middle Snake subbasins which do not have anadromous fish.

2.2.4 Ecovista Website Information

As the *Middle Snake Subbasins Plan* was developed, draft documents and information on meetings, the subbasin, and subbasin planning were posted on Ecovista's website (2003a).

2.3 Management Programs and Policies

The following section provides an overview of management programs and policies guiding management actions within the Middle Snake subbasins.

2.3.1 Management Programs

Natural Resources Conservation Service Programs

The Natural Resources Conservation Service (NRCS, under the U.S. Department of Agriculture) administers several cost-sharing programs on private lands. The Environmental Quality Incentive Program (EQIP) and the Public Law (P.L.) 566 Small Watershed Program can be leveraged with other federal, state, or local program funds. The Wildlife Habitat Incentives Program (WHIP) and the Wetland Reserve Program (WRP) restrict the sources of cost-share funding on projects to nonmitigation funds. Landowners work with technical staff of the NRCS to use these programs for implementing conservation practices on their lands. Soil and water conservation districts using other project funding sources leverage NRCS program resources in combination to concentrate conservation within watersheds of concern.

Conservation and Continuous Conservation Reserve Programs

The Conservation Reserve Program (CRP) and the Continuous Conservation Reserve Program (CCRP) are protection programs implemented on croplands and riparian areas, respectively, by the U.S. Department of Agriculture's Farm Service Agency (FSA). These two programs are managed through the FSA, with technical assistance provided by the NRCS. These programs are voluntary and include some combination of the following: incentive payments (CCRP), cost-sharing with plantings, and rental payments. A request for a determination by the National FSA office has been requested by the Idaho State FSA office to establish cost-sharing between these programs and BPA funds where watershed projects exist.

NOAA Restoration Center's Community-Based Restoration Program

The objective of the NOAA Restoration Center's Community-Based Restoration Program is to bring together citizen groups, public and nonprofit organizations, industry, corporations and businesses, youth conservation corps, students, landowners, and local government, state, and federal agencies to restore fishery habitat across Coastal America. The program partners with national and regional organizations to solicit and cofund proposals for locally driven, grass-roots restoration projects that address important habitat issues within communities. Several restoration projects in the Middle Snake subbasins have been funded through various components of this program, particularly with the Nez Perce Tribe.

Idaho Nonpoint Source Management Program

The Idaho Department of Environmental Quality (IDEQ) has primacy to administer the Clean Water Act's section 319 Nonpoint Source Management Program for areas outside the Nez Perce Reservation. The program is responsible for administering grants awarded annually on a competitive basis and for providing technical support to watershed implementation activities. Funding projects must focus primarily on improving the water quality of lakes, streams, rivers, and aquifers. Projects must be consistent with the *Idaho Nonpoint Source Management Plan* (IDEQ 1999) for which there are seven project sectors: agriculture, urban storm water runoff, transportation, silviculture, mining, groundwater activities, and hydro-habitat modification. Projects located in watersheds with an approved total maximum daily load (TMDL) are priorities in this program.

Idaho Water Quality Program for Agriculture

This state program is administered by the Idaho Soil Conservation Commission to assist rural landowners and farmers with implementation of agricultural best management practices. The program is delivered through the soil and water conservation districts and often combined with federally funded programs where they exist, for example, the CWA section 319 and BPA watershed projects. Projects are prioritized first by water quality concerns and then by listed species considerations.

Idaho's Abandoned Mine Lands Program

Systematic AML site inventories, promoted by national policy, began in the mid-1990s. Starting in fiscal year 1999, Clean Water Action Plan funding enabled a more uniform national effort to move from inventory to cleanup of AML sites. A watershed approach was selected to focus water quality related abandoned mine projects. Idaho is currently continuing with water-quality related cleanups and investigations in several watersheds throughout Idaho. The focus is now to better integrate AML with other statewide Idaho priorities. In general, the goals remain to protect the environment, public health and safety, and to restore-at-risk resources impacted by past mining. Lack of a national source of funding dedicated to addressing physical hazards continues to be an issue.

Idaho Noxious Weed Programs

The Idaho State Department of Agriculture implements the Noxious Weed Control and Noxious Weed Free Forage and Straw Certification Program to control noxious weeds across Idaho. The IDFG prevents importation or transport of animals and fish that may harm native wildlife population. The Idaho Department of Lands manages weeds on state endowment lands. The University of Idaho and the Cooperative Extension Service conduct research on invasive species and help build public understanding.

Oregon Department of Agriculture Noxious Weed Control Program

The mission of this program is to protect Oregon's natural resources from the invasion and proliferation of noxious weeds (ODA 2004). Goals include the following: 1) coordinate statewide noxious weed prevention and control efforts, 2) implement statewide integrated weed management projects with public and private sectors, 3) conduct surveys to detect and delimit

invasive noxious weed species, 4) implement and coordinate biological control of weed projects, and 5) provide information to cooperators about weed management.

Forestry Incentives Program

The NRCS has implemented the Forestry Incentives Program to improve privately owned forested lands. On May 13, 2002, the 2002 Farm Bill de-authorized this program, which was originally authorized in 1978 to share up to 65% of the costs of tree planting, timber stand improvements, and related practices on nonindustrial private forest lands. Funds remaining on May 13, 2002, will be exhausted through closeout of the Forestry Incentives Program, primarily funding the existing contractual backlog (NRCS 2004).

Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property (NRCS 2004). The NRCS provides technical and financial support to help landowners with such wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection.

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program is a U.S. Department of Agriculture-funded voluntary program for people who want to develop and improve wildlife habitat primarily on private land. The NRCS provides both technical assistance and up to 75% cost-share assistance to establish and improve fish and wildlife habitat. Agreements between NRCS and a participant generally last from 5 to 10 years from the date the agreement is signed. This program has proven to be highly effective and widely accepted across the country. By targeting wildlife habitat projects on all lands and aquatic areas, assistance is given to conservation-minded landowners who are unable to meet the specific eligibility requirements of other U.S. Department of Agriculture conservation programs. The Farm Security and Rural Investment Act of 2002 reauthorized this program as a voluntary approach to improving wildlife habitat in the United States (NRCS 2004)

Agricultural Water Quality Program

The Idaho State Department of Agriculture (ISDA) manages a groundwater protection program throughout Idaho. The Agricultural Water Quality Program implements agricultural monitoring and protection programs with public and private partners to protect groundwater and surface water quality (ISDA 2004). Implementation of the Agricultural Ground Water Quality Protection Program for Idaho is through the Agricultural Ground Water Coordination Committee. Water program staff lead the pesticide water quality portion of the Cooperative Agreement with the U.S. Environmental Protection Agency (USEPA). Agency projects for groundwater monitoring and protection are related to impacts from pesticides, nutrients, and animal wastes. Water program staff evaluate water quality concerns related to dairies and beef feedlots. The ISDA works with the Idaho Soil Conservation Commission and Idaho Association of Soil Conservation Districts to implement an Agricultural TMDL Implementation Monitoring Program related to the Clean Water Act and state laws and rules. The ISDA works with soil conservation districts to evaluate best management practices (also known as BMPs) and sources

of agricultural contaminants. Information dissemination and local coordination with the agriculture community and the general public are key to the success of the water quality programs.

InFish

InFish is a federal strategy was developed as an interim strategy to protect populations and habitats of nonanadromous fish species of concern on lands managed by the U.S. Forest Service (USFS) and BLM in watersheds of eastern Oregon, Washington, Idaho, western Montana, and portions of Nevada. The strategies restrict actions in Riparian Habitat Conservation Areas, most notably by defining the standard width of four categories of land and water: fish-bearing streams; permanently flowing nonfish-bearing streams; ponds, lakes, and wetlands greater than 1 acre; and intermittent streams, and wetlands less than 1 acre, landslides, and landslide-prone areas. Deviation from the defined width requires consultation with NOAA Fisheries and the USFWS.

Interior Columbia Basin Ecosystem Management Project

The Interior Columbia Basin Ecosystem Management Project (ICBEMP) was conducted from 1993 to 1997 to develop and implement a scientifically sound, ecosystem-based management strategy for lands administered by the USFS and BLM in Idaho, Montana, Wyoming, Nevada, and Utah. An important goal of ICBEMP was to provide long-term direction to replace PACFISH and InFish (see above). The draft environmental impact statement for the ICBEMP was released in June 1997, as well as a strategy to conclude the project (ICBEMP 2002).

The program is to be implemented on over 63 million acres of federal land over the interior Columbia Basin. Activities would include federal lands restoration; landscape health; aquatic and terrestrial habitats; and human needs, products, and services. The strategy affects how federal agencies prioritize actions and undertake and fund restoration activities and replaces the interim management strategies, providing for longer-term management of lands east of the Cascade Range.

Great Basin Restoration Initiative

The Great Basin Restoration Initiative was initiated in 1999 as a result of wildfires that burned 1.7 million acres of public land in the Great Basin. Land managers realized that the solution to increasing wildfires and accelerating spread of invasive species was a proactive restoration program that "fixed" resource problems in advance of the disturbance. The reactive approach of wildfire suppression, fire rehabilitation, and post-invasion weed control is not working on the 75 million acres of public land in the Great Basin. Of even greater concern to managers is the accelerating downward ecological spiral that is occurring on the 25 million acres of public land dominated by cheatgrass that is now being replaced by even more problematic biannual and perennial weeds. Native pinyon pine and/or juniper trees are also rapidly expanding into sagebrush steppe and reducing plant diversity and soil stability which is significantly reducing habitat for sagebrush obligate species such as the sage grouse and forage for livestock (Great Basin Restoration Initiative Team, No Date).

2.3.2 Management Policies

Existing Protection

The Middle Snake subbasins contain a complex array of protected areas or waterbodies, managed by a variety of agencies and for a variety of purposes. Section 2.8.3 of the *Middle Snake Subbasin Assessment* provides maps and discussion of these areas; readers are referred to that document/section for further information on protected areas within the subbasins.

Oregon House Bill 3609

This Oregon State Policy directs the development of plans for fully seeded, sustainable production of natural anadromous fish runs in Oregon river subbasins above Bonneville Dam through consultation among state and tribal entities.

Oregon Administration Rules

The Administrative Rules Unit, Archives Division, Secretary of State publishes the *Oregon Administrative Rules (OAR) Compilation* and the *Oregon Bulletin*. The *OAR Compilation* is an annual publication containing the complete text of the OARs at the time of publication. The *Oregon Bulletin* is a monthly publication that updates rule text found in the annual compilation and provides notice of intended rule action, Executive Orders of the Governor, and Opinions of the Attorney General.

OARs that involve fish and wildlife planning include OAR 635 Division 008—Department of Wildlife Lands, OAR Division 100—Wildlife Diversity Plan, OAR Division 400—Instream Water Rights Rules, OAR Division 415—Fish and Wildlife Habitat Mitigation Policy, OAR Divisions 068–071 – Big Game Seasons, and OAR 635 Division 07—Fish Management and Hatchery Operation.

Public Law 566 (Small Watershed Program)

The NRCS administers the Small Watershed Program (including River Basin Operations) under P.L. 566. This program works through local government sponsors and helps participants solve natural resource and related economic problems on a watershed basis (NRCS 2004). Projects include watershed protection, flood prevention, erosion and sediment control, water supply, water quality, fish and wildlife habitat enhancement, wetlands creation and restoration, and public recreation in watersheds of 250,000 or fewer acres. Both technical and financial assistance are available.

Federal Water Pollution Control Act of 1972, Section 404

Department of Army permits are required under section 404 of the Clean Water Act for discharges of dredged or fill material into waters of the United States, including wetlands. Affected activities include excavation activities that result in the discharge of dredged material that can destroy or degrade waters of the United States. Department of Army permits are also required under section 10 of the Rivers and Harbors Act of 1899 for work or structures waterward of the ordinary high water mark of, or affecting, navigable waters of the United States.

Forest Practices Act, Title 38, Chapter 13, Idaho Code

The Idaho Forest Practices Act was passed by the state Legislature in 1974 and amended by the Legislature in 1980, 1986, 1987, 1989, 1990, 1991, 1992, 1995, and 2001 (Idaho Department of Lands 1996). These rules constitute the minimum standards for the conduct of forest practices on forestland and describe the administrative procedures necessary to implement those standards. In this act, forestland is defined as federal, state, and private land growing forest tree species that are, or could be, at maturity, capable of furnishing raw material used in the manufacture of lumber or other forest products. Although this act rules apply to activities on Federal and private lands within the state of Idaho, the State does not hold management authority over these lands. Standards are established for Stream Protection Zones (SPZ) around streams. These standards condition or limit practices within the SPZs. Skidding logs in or through streams is prohibited. There is no prohibition against slash burning within SPZs. The FPA also addresses large organic debris functions, harvest practices must retain at least 75% of existing shade, and leave trees are designated by distance from stream, stream width, tree diameter, and number of trees. Class I streams, including lakes, are those used for domestic water supply and/or are important for spawning, rearing or migration of fish. The Class I SPZ is the area encompassed by a slope distance of 75 feet on each side of ordinary high water marks. The Class II SPZ is the area encompassed by a slope distance of 30 feet on each side of ordinary high water marks. Class II streams that do not contribute flow to Class I streams have minimum Stream Protection Zones of 5 feet (Belt et al. 1992).

The Idaho Forest, Wildlife, and Range Policy Analysis Group prepared an analysis of scientific literature on forest riparian buffers (Belt et al. 1992). The fixed minimum width and use-dependent approach used in Idaho has the virtue of simplicity in application, but has greater potential for providing either not enough or too much protection. The analysis compared Idaho practices with California, Oregon and Washington and reported that using stream classification with additional site-specific factors adds operational complexity, but has greater potential sensitivity to local stream protection needs.

2.4 Existing Plans and Assessments

The following section lists citations and brief descriptions of various assessments known to have been completed within the Middle Snake subbasins. Documents are grouped according to developing organizations (tribal, federal, state, county, or districts) for organizational purposes. No rank or priority is inferred by the order in which plans are presented.

2.4.1 Tribal Plans

Wy-Kan-Ush-Mi Wa-Kish-Wit

This plan is the Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama tribes (CRITFC 1996). It includes adult return targets for each subbasin in the Columbia Basin. Wy-Kan-Ush-Mi Wa-Kish-Wit recommends habitat restoration actions that focus on limiting, restricting, or eliminating land uses and enhancing populations with implementation of new broodstock, release, and production programs. The plan was published in 1996, and habitat restoration projects emphasizing implementation of forest, range,

and agricultural best management practices have been initiated in priority watersheds since 1997 through the NPCC's program.

In addition, various programs have been implemented by the Nez Perce Tribe as part of the plan, including the fall chinook acclimation program and the coho reintroduction program. The Lyons Ferry Hatchery Complex, managed by the Washington Department of Fish and Wildlife, will provide fall chinook broodstock for the Nez Perce Tribe Hatchery and IDFG Oxbow supplementation programs in the Clearwater subbasin and the mainstem Snake River to Hells Canyon Dam.

2.4.2 Federal Agency Assessments and Plans

U.S. Geological Survey NAWQA Assessment and Monitoring Project

The U.S. Geological Survey (USGS) NAWQA monitoring project covers the Snake River basin from King Hill to Wyoming and assesses water quality and aquatic biota condition for surface water and groundwater (Clark 1994; Maret 1995, 1997; Clark 1997; Clark and Maret 1998; see <http://id.water.usgs.gov/nawqa/reports/reports.html> for additional reports). This monitoring/assessment is ongoing, with a rotating schedule. There are numerous sampling sites in the Middle Snake subbasins.

U.S. Geological Survey Lower Snake River Contaminant Assessment

Clark and Maret (1998) assessed levels of organochlorine compounds and trace elements in fish tissues and bed sediments in the lower Snake River basin of Idaho and Oregon, including portions of the Middle Snake subbasins. This report summarizes analyses of selected contaminants and compares the results with criteria and guidelines established for protection of human health, aquatic life, and fish-eating wildlife. Results from this study are intended to provide a baseline for future studies to determine sources, transport, and biological effects of contaminants in the Snake River basin.

U.S. Fish and Wildlife Service Bull Trout Draft Recovery Plan

The USFWS has drafted a bull trout recovery plan (USFWS 2002) in cooperation with 24 local recovery unit teams and with the collaboration of federal, state, tribal, and private biologists working with representatives of local watersheds, private landowners, industry, and conservation organizations. The plan (USFWS 2002) was released for public review and comment in January 2003. A final decision is pending.

Bureau of Land Management Allotment Analyses, Interpretation, and Evaluations

The BLM provides detailed information about monitoring of grazing impacts and influence by the BLM in the Castle Creek (1997), Brownlee Management Area (2001a), Henley Basin Management Unit (2001b) and McChord Butte Management Unit (2001c). The information presented is used to determine if grazing management is accomplishing specific land-use management objectives, and provides technical rationale for making necessary adjustments in livestock management.

BLM Owyhee Resource Management Plan and Final Environmental Impact Statement

This document (BLM 1999) addresses Snake River tributaries from Castle Creek to the Oregon border. The Owyhee resource management plan fulfills requirements of section 202 of the Federal Land Policy and Management Act (FLPMA) of 1976, which specifies the need for a comprehensive land-use plan consistent with multiple-use and sustained yield objectives. The resource objectives, land-use allocations, and other management actions (“decisions”) contained in the resource management plan are based upon approved planning criteria, also identified in this document (BLM 1999), and were developed and analyzed consistent with BLM planning regulations (43 CFR 1600) and National Environmental Policy Act (NEPA) implementing regulations (40 CFR 1500). Resource management plan decisions address issues and concerns identified during scoping and are projected to achieve the objectives as stated in the final environmental impact statement.

Bureau of Reclamation Biological Assessment of Snake River Operations and Maintenance

The U.S. Bureau of Reclamation (USBR, under the Department of the Interior) (1998a) submitted a biological assessment in April 1998 describing its proposed action for its projects in the Snake River basin and considering the effects on listed salmon and steelhead of the USBR’s water storage and delivery activities to serve project purposes including contracts with reservoir space holders. In April 2001, the USBR (2001a) provided a supplemental biological assessment to more fully define its proposed action and to assess the proposed action’s likely effects on recently listed Columbia River chum salmon. In both of these assessments, the USBR concluded that its operations were not likely to adversely affect the listed species considered. NMFS did not concur with these conclusions in the subsequent biological opinion (NMFS 2001).

Water Quantity and Quality Assessments

Because of the focus on water quantity issues in these subbasins, there have been numerous assessments of water quantity and groundwater and surface water modeling for the Snake River Plain (see IDWR 1998), the Big Wood River (Frenzel 1989), and the Snake River (USBR 1998a,b; 2001a,b).

National Fire Plan

The USDA Forest Service and the Department of the Interior are in the second year of National Fire Plan implementation. The National Fire Plan is a long-term investment intended to help protect communities and natural resources, and most importantly, the lives of firefighters and the public. It is a long-term commitment based on cooperation and communication among federal agencies, states, local governments, tribes and interested publics. The federal wildland fire management agencies worked closely with these partners to prepare a 10-Year Comprehensive Strategy, completed in August 2001. An implementation plan will be developed by May 2002, to provide consistent and standard direction to implement the common purposes articulated in the Strategy and the National Fire Plan.

2.4.3 State Agency Assessments and Plans

Idaho's Strategic Plan for Managing Noxious Weeds.

The purpose of the Strategic Plan (ISDA 1999) is two fold: (1) to heighten the awareness among all citizens of the degradation brought to Idaho lands and waters by the explosive spread of non-native weeds and, (2) to bring about greater statewide coordination, cooperation and action that will successfully halt the spread of such weeds and restore infested lands and waters to a healthy and productive condition. The Strategic Plan recommends the statewide formation of *Cooperative Weed Management Areas* and application of *Integrated Weed Management* practices. This is the best method for reducing the ecological, economic and social impacts of noxious weeds on the state's human and natural resources. To accomplish this, the supporters and cooperators will incorporate resources, priorities and strategies of federal, state, and county agencies into a unified approach to halt or slow the spread of noxious weeds across Idaho.

Idaho Department of Fish and Game Plans

Under Title 36 of the Idaho Code, the IDFG is responsible to preserve, protect, and perpetuate fish and wildlife in the state of Idaho and provide continued supplies of fish and wildlife to the citizens of the state for hunting, fishing, and trapping. IDFG works to preserve, protect, perpetuate, and manage all wildlife. IDFG management plans and policies relevant to fish and wildlife and their habitats in the Middle Snake subbasins include *A Vision for the Future: Idaho Department of Fish and Game Policy Plan, 1990–2005* (IDFG 1990); the *Idaho Department of Fish and Game Strategic Plan* (IDFG 2001a); *IDFG Fisheries Management Plan 2001–2006* (IDFG 2001b); *White-tailed Deer, Mule Deer and Elk Management Plan* (IDFG 1999); the *Black Bear Management Plan 2000–2010* (IDFG 1998); the *Nongame Species Management Plan 1991–1995* (IDFG 1991a); the *Upland Game Plan 1991–1995* (IDFG 1991b); the *Waterfowl Plan 1991–1995* (IDFG 1991c); the *Moose, Sheep and Goat Plan 1991–1995* (IDFG 1991d); the *Mountain Lion Plan 1991–1995* (IDFG 1991e), the *Furbearer Species Management Plan 1991–1995* (IDFG 1991f).

Idaho Wolf Conservation and Management Plan

The goal of this conservation and management plan (Idaho Legislative Wolf Oversight Committee 2002) is to ensure the long-term survival of wolves in Idaho while minimizing wolf-human conflicts that result when wolves and people live in the same vicinity. Conservation of wolves requires management. Management for wolves means ensuring adequate numbers for long-term persistence of the species as well as ensuring that landowners, land managers, other citizens, and their property are protected. The Idaho Constitution, Article 1, Section 1, states: "All men are by nature free and equal, and have certain inalienable rights, among which are enjoying and defending life and liberty; acquiring, possessing and protecting property; pursuing happiness and securing safety." The Governor's Office of Species Conservation shall begin immediate discussions with the U.S. Fish and Wildlife Service to define how the rights guaranteed by Article 1, Section 1, will be preserved and recognized. Without management, conservation is overcome by conflict. The State of Idaho is on the record asking the federal government to remove wolves from the state by the adoption in 2001 of House Joint Memorial No. 5. The position reflected in House Joint Memorial No. 5 continues to be the official position of the State of Idaho. However, in order to use every available option to mitigate the severe

impacts on the residents of the State of Idaho, the state will seek delisting and manage wolves at recovery levels that will ensure viable, self-sustaining populations.

Comprehensive State Water Plan and Upper Snake River Basin Resource Inventory

The Idaho Department of Water Resources has completed a resource assessment for the Upper Snake River (IDWR 1998), from King Hill to the upstream boundary with Wyoming. The IWRB has completed a finer-scale plan for the Middle Snake from King Hill to Milner Dam that only incorporates the Snake River Plain in the immediate environs of the river (IWRB 1993). Though focused on water resources, much of information contained in these plans is comprehensive and useful for assessments.

Idaho Department of Environmental Quality 2002-2007 Strategic Plan

The following three priorities from IDEQ's 2002–2007 strategic plan are relevant to protecting and restoring ecosystem resources (Jim Bellatty, IDEQ, personal communication, March 28, 2001, cited in Ecovista 2003b):

- Improve groundwater quality in degraded areas and protect all groundwater
- Improve the surface water quality in areas identified as not supporting their beneficial uses or where the state believes threatened or endangered species exist
- Improve environmental quality in areas subject to past or present mining activities

The IDEQ is the lead agency to produce TMDL assessments for streams on the Idaho Clean Water Act (CWA) 303(d) list. The court-approved schedule for completion of these TMDLs has recently been amended. TMDLs for all streams listed in the Clearwater are scheduled to be completed by the end of calendar year 2006. TMDLs for streams within the exterior boundaries of the Nez Perce Indian Reservation are completed via a three-party agreement between the Nez Perce Tribe, the IDEQ, and the USEPA. TMDL implementation plans have been developed by local watershed advisory groups (WAGs) and are available through IDEQ. The plans are important for CWA section 319 funding directed towards improving water quality.

Snake River–Hells Canyon Assessment and TMDL

The Snake River–Hells Canyon TMDL (IDEQ and ODEQ 2003) has been developed to comply with Idaho and Oregon's responsibilities within the Clean Water Act and state-specific TMDL schedules. This TMDL describes the physical, biological, and cultural setting; water quality status; pollutant sources; and recent pollution control actions in the Snake River from where the Snake River intersects the Oregon– Idaho border to immediately upstream of the inflow of the Salmon River. The reach includes the Hells Canyon Complex reservoirs: Brownlee, Oxbow, and Hells Canyon. The TMDL consists of a subbasin assessment, load analysis and allocation, and an implementation plan. The document was submitted to the USEPA for final review in July 2003.

Within each segment, all designated beneficial uses and the following listed pollutants from both states have been addressed by the TMDL: bacteria; nutrients, nuisance algae, and dissolved

oxygen; pesticides; pH; sediment; temperature; and total dissolved gas. The mercury TMDL has been postponed to 2006 due to a lack of water column data.

The TMDL adopts a phased approach to implementation that will identify interim, measurable milestones to determine the effectiveness of management measures or other action controls being implemented, and a process for reviewing and revising management approaches to assure effective management measures are implemented.

The implementation plan contains two separate, state-specific plans: the State of Oregon General Water Quality Management Plan and the State of Idaho General Implementation Plan. Together, these documents represent the general water quality management plan for the Snake River–Hells Canyon TMDL. In addition to the implementation plan submitted for the mainstem Snake River–Hells Canyon TMDL reach, tributary plans will also be prepared as part of tributary TMDL processes.

Billingsley Creek Assessment and TMDL

The *Billingsley Creek TMDL and Localized Impacts Assessment* (Buhidar and Sharpnack 2003) is currently listed as a Draft Public Comment document. The Billingsley Creek stream is a 303(d)-listed waterbody in the Upper Snake–Rock watershed (hydrologic unit code [HUC] 17040212). Numerous point and nonpoint sources provide sufficient pollutants to create eutrophication problems inclusive of nuisance aquatic plant growths, algae, slimes, molds, excess nutrients, and excess sediment. Point sources include aquaculture fish hatcheries. Nonpoint sources include irrigated agriculture, grazing, confined feeding operations, stream corridor natural background, and recreational activities. Additional to these pollutant-linked stressors is flow alteration. Flow alteration is not considered a pollutant. However, it can be a stressor on a drainage system. Within Billingsley Creek and its associated tributaries, flow alteration is a serious concern that has placed the stream in jeopardy of dewatering over the past six years. Jeopardy means that the amount of flow available in the stream (even under maximum conditions) is far less than that defined in the existing legal water rights under optimum conditions. The Billingsley Creek drainage is a unique and especially different drainage than what is normally found in the Upper Snake–Rock watershed.

Brownlee Reservoir (Weiser Flat) Subbasin Assessment and TMDL

The Brownlee Reservoir (Weiser Flat) subbasin encompasses the area draining into the Snake River downstream of the Weiser River inflow and upstream of Brownlee Reservoir along the central portion of the Idaho–Oregon border. The subbasin assessment portion of this document examines the current status of 303(d)-listed waters and defines the extent of impairment and causes of water quality limitation throughout the subbasin. The assessment describes the physical, biological, and cultural setting; water quality status; pollutant sources; and recent pollution control actions. The loading analysis quantifies pollutant sources and allocates responsibility for load reductions needed to return listed waters to a condition of meeting water quality standards. The document was approved by the USEPA in November 2003.

Within the subbasin, there are five water quality limited streams. There are clear indications that recreational beneficial uses are not fully supported for Hog, Scott, Warm Springs, and Jenkins creek subwatersheds. Support of coldwater aquatic life uses cannot be determined specific to

nutrient and sediment concentrations due to lack of aquatic life data. Secondary contact recreation is not supported in Hog, Scott, Warm Springs, or Jenkins creeks due to exceedances of bacteria standards during spring and summer months.

TMDLs have been written for nutrients (Hog Creek, Scott Creek, Warm Springs Creek, and Jenkins Creek) and sediment (Dennett Creek, Scott Creek, Warm Springs Creek, and Jenkins Creek). Bacteria is proposed to be listed for Hog Creek, Scott Creek, Warm Springs Creek, and Jenkins Creek as a section 303(d) pollutant as part of the first 303(d) list submitted by the State of Idaho subsequent to the approval of this TMDL. Scheduling for the bacteria TMDLs will be identified at the time of listing.

This TMDL has adopted a phased approach to implementation that will identify interim, measurable milestones for determining whether management measures or other action controls are being implemented and a process for implementing stronger and more effective management measures if necessary. It is expected that information will continue to be collected to fill existing data gaps and allow a more accurate determination of the status of beneficial uses within the reach and the impact of pollutants delivered to and processed by the system.

Mid Snake River/Succor Creek Subbasin Assessment and TMDL

The assessment describes the physical, biological, and cultural setting; water quality status; pollutant sources; and recent pollution control actions in the Mid Snake River/Succor Creek subbasin and examines the current status of 303(d)-listed waters and defines the extent of impairment and causes of water quality limitation. The loading analysis section of the document quantifies pollutant sources and allocates responsibility for load reductions needed to return listed waters to a condition of meeting water quality standards. The document was approved by the USEPA in January 2004.

Within the Mid Snake River/Succor Creek subbasin, 21 segments were identified on the 303(d) list of impaired water bodies and were assessed to determine the need for development of TMDLs. Temperature, nutrients, and sediment are the primary pollutants of concern. Based on assessment findings, various streams subsequently have TMDLs developed within this document:

- Snake River, Swan Falls to Oregon line—nutrients and dissolved oxygen
- Castle Creek—sediment
- Jump Creek, Mule Creek to Snake River—sediment
- Sinker Creek—sediment and temperature
- Succor Creek, headwaters to Oregon line—sediment and temperature
- Succor Creek, Oregon line to Snake River—sediment and bacteria

Upper Snake Rock Watershed Management Plan

The overall purpose of this subbasin assessment and TMDL (Buhidar 1999) is to characterize and document pollutant loads within the Upper Snake–Rock watershed. The first portion of the document, the subbasin assessment, is partitioned into four major sections: watershed characterization, water quality concerns and status, pollutant source inventory, and summary of past and present pollution control efforts. This information will be used to develop a TMDL for each pollutant of concern within the watershed.

Big Wood River Watershed Assessment and TMDL

Also known as the Big Wood River Watershed Management Plan, the purpose of this subbasin assessment and TMDL (Buhidar 2001) is to characterize and document pollutant loads within the Big Wood River watershed. The first portion of the document, the subbasin assessment, is partitioned into four major sections: watershed characterization, water quality concerns and status, pollutant source inventory, and a summary of past and present pollution control efforts. This information is then be used to develop a TMDL for each pollutant of concern within the watershed. This document was approved by the USEPA in May 2002.

Conservation Strategy for Big Wood River Basin Wetlands

The Idaho Conservation Data Center (CDC) conducted an inventory of wetland/riparian habitat along major hydrologic corridors of the Big Wood River basin (Jankovsky-Jones 1997). Assessment of the quality and condition of plant communities and the occurrence of rare plant and animal species allowed categorization of 15 wetland sites based on conservation intent. The biological significance of the surveyed wetland sites and abstracts for rare plant communities, plant species, and animal species are provided to guide management activities. Conservation strategies are identified for sites surveyed and plant communities that are unprotected or under-protected. Eighty-two percent of the protected wetlands are in the emergent vegetation category. Deciduous forested wetlands, tall willow shrub wetlands, and seasonally flooded/well-drained emergent wetlands are currently underprotected and should be of high priority for conservation activities.

Idaho Transportation Plan

The Idaho Transportation Plan (Idaho Transportation Board 1995) defines the intermodal goals, objectives and strategies for the state over the next 20 years. It gives direction for coordinating transportation modes, linking transportation to land use and economic development, protecting the environment, optimizing energy use, financing transportation improvements and services, coordinating transportation between public and private agencies, providing safety and security, and related matters.

Idaho Standards for Rangeland Health And Guidelines for Livestock Grazing Management

The Standards for Rangeland Health (BLM 1997), as applied in the State of Idaho, are to be used as the Bureau of Land Management's management goals for the betterment of the environment, protection of cultural resources, and sustained productivity of the range. They are developed with the specific intent of providing for the multiple use of the public lands. Application of the standards should involve collaboration between the authorized officer, interested publics, and

resource users. Rangelands should be meeting the Standards for Rangeland Health or making significant progress toward meeting the standards. Meeting the standards provides for proper nutrient cycling, hydrologic cycling, and energy flow. Monitoring of all uses is necessary to determine if the standards are being met and is the primary tool for determining rangeland health, condition, and trend.

2.4.4 County and District Plans

Riparian Assessments: Sinker, North Fork Castle, Upper Succor Creeks

The purpose of these reports (Ferguson 2003a,b,c) is to provide additional information for implementing conservation improvements on privately owned riparian areas in relation to the relevant TMDL developed by the IDEQ for the Middle Snake–Succor watershed (IDEQ 2002). The purpose of this report is to provide additional information for implementing conservation improvements on privately owned riparian areas. The Idaho Soil Conservation Commission, local Conservation Districts, and the NRCS provide technical and financial assistance to private landowners and are expected to continue to do so within the Middle Snake River–Succor Creek area.

Big Wood River Area Tributary Riparian Assessments

The purpose of this report (Ferguson 2003d) is to provide additional information for implementing conservation improvements on privately owned riparian areas in relation to the relevant TMDL developed by IDEQ (Buhidar 2001). The Idaho Soil Conservation Commission (ISCC), local conservation districts, and the NRCS provide technical and financial assistance to private landowners and are expected to continue to do so within the Big Wood River watershed.

Assessment of Brownlee Reservoir water quality, 1999-2000

Nurnberg et al. (2001) produced a water quality and limnological report of conditions in Brownlee Reservoir for the 1999–2000 study period. The evaluation was undertaken to provide information for the nutrient component of the Snake River–Hells Canyon TMDL.

Jump Creek Watershed Planning Project

The Jump Creek watershed planning project report (OSCD 1995) discusses water quality and riparian protection efforts in the Jump Creek watershed as part of the State Agricultural Water Quality Program.

Small Watershed Assessment/Planning Projects

Soil and Water Conservation Districts have implemented at least 10 assessment/planning projects on small watersheds within the subbasins. These projects are mainly oriented toward water quality on private lands, but some have watershed and riparian protection goals. The plans listed in Table 4 identify limiting factors to water quality and fish and wildlife habitat for the respective watersheds, including selected treatment alternatives for the protection and enhancement of these resources. Complete citations were not readily available for these documents.

Table 4. Soil and Water Conservation District (SWCD) watershed planning projects.

Plan	Program ^a	Objective
Vinyard Creek, North Side SWCD, 1986	SAWQP	Water quality
Deep Creek/Mud Creek, Balanced Rock SWCD, 1987	SAWQP	Water quality
Rock Creek, Blaine SCD, 1990	SAWQP	Water quality, riparian protection
Scott's Pond, North Side SWCD, 1994	SAWQP	Water quality, watershed protection
Camas Creek, Camas SCD, 1994	SAWQP	Water quality, watershed, riparian protection
Middle Little Wood River, Wood River SWCD, 1993	SAWQP	Water quality
Perrine Coulee, Snake River SWCD, 1998	SAWQP	Water quality, watershed protection
Camas Creek	CRBS	Water quality, riparian protection
Middle Little Wood River	PL-566	Water quality, water use, animal waste management
Scott's Pond (pending)	PL-566	Water quality, water use, animal waste management

^a SAWQP = State Agricultural Water Quality Program, CRBS = NRCS Cooperative River Basin Study, PL-566 = NRCS Small Watershed Program

2.4.5 HGMP/APRE Products

Congress directed the NPCC to conduct a review of artificial production in the Columbia Basin. A component of this review is the Artificial Production Review and Evaluation process whereby some 300 anadromous and resident fish programs involving about 130 facilities will be reviewed. The goal of APRE products is to assist subbasin planners in identifying and prioritizing changes in artificial production programs. The primary objectives of the APRE are the following.

- Determine whether a program meets its stated purpose.
- Evaluate whether a program is consistent with legal, policy, and scientific criteria; examine operation costs.
- Outline the benefits and risks of the program.
- Gather and distribute hatchery data and information to regional subbasin planning groups.

The APRE is being completed in cooperation with NOAA Fisheries and the USFWS. Information is gathered through the Hatchery Genetic Management Plan (HGMP) process. The analysis of surveys has been assembled in draft reports for each province. A final set of

documents with conclusions and recommendations for all programs will incorporate comments from regional managers and hatchery operators.

For hatchery programs pertinent within the Middle Snake subbasins, very little information was available or provided in the HGMPs, thereby limiting subsequent information or findings available through the APRE reports. *All* available information from the HGMPs and APRE reports is presented in Table 5.

2.4.6 Planned Watershed Assessments and TMDLs

Subbasin assessments and TMDLs are planned or under development for four areas within the Middle Snake subbasins. TMDL development is currently underway for Camas Creek, Little Wood River, and the Snake River from C.J. Strike Reservoir to King Hill. TMDL development for the Salmon Falls Creek watershed area is planned but not yet underway (personal communication, Scott Koberg, Idaho Association of Soil Conservation Districts, April 7, 2004).

Table 5. Summary of available information from the HGMP/APRE process for hatchery programs in the Middle Snake subbasins.

Stock Name ^a	Hatchery	ESA Status	Biological Significance			Viability			Habitat			Harvest Opportunity
			Now	Goal		Now	Goal		Now	Goal		
				10-15 Yrs	30-50 Yrs		10-15 Yrs	30-50 Yrs		10-15 Yrs	30-50 Yrs	
Sturgeon, Snake Upper Middle	Yes	Not listed and not a candidate for listing	H	H	M	M	M	M	M	M	No recreational harvest High catch and release	
Rainbow Trout, Snake Upper Middle	Yes	Not listed and not a candidate for listing	L	L	H	H	H	M	M	M	High recreational harvest	
Rainbow Idaho Power, Snake Upper Middle	nya	nya	nya	nya	nya	nya	nya	nya	nya	nya	Not defined	
Walleye, Snake Upper Middle	Yes	Not listed and not a candidate for listing	L	L	H	H	H	M	M	M	High recreational harvest	

^a No HGMP information or APRE reports exists for programs within the Lower Middle Snake subbasin.

3 Restoration and Conservation Projects

3.1 Project Identification and Description

Information on past and ongoing projects within the Middle Snake subbasins was queried from a variety of contacts including Planning and Technical Team members, representatives of relevant land management agencies, and individuals who requested inclusion on subbasin planning contact lists. All persons contacted were encouraged to forward information requests to additional relevant or interested parties not included on project contact lists.

Project sponsors (or other knowledgeable parties) were asked to supply project information via a standardized subbasin project inventory website database maintained by the IDFG at <http://www2.state.id.us/fishgame/subbasin/>. Project information specific to the Middle Snake subbasins was queried from the resultant database and is supplied electronically as Appendix A.

A summary of project information supplied via the project inventory website and/or sent to the writing team is presented to provide an overview of project sponsors, numbers, types, and locations (Table 6). Readers are referred to Appendix A for additional information regarding individual projects.

3.2 Project Assessment

The inventory identified 87 projects with objectives targeting a variety of species and/or habitat management issues. The projects were classified into 1 of 12 activity categories based on project descriptions provided. The categories and criteria used to classify projects are summarized in Table 6. If a project included numerous activities, the project was credited in all applicable categories. The values only represent numerical tallies of project categories.

Funding summaries are based on project counts only, not funding level. Projects identifying multiple funding groups were classified for all organizations involved. Project information is located in Appendix A. Funding for projects in the Middle Snake subbasins was primarily federal, with 76% of reported projects indicating some type of federal funding. Local groups, nonprofits and Idaho Department of Fish and Game funded 17%, 7.5% and 7.5% of the projects respectively.

We identified 16 projects designed to restore fish and wildlife habitat in the Middle Snake subbasins (Figure 1). Stream structure and riparian habitat restoration projects were the most common activities in the Big Wood watershed. We identified 18 riparian fence activities for the Middle Snake Succor Creek watershed. Overall, riparian fencing projects were the most common activity. Habitat restoration projects categorized by watershed are presented in (Table 7).

Table 6. Categories and criteria used to classify projects.

Project Category	Criteria for Classification
Wetland restoration	Specifically mentioned purpose of “wetland restoration”
Upland habitat protection	Identified protection of habitat other than riparian or stream
Riparian fencing	Provide riparian habitat with natural (passive) recovery opportunity
Water conservation	Diversion consolidation, conversion to more efficient methods or retire the water right
Stream structure	Placement of structures (bank barbs, drop structures) to prevent erosion, protect or create habitat
Road/Trail	Modification, moving or closing of roads and trails to reduce sediment or protect habitat
Access management	Recreation access (campgrounds, boat ramps) designed to reduce sediment or protect habitat
Fish passage	Allow or increase fish movement (culvert replacement, dam modification)
Grazing management	Project designed to protect habitat while allowing limited grazing typically in riparian areas
Riparian restoration	Active work on riparian areas including vegetation planting
Diversion	Modification of existing water diversion structure including fish screening or consolidation
Channel restoration	Reconnection of side channels, or elimination of stream crossings
Miscellaneous	Projects that were unclassifiable

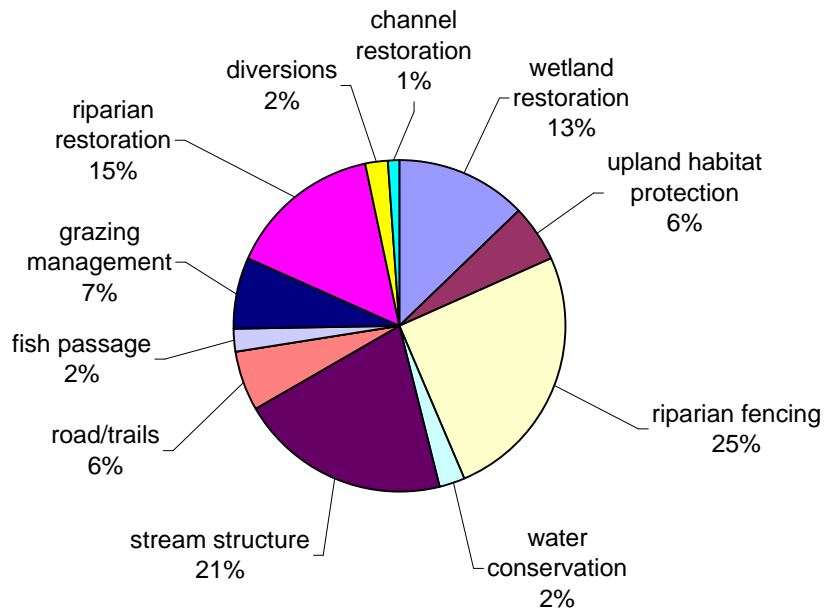


Figure 1. Summary of habitat restoration activities in the Middle Snake subbasins identified during the assessment process.

Table 7. Number of habitat restoration projects by watershed in the Middle Snake subbasins identified for the 12 project activity categories.

Project Activity Category	Watershed									
	Middle Snake Rock Creek	Salmon Falls	Big Wood	Little Wood	Camas	C.J. Strike	Middle Snake Succor Creek	Middle Snake Payette	Brownlee	Total
Wetland Restoration	1		5			1	4			11
Upland Habitat Protection	1					1	3			5
Riparian Fences		2					18		2	22
Water Conservation			1					1		2
Stream Structure			10	4	2				2	18
Road/Trails			1						4	5
Access Management										0
Fish Passage									2	2
Grazing Management		3					2		1	6
Riparian Restoration	1	1	8			1			2	13
Diversions						1			1	2
Channel Restoration									1	1
Total	3	6	25	4	2	4	27	1	15	87

3.2.1 Current Monitoring and Evaluation Activities

Within the Middle Snake subbasins state and federal agencies, tribes and occasionally private parties collect data on focal fish species. Where data were accessible we presented it in Section 3.4 of the assessment. However, because new data are constantly being collected it is impossible to provide an assessment of all available data. Additionally, there is no central location that archives data or even a centralized location for project information. Project descriptions and accomplishments are presented in.

Terrestrial research, monitoring and evaluation activities in the Middle Snake subbasins are limited in number and scope. Most research, monitoring and evaluation effort is expended upon threatened, endangered, candidate or recently delisted species. Focal habitats have received negligible research, monitoring and evaluation effort resulting in significant data gaps, which inhibit the land management decision-making process. Additional focal habitat information is needed for focal habitats and the focal species dependent upon those habitats.

3.2.2 Project Gap Assessment

The focus of restoration and conservation projects conducted within the Middle Snake subbasins has been riparian restoration along tributary habitats. Although this focus is on a primary limiting factor to focal species in tributary habitats (riparian disturbance is a component of “watershed disturbance”; see assessment section 3.4.2), the limited number (~30) and scope of individual projects make this effort collectively insufficient to address limiting factors at the subbasin scale. Individual actions reported have also been aimed at addressing passage (one culvert) and habitat degradation (large woody debris placement in one reach) concerns; these

actions are also insufficient to impact subbasin-scale limiting factors. Past and present projects in tributary habitats are not considered ineffectual; in some cases, effects may be substantive at the local or watershed scale, and the existing projects form a cornerstone for more widespread actions that, collectively, may have substantial benefits across the Middle Snake subbasins.

Compared to other subbasins and provinces in the Columbia River Basin, the Middle Snake subbasins have received significantly less emphasis upon aquatic and terrestrial habitat restoration. Aquatic and terrestrial activities have been under represented based upon Columbia Basin Fish and Wildlife Program Goals. Expanded coordination of project implementation with revised goals and objectives would insure that aquatic and terrestrial landscape components in the subbasins receive adequate funding allocations.

3.2.1 Aquatic

Multiple defined limiting factors to aquatic species in tributary habitats (see assessment section 3.4.2) are currently unaddressed or only indirectly addressed through reported past and existing projects. Temperature concerns are indirectly addressed through riparian enhancement, although the scope of actions is limited to date. Base flow/irrigation effects, flow variation, sediment, upland disturbances, instream habitat degradation, hatchery influences, connectivity, and introduced species are all widespread limiting factors to focal species that have not been addressed by (reported) conservation and restoration projects. The need to develop and expand restoration projects throughout the subbasin to address these limiting factors is substantial and immediate.

Reported projects do not address or impact aquatic limiting factors in mainstem habitats described in assessment section 3.4.2. Primary issues affecting most mainstem focal species include water quality, connectivity, habitat degradation, and flow variations. Although actions in tributary systems can be expected to influence mainstem conditions, reported restoration and conservation projects is insufficient in scope and scale to have any notable impacts to mainstem habitats. The single project identified as impacting white sturgeon is apparently not designed to address limiting factors, but rather to expand knowledge of the feasibility of put-grow-take tribal fisheries for that species. Undoubtedly, information gathered under that project would benefit any future planning of additional projects related to white sturgeon that may include stocking or translocation of that species. There is a substantial need for further development of restoration and conservation projects aimed at addressing the needs of focal species in mainstem habitat, particularly white sturgeon and ESA-listed mollusk species.

3.2.2 Terrestrial

Reported projects do not address or impact terrestrial species limiting factors described in assessment section 3.5.3, except for focused improvements to riparian habitat conditions through fencing and enhancement. Reported riparian improvement projects directly address only two of four identified limiting factors for riparian habitats (address grazing/browsing and land-use conversion; do not address altered hydrologic regimes or invasive/exotic species). There is a substantial need for development of restoration and conservation projects aimed at addressing the needs of terrestrial species throughout the Middle Snake subbasins.

Based on information provided for this assessment and inventory there is a considerable need to expand restoration and conservation project development within the Middle Snake subbasins. Future project development should focus on addressing needs and strategies identified in the accompanying management plan for the subbasins, including identified strategies (management plan sections 3.2 and 3.3), data/information gaps (section 4.1), and/or potential research hypotheses (section 4.2).

3.2.3 Monitoring and Evaluation

Perhaps the greatest need for Middle Snake subbasins natural resource conservation is baseline information for each of the focal habitats. Recent research, monitoring and evaluation activities do not address the significant data gaps that exist regarding focal habitat quantity and quality. Watershed scale goals, objectives, and strategies with quantifiable results are unobtainable with the current information available. Undoubtedly, a tremendous amount of information has been collected at scales finer than the watershed. The current planning process timeline did not allow adequate time to compile all of the pieces into a cohesive summary.

Additional research and monitoring and evaluation effort should be expended upon the collection and compilation of existing data regarding focal habitat structure, function, quantity and quality.

Prescribed fire activities were not submitted during the inventory data collection process. Ecosystem structure and function in the Middle Snake subbasins is intricately tied to natural fire regimes across all focal habitats. Additional research, monitoring and evaluation activity pertaining to anthropogenic interference of natural fire regimes is needed to insure that adaptive fire management strategies can be implemented.

A growing body of expertise and technology is being developed for the management of invasive exotic weeds. Future research, monitoring and evaluation efforts need to incorporate even broader coordination and collaboration due to the “out of basin” implications of spreading invasive exotics across the Western landscape.

Altered hydrologic function at all scales has been identified as a significant cause limiting habitat quantity and function in the Middle Snake subbasins. Based upon the inventory, relatively little effort has been expended to address the issue. Expanded coordination and collaborative efforts across multiple jurisdictions, is required to begin addressing altered hydrology at greater scales within the Middle Snake subbasins.

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5 Appendices

Appendix A. Past and ongoing restoration and conservation projects in the Middle Snake subbasins¹.

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area ²
Little McBride Spring and Exclosure	Ongoing	1998		BLM		Water quality and riparian habitat damage from livestock		Develop the Little McBride Spring and fence the riparian zone to protect it from livestock grazing.	Undef
Red Mountain Fence (Bates Creek)	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Change livestock grazing season of use from spring to winter for pasture #1 in Red Mountain allotment, #0588. Construct a pasture division fence in #3 to develop a rest-rotation spring system. Monitor Bates Creek for detrimental winter use in riparian areas.	Undef
Dixon/Crest Exclosure Modification (Farrot and Murphy creeks)	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		Enlarge the livestock exclosures at two developed springs to protect additional riparian habitat. Troughs will be relocated.	Undef
Gusman Fences (Squaw Creek)	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		Construct 4 miles of fences and adjust livestock grazing to limit use along Squaw Creek during the hot summer season.	Undef

Project Name	Status	Begin Year	End Year	Implementing Agency /Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Rocks Seeding Fence (McBride Creek)	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		Construct a fence to improve management on McBride Creek.	Undef
Cat Spring Exclosure	Ongoing	1998	1999	IDFG Conservation Data Center				The exclosure was erected about 40 years ago. The exclosure was originally constructed as a Habitat Improvement Project. The BLM, IDFG, and Pheasants Forever are all involved with the project, at some capacity.	Undef
Mitchell Spring and Exclosure	Ongoing	1998		BLM				Develop Mitchell Spring and fence the riparian zone to protect it from livestock grazing.	Undef
Shoestring Fence (Snake River)	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Construct a 4-strand barbed-wire fence to restrict access to the Snake River. Riparian vegetation should improve as a result of the proposed project. Habitat for rare plants and white sturgeon would also be protected.	Undef
Cottonwood Spring Development and Exclosure	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		This project would include a protective exclosure on Cottonwood Spring, keeping livestock off of the sensitive areas surrounding the spring head. Also, the project would better develop a small pipeline 40 to 50 feet to a new trough on the south side of the road.	Undef

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Upper McBride Creek Riparian Fence	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		Construct a fence to improve management of the riparian zone along upper McBride Creek.	Undef
Hammett 1 Reservoir Reconstruction	Ongoing	1998		BLM				Reconstruct Hammett Reservoir #1.	Undef
Big Springs Projects	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		Construct fence at spring	Undef
Henggeler Exchange	Ongoing	1998		BLM				Use private exchange to acquire land with high wildlife and recreation values (a portion of an island in the Snake River, the remainder of which is already BLM land).	Undef
Highland L&L Exchange	Ongoing	1998		BLM				Exchange public lands north of Eagle for lands on the Boise Front that have recreation, watershed, and wildlife values (T3N, R3E, SEC. 3).	Undef

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage²
Charity Spring Enclosure	Ongoing	1998	1999	IDFG Conservation Data Center				Work was done on enclosure, which was erected 30+ years ago. The enclosure was originally constructed as a Habitat Improvement Project (HIP). The BLM, IDFG, and Pheasants Forever are all involved with the project, at some capacity. The west side of the enclosure is at the edge of a road.	Undef
Sandpoint (Snake River) Riparian Fence	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Construct approximately 6 miles of fence to create a riparian pasture along the Snake River and a cross fence to implement a deferred rotation grazing system, to improve vegetation conditions within the Sandpoint ACEC.	Undef
Dave Creek Gap Fence	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Construct a post and pole fence to restrict livestock movement into Dave Creek. This project would have positive benefits to riparian vegetation, bull trout habitat, and redband trout habitat.	Undef
Poison Butte Fence	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Construct 5.75 miles of cross fence to implement a 4-pasture rest-rotation grazing system in the Poison Creek allotment.	Undef

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
2-Island Crossing Fence	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Construct a 4-strand barbed-wire fence to restrict access to the Snake River. Riparian vegetation should improve as a result of the proposed project.	Undef
3-Island Crossing Fence	Ongoing	1998		BLM		Potential impact of water quality: positive low/surface water		Construct a 4-strand barbed-wire fence to restrict access to the Snake River. Riparian vegetation should improve as a result of the proposed project.	Undef
Crab Creek Riparian Fences	Ongoing	1998		BLM		Potential impact of water quality: positive medium/surface water		Construct at least two fence segments to create a riparian pasture to include Crab Creek headwaters and more than 2 miles of Crab Creek on state, private, and public lands. These fences would ensure long-term management benefits to Crab Creek.	Undef
John Hoffman Reservoir Rehabilitation	Ongoing	1999		BLM		Potential impact of water quality: positive medium/surface water Reservoir acts as a silt trap on the drainage		Rip-rap dam face, build four islands for waterfowl nesting, and fence most of the reservoir from grazing.	Undef

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area² of Coverage
Bruneau Resource Area Wildlife Tracts	Ongoing	1999		BLM		Potential impact of water quality: positive medium/surface water		Develop, protect, and improve wildlife habitat on 20+ isolated tracts of public land. These tracts will be managed by BLM and IDFG under guidelines of the Sikes Act. Riparian improvement will include shrub plantings and pond construction.	Undef
Big Flat Creek/Cherry Creek Fences and Ponds (tributaries of East Fork Bruneau River)	Ongoing	1999		BLM		Potential impact of water quality: positive medium/surface water		Fencing to restrict livestock access along segments of Big Flat Creek and Cherry Creek, water to be provided for cattle. Project includes several sections in Idaho and three in Nevada.	Undef
Cedar Creek Reservoir Pasture	Ongoing	1999		BLM				Creating a riparian and upland pasture with crested wheatgrass seeding. Primarily benefits riparian vegetation.	Undef
Salmon Falls Creek Gap Fences	Ongoing	1999		BLM		Potential impact of water quality: positive medium/surface water		Construct 12 gap fences to reduce livestock access along Salmon Falls Creek to benefit riparian vegetation and aquatic habitat.	Undef
Roseworth Point Pipeline Construction	Ongoing	1999		BLM		Potential impact of water quality: positive medium/surface water		Construct pipeline to distribute livestock water and gap fencing to restrict livestock use of Devil Creek (tributary of Salmon Falls Creek).	Undef

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Trueblood 4/Wetlands	Ongoing	1999		BLM		Potential impact of water quality: positive medium/surface water		Provide a brood pond with adjacent dense cover and shorebird habitat from a second pond, within the Trueblood Wildlife Area	Undef
White Sturgeon Put, Grow, and Take Fishery Feasibility Assessment, Oxbow/Hells Canyon reservoirs	Ongoing	2003	2005		Nez Perce Tribe				BNL
Lookout Mountain Road Decommissioning	Ongoing	2003	2005		Vale District BLM				Undef
Snake River Native Salmonid Assessment	Ongoing	2003	2005		IDFG and IOISC				Undef
Implement Best Management Practices to Improve Riparian Habitat and Upland Conditions within the Billingsley Creek Watershed.	Ongoing	2003	2005		Gooding Soil Conservation District				Undef
Feasibility Study—Camas County, Soldier Creek Restoration	Complete		1997	ACOE					CMS

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area² of Coverage
Flood Control—Vicinity of Gooding and Shoshone, Little Wood River	Complete		1994	ACOE					LWR
Study—Camas County, Soldier Creek	Complete		1993	ACOE					CMS
Pre-Auth Study—Bank Protection—Blaine County, Big Wood River	Complete		1986	ACOE					BWR
Pre-Auth Study—Lincoln County, Little Wood River	Complete		1985	ACOE					LWR
Terminated Flood Control—Hailey, Big Wood River	Complete		1984	ACOE					BWR
Emergency Repairs—Weiser Vicinity, Farewell Bend	Complete		1980	ACOE					BNL
Flood Hazard Report—Shoshone, Little Wood River	Complete		1976	ACOE					LWR
Flood Hazard Report—Gooding, Little Wood River	Complete		1976	ACOE					LWR
Floodplain Study—Gimlet—Triumph Area, East Fork Big Wood River	Complete		1974	ACOE					BWR

Project Name	Status	Begin Year	End Year	Implementing Agency /Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area ² of Coverage
Floodplain Study—Ketchum River/Wood River, Warm Springs	Complete		1972	ACOE					BWR
Floodplain Study—Ketchum, Warm Springs Creek	Complete		1972	ACOE					BWR
Floodplain Study—Bellevue—Hailey, Big Wood River	Complete		1971	ACOE					BWR
Floodplain Study—Blaine County, Big Wood River	Complete		1970	ACOE					BWR
Snagging and Clearing—Gimlet, Big Wood River	Complete		1970	ACOE					BWR
Bear Creek Ford to Bridge Project—Brownlee/Wildhorse River/Bear Creek	Complete	2003	2003	USFS	USFS			A ford was made on Trail 228 in the headwaters of Bear Creek across a portion of stream where bull trout spawning has been suspected. A bridge was constructed in 2003 so that creek fording was avoided.	BNL
Crooked River Riparian Exclosure—Brownlee / Wildhorse River / Crooked River	Complete	2003	2003	USFS	USFS			A riparian exclosure was constructed in 2003 to eliminate access of livestock to a portion of lower Crooked River. This area has unstable banks, high surface fines, and low pool frequency.	BNL

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area² of Coverage
Crooked River Willow Planting—Brownlee/ Wildhorse River/ Crooked River	Complete	2003	2003	USFS	USFS			A cooperative project with Indianhead Fly Fishers of Weiser, Idaho, was completed in spring 2003 on the Crooked River. Willow cuttings were placed into the streambanks using a waterjet stinger. The cuttings are located within a riparian enclosure that was completed in 2003.	BNL
Crooked River Dispersed Recreation Site Rehabilitation—Brownlee/ Wildhorse River/ Crooked River	Complete	2003	2003	USFS	USFS			As part of a cooperative project with the Indianhead Fly Fishers of Weiser, Idaho, USFS constructed a fence to reduce the impacts of recreationists on Crooked River. An ATV ford was fenced off and a buffer was created between where the campers could park their vehicles.	BNL
East Fork Brownlee Creek Culvert Upgrade—Brownlee/ Brownlee/ Creek	Complete	2003	2003	USFS	USFS			An impassable culvert on East Fork Brownlee Creek (USFS Road 50044) was upgraded to a natural bottom culvert to provide fish passage.	BNL
Crooked River Large Woody Debris Placement—Brownlee/ Wildhorse River/ Crooked River	Complete	1999	1999	USFS	USFS			As part of mitigation for the Council Cuprum Road project by Federal Highways Department, large wood was placed in lower Crooked River to improve cover, shade, and pool frequency.	BNL

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Big Wood River at Hailey		2002	2004		IDEQ 319 Program	Water Quality		Place rock drop structures, stabilize streambank, remove highway material adjacent to river, plant woody vegetation and grass filter strip, remove landfill, install storm water pond. Monitor channel cross sections, wolman pebble counts, IDEQ BURP, sediment assessment.	
Succor Creek/Homedale School District—Water Quality		2001	2002		IDEQ 319 Program	Water Quality		Treated agricultural return water before it reaches Succor Creek. The wetland will remove sediment and nutrients from the return water. Succor Creek is listed for sediment and will therefore be able to meet the targeted loads easier with this treatment. This site will also provide an example to area producers who face similar water quality issues.	SMP
Sediment Removal, Twin Falls Canal Co.	Undef	Undef	Undef	Twin Falls Canal Co.	Undef	Undef		Undef	Undef
Culvert Inventory	Undef	Undef	2003	Boise/Sawtooth National Forests	Undef	None		Undef	Undef
Bob Mack Safe Harbor Agreement for northern Idaho ground squirrels in Adams County	Complete	Undef	2000	USFWS	Undef.	None		Undef.	Adams Cty, ID

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Soulen Livestock Candidate Conservation Agreement with Assurances (CCAA) for southern Idaho ground squirrels in Washington and Payette Counties	Complete	Undef	2000	USFWS	Undef.	None		Undef.	Washington and Payette Cty, ID
O'Gara, Partners for Fish and Wildlife Project; Grove Creek revegetation									Blaine Cty, ID
Wrightman, Partners for Fish and Wildlife Project; Wildlife management agreement	Undef.	Undef	Undef.	USFWS	Undef.	Undef.		Undef.	Washington on Cty, ID
Wood River Land Trust, Elkhorn Creek, Partners for Fish and Wildlife Project; Habitat restoration	Undef.	Undef	Undef.	USFWS	Undef.	Habitat limitations		Undef.	Blaine Cty, ID
The Nature Conservancy, Stalker Creek, Partners for Fish and Wildlife Project; Wetland restoration	Undef.	Undef	Undef.	USFWS	Undef.	Wetland condition		Undef.	Blaine Cty, ID
The Nature Conservancy, Silver Creek, Partners for Fish and Wildlife Project; Wetland restoration	Undef.	Undef	Undef.	USFWS	Undef.	Wetland condition		Undef.	Blaine Cty, ID
The Nature Conservancy, 45 Ranch, Partners for Fish and Wildlife Project; Habitat restoration	Undef.	Undef	Undef.	USFWS	Undef.	Habitat condition		Undef.	Owyhee Cty, ID
The Nature Conservancy, French Creek, Partners for Fish and Wildlife Project; Riparian habitat restoration	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Blaine Cty, ID

Project Name	Status	Begin Year	End Year	Implementing Agency /Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
The Nature Conservancy, Millington, Partners for Fish and Wildlife Project; Riparian habitat restoration	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Blaine Cty, ID
The Nature Conservancy, Soldier Creek, Partners for Fish and Wildlife Project; Habitat protection	Undef.	Undef	Undef.	USFWS	Undef.	Habitat condition		Undef.	Camas, Cty, ID
The Nature Conservancy, Stevenson Project, Partners for Fish and Wildlife Project; Riparian and wetland habitat restoration	Undef.	Undef	Undef.	USFWS	Undef.	Riparian / Wetland condition		Undef.	Blaine Cty, ID
The Nature Conservancy, Thousand Springs, Partners for Fish and Wildlife Project; Wetland restoration	Undef.	Undef	Undef.	USFWS	Undef.	Wetland condition		Undef.	Gooding Cty, ID
Six S Ranch, Six S Ranch, Partners for Fish and Wildlife Project; Habitat development and management	Undef.	Undef	Undef.	USFWS	Undef.	Habitat condition		Undef.	Cassia Cty, ID
Si Ellen Dairy, Si Ellen Dairy, Partners for Fish and Wildlife Project; Wetland and upland restoration	Undef.	Undef	Undef.	USFWS	Undef.	Wetland and Upland condition		Undef.	Jerome Cty, ID
Roswell Duck Club, Roswell Duck Club, Partners for Fish and Wildlife Project; Wetland restoration	Undef.	Undef	Undef.	USFWS	Undef.	Wetland condition		Undef.	Canyon Cty, ID

Project Name	Status	Begin Year	End Year	Implementing Agency /Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Romero, Reynolds Creek Fence, Partners for Fish and Wildlife Project; Riparian protection	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Owyhee Cty, ID
Robinson, Little Smokey Creek Ranch, Partners for Fish and Wildlife Project; Riparian restoration	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Camas, Cty, ID
Phillips, Weiser Cove Farm, Partners for Fish and Wildlife Project; Upland habitat restoration for southern Idaho ground squirrels	Undef.	Undef	Undef.	USFWS	Undef.	Upland habitat condition		Undef.	Washington on Cty, ID
Osborn, Osborn Ranch, Partners for Fish and Wildlife Project; Riparian restoration	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Adams Cty, ID
O'Gara, Silver Springs Grove Creek, Partners for Fish and Wildlife Project; Riparian restoration on Grove Creek	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Blaine Cty, ID
O'Gara, Silver Springs, Partners for Fish and Wildlife Project; Habitat restoration on Chaney Creek and Wilson Creek	Undef.	Undef	Undef.	USFWS	Undef.	Habitat condition		Undef.	Blaine Cty, ID
Moroney, Santero Land Company-Parma Restoration, Partners for Fish and Wildlife Project; Riparian and wetland restoration	Undef.	Undef	Undef.	USFWS	Undef.	Riparian / Wetland condition		Undef.	Canyon Cty, ID

Project Name	Status	Begin Year	End Year	Implementing Agency /Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area of Coverage ²
Mills, Circle CRanch, Partners for Fish and Wildlife Project; Riparian and wetlands protection	Undef.	Undef	Undef.	USFWS	Undef.	Riparian / Wetland condition		Undef.	Adams City, ID
Kochert, Kochert fencing, Partners for Fish and Wildlife Project; Riparian protection on the Big Wood River	Undef.	Undef	Undef.	USFWS	Undef.	Riparian condition		Undef.	Gooding City, ID
CB Riversprings Ranch, Riversprings WRP, Partners for Fish and Wildlife Project; Wetland development and management	Undef.	Undef	Undef.	USFWS	Undef.	Wetland condition		Undef.	Canyon City, ID
Idaho Department of Fish and Game, McFarland WHIP, Partners for Fish and Wildlife Project; Upland habitat restoration on Little Canas Prairie	Undef.	Undef	Undef.	USFWS	Undef.	Upland condition		Undef.	Elmore City, ID
Idaho Department of Fish and Game, Kiester wetland restoration, Partners for Fish and Wildlife Project; Wetland and upland restoration and protection	Undef.	Undef	Undef.	USFWS	Undef.	Upland / Wetland condition		Undef.	Owyhee City, ID
Idaho Department of Fish and Game, Browns Industries, Partners for Fish and Wildlife Project; Wetland restoration and protection	Undef.	Undef	Undef.	USFWS	Undef.	Wetland condition		Undef.	Adams City, ID

Project Name	Status	Begin Year	End Year	Implementing Agency/Principal	Funding Source/Sponsor	Limiting Factors Addressed	Analysis	Comments/Results/Monitoring	Geographic Area ² of Coverage
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¹ This information is provided electronically as an Excel spreadsheet titled "AppA_Projects_MidSnake.xls".

² Geographic areas refer to 4th field HUCs as follows:

- USR Upper Snake River–Rock Creek
- SFS Salmon Falls
- BWR Big Wood River
- CMS Camas Creek
- LWR Little Wood River
- CJS C.J. Strike Reservoir and tributaries
- MSS Middle Snake River–Succor Creek
- SMP Middle Snake River–Payette River
- BNL Brownlee Reservoir and tributaries
- Undef Undefined