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Review of the

Walla Walla Spring Chinook Master Plan

Project # 2000-038-00

Step One of the Northwest Power and Conservation Council's Three-Step Review Process

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ISRP Review of the Walla Walla Spring Chinook Master Plan

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ISRP Review of the Walla Walla Spring Chinook Master Plan

Background

At the Northwest Power and Conservation Council's September 2008 request, the ISRP reviewed the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR), Walla Walla Spring Chinook Master Plan (Project # 2000-038-00). The Umatilla Tribe proposed to add incubation, early rearing, and final rearing facilities to the existing South Fork Walla Walla Adult Holding and Spawning Facility (i.e., Umatilla Hatchery satellite facility operating under the Council's Fish and Wildlife Program since 1997) in order to produce annually 500,000 yearling spring Chinook smolts. This production group would be reared to full term, acclimated at the new facility, and released directly into the South Fork Walla Walla River, which is identified as the primary potential spring Chinook natural production area in the upper mainstem portion of the subbasin.

This is a Step 1 review in the Council's Three Step Review Process. Step 1 is the feasibility stage, and all major components and elements of a project should be identified. This review focused on the CTUIR's responses to the Step 1 scientific review elements specified by the Council. In addition, the ISRP evaluated the adequacy of responses to issues raised in past ISRP reviews of the proposal. Specifically, the ISRP evaluated proposals for this hatchery program in the FY 2007-09 and FY 2002 project reviews and found the proposal did not meet the ISRP's scientific review criteria (see attachment). The FY 2007-09 review stated:

> "The ISRP remains unconvinced of the rationale for the hatchery as the appropriate rebuilding tool for spring Chinook in the Walla Walla River, based on the material contained in the proposal. From the proposal it is confusing to determine what mix of harvest augmentation and natural production restoration is the real purpose of the hatchery production. From the proposal it is not possible for the ISRP to conclude that the habitat conditions are actually sufficient to support the hatchery production in addition to the fish that are currently returning to the watershed, even though those numbers are only in the tens to hundreds annually."

ISRP Step-1 Overall Recommendation

Does Not Meet Scientific Review Criteria. Comments from the ISRP's previous 2007-2009 review (summarized above) still apply.

If the current draft of the Master Plan is revised and resubmitted, revision should focus on:

1. In Section V. A. "*Existing Environmental Resources; 3. Status of Spring Chinook in the Walla Walla Subbasin*" (pp. 44-46) fully evaluate the natural production of smolts and adults from the recent releases. This information is necessary in order for the sponsors to make informed decisions about the feasibility of achieving the program's goals. If data from the recent stocking is inadequate for analysis, develop an experimental design to use the *U.S. v Oregon* agreement stocking of 250,000 spring Chinook smolts from Ringold Springs Hatchery through 2019 to allow evaluation of whether constructing 20 additional raceways is justified.

2. Using evaluation from (1) above, provide more thorough and convincing evidence that the habitat in the subbasin is adequate to support a reintroduced population of spring Chinook (Section V. Existing Resources; A. Existing Environmental Resources; 1. Watershed Carrying Capacity). Link this analysis with the habitat restoration description provided in Section V. B. Existing Resources; 4. Habitat and Passage Restoration and Improvement Efforts.

3. Within the plan, provide a decision framework that identifies performance metrics for adult and juvenile production in both the hatchery and natural phases that would justify an integrated-harvest program. If the evaluation concludes that reintroduction of a self-sustaining spring Chinook population is unlikely, develop options for a harvest augmentation program. Include in the decision framework those circumstances that would trigger cessation of fish stocking because the program has succeeded and is no longer needed, or has been unsuccessful in providing restoration and harvest. Goals for harvest (where, when, by whom?) are not adequately articulated with development and definition of target and limit reference points for decision management.

4. Provide an HGMP for the program.

ISRP Review Summary

The Walla Walla Spring Chinook Hatchery Master Plan (WWHMP) proposes to reintroduce spring Chinook into the Walla Walla River subbasin, where they have been effectively extirpated since 1925. Historically, de-watering and in-channel habitat modifications in the lower reaches associated with agriculture are, in large measure, responsible for the local extirpation of spring Chinook from the Subbasin for the past ~ 75 years. To achieve its goals, the Master Plan proposed to expand current adult holding and spawning facilities (the preferred alternative) and use a supplementation model for rearing and releasing an additional 500,000 spring Chinook smolts into the subbasin. The goals for the WWHMP program are: 1) to return an average of 3,850 adults to the Walla Walla Subbasin, 2) "restore" natural production to Mill Creek and the Touchet River, and 3) permit a shared tribal/non-tribal harvest. Of the adult returns, 2,750 will be artificially produced and 1,100 (p.12 – although, p.16 lists 2,400 and 1,400, respectively) will be naturally-produced recruits in the near-term. To meet artificial production objectives, 350 adults (at a target average PNI $\geq$ 0.50) will be collected for brood each year. In addition to the annual smolt releases, the program proposed to release 390 hatchery adults (per year) directly into Mill Creek and 470 hatchery adults (per year) directly into the upper Touchet River.

The Walla Walla Spring Chinook Hatchery Master Plan is compact and well organized. Especially helpful is the "cross-walk" upfront that relates the project to Council's and Fish and Wildlife Program's guidance and criteria for supplementation projects. Conceptually, the Master Plan includes key elements, including a monitoring and evaluation strategy tied to specific objectives and work elements (tasks), a Risk/Benefit analysis, and a linkage to the Northeast Oregon Hatchery (NEOH) plan. An HGMP (Hatchery Genetic management Plan) was listed in the Table of Contents, but not included with the Master Plan. The HGMP should be included with the master Plan as it significantly informs the proposed activities. The Master Plan also initiates a needed discussion on the various risks and benefits associated with the Plan's proposed activities; however, these risks need to be more formally assessed and more fully quantified as planning is revised. Finally, the habitat improvement actions are important linkages that need to be detailed much more completely in order to place the project within a context of other work in the Subbasin.

The Walla Walla Hatchery Master Plan contained extensive responses to the questions posed by the ISRP and the Council's previous Step 1 review. However, the program goal and likely outcomes remained unsupported, based on a limited capacity for natural Chinook production and an apparent failure of hatchery fish over the last decade to demonstrate an ability to realize natural recruitment rates that exceed replacement. Consequently, the Walla Walla Spring Chinook Hatchery Master Plan does not meet scientific criteria.

The basis for this conclusion emerged from the failure of the proof-of-concept activities that have occurred over the past decade in the Subbasin. Specifically, the Walla Walla

Spring Chinook Hatchery Master Plan noted that “the program will be operated with an emphasis on escaping natural origin adults to spawn in an attempt to accelerate the restoration of natural spawning populations”; yet hatchery releases over almost a decade have failed to establish a self-producing and growing natural population. An adequate proof of concept and expectation would be evidence of an incrementally growing rate of returns and natural recruits. No such evidence was provided. Contemporaneous with the reintroduction leading to natural production, an integrated harvest-hatchery program is also proposed. Five alternative fish-rearing programs are proposed and summarized to produce the fish for this program.

To meet scientific review criteria, the preferred alternative must include rigorous analyses of existing data on natural production in the subbasin, and from preliminary hatchery experiments since 2000 that were essentially alternatives two and three (stocking juveniles and adults produced from other facilities). If data collection from monitoring of these projects is insufficiently robust for evaluation, then the sponsor should plan to implement sequential experimental releases of either juvenile or adults prior to implementation of ”full production” alternative. Additionally, reintroduction and supplementation efforts should be limited to two salmon life-cycles (generations), rather than the five proposed in the Master Plan.

Ultimately, the abundance and productivity of spring Chinook in the Walla Walla subbasin is determined by environmental conditions including harvest, spawning and rearing habitats within this tributary, the Columbia River migration corridor, and the marine environments. The sponsor reports that stray spring Chinook from the Umatilla and Tucannon rivers enter and spawn in the Walla Walla subbasin. Additionally, adults and juveniles have already been intentionally reintroduced into the watershed. If environmental conditions were suitable to establish a population of spring Chinook, natural colonization and the modest reintroduction are expected to be all that is required to grow and recruit natural production. Therefore, producing an outcome different from what has been achieved from natural production from straying adults or from the modest experimental effort is not an obvious outcome from adding fish annually for the foreseeable future (five generations). Finally, an integrated harvest-hatchery program requires a self-sustaining natural population if it is going to be operated with a PNI of 0.50 or greater. Until a self-sustaining population is established, the initiation of an integrated harvest-hatchery program is premature. Environmental conditions in the subbasin may be adequate to support a harvest augmentation program, but not sufficient to establish a self-sustaining spring Chinook population. If a harvest augmentation program is considered as an alternative to the reintroduction/integrated-harvest program, it needs to be fully described and considered in the Master Plan in an adaptive management framework.

ISRP General Review Comments and Recommendations

Evaluation of previous experimental stocking efforts
An indication of the feasibility of the proposal is required. The Walla Walla Hatchery Master Plan should expand Section V. A. "*Existing Environmental Resources; 3. Status of Spring Chinook in the Walla Walla Subbasin*" (pp. 44-46) by fully evaluating the natural production of smolts and adults from the recent releases. This information is necessary in order for the sponsors to make informed decisions about the feasibility of achieving the program's goals. The *U.S. v Oregon* agreement provides 250,000 spring Chinook smolts from Ringold Springs Hatchery through 2019 (page 62) and should provide sufficient stocking to allow evaluation of whether constructing 20 additional raceways is justified.

The question central to this project remains unaddressed: Why does the natural population (or the introduced population) not increase? If it cannot, then there is little or no chance that adding more semi-domesticated broodfish to the mix will improve the scenario.

Table 2 lists numbers of "adult outplanting" in Mill Creek and SF Walla Walla River. What kind of results (in terms of smolts produced or outmigrated, as well as ultimately what level of adult return, and harvest) were observed, and where? The redds reported in Table 5 were likely a mix of those from natural and released adults - although the natural background level of adult returns reported in Table 4 was quite low - thus the majority of redds were "presumed" to be from adult releases. Ultimately, adults planted in 2000 to 2003 should have produced returning recruits over the past 2-3 years.

Table 3 lists smolt releases into the SF Walla Walla from 2005 to 2008. Returning adults should be observed by next year. The results from these experimental releases will be valuable as tests of the program assumptions (especially SARs).

Habitat and its role in the Master Plan
Neither the Walla Walla Subbasin Plan, nor the Walla Walla Hatchery Master Plan, describe current habitat improvement efforts in the Walla Walla subbasin (and the Touchet watershed) sufficiently to determine whether they have addressed the limiting factors that constrain salmon rebuilding goals in the subbasin. Data are needed on the efficacy and trajectory of habitat improvement actions within the Walla Walla subbasin. The subbasin is comprised of 90% privately owned lands, which makes implementing habitat improvement projects over the larger landscape much more difficult logistically, than with a single federal land owner, such as the Forest Service. The best habitat in the basin for spring Chinook and steelhead is in the very upper parts of each of the main and tributary systems, where most of this land lies in Forest Service and Wilderness areas, so it is not surprising that this is the best habitat in the basin for anadromous fish. Habitat quality decreases as one moves downstream and into the privately owned agricultural lands. Habitat and water quality issues in the lower portion

of the subbasin are described as lethal for part of the year (Walla Walla Subbasin Plan). Both spring Chinook and steelhead historical distributions included large portions of the upper half of the subbasin, the majority of which is privately owned. The Master Plan needs to describe what habitat improvements have occurred, where they have occurred, what is currently underway (and its logical outcome), and what else is needed realistically to achieve natural production goals. Finally, the plan seems to focus on the Oregon portion of the Subbasin – what is the connection with the Washington portion?

Some contradictions were evident in the plan. For example, on page 33 it is stated "…Chinook remain severely habitat and hydrosystem limited…". Later, it is noted that there is plenty of available habitat where smolts are to be released. Which is it? Second, it appears from the subbasin plan that several hundred summer-run steelhead return annually (~900 on average). Why do steelhead appear to be sustainable, but not Chinook? Further, the impact of hatchery Chinook plants on natural steelhead was glossed over, and requires more serious consideration and experimentation.

Research and project design

For ISAB Recommendation 3, the sponsors indicate that the expanded facility is not a research facility. ISRP recognizes this fact, but highlights the intent of the ISAB recommendation is not to produce a series or network of research supplementation facilities, but rather that management actions should be undertaken with an evaluated experiment approach. That is, there is no guarantee a program will do as proposed, desired, or intended. Only through a reasonable and sound design can projects be evaluated for performance or effectiveness at achieving programmatic and measurable objectives.

For ISAB Recommendation 4, sponsors include a single reference population (John Day). Are there others that can be applied to ensure adequate reference?

Other programs in the Columbia River Basin are moving toward "volitional" (rather than forced) releases from acclimation ponds as a proposed way to improve SAR's. Has this approach been considered (if so, why dismissed)?

Supplementation and harvest augmentation

Sponsors indicate that for ISAB Recommendation 6, the spring Chinook goals "cannot be maintained without supplementation." (p.4). While this may prove true, sponsors may be missing the point of this recommendation. For example, should natural production take hold and increase sufficiently to the point where 3000 NOR (natural origin) adults (or more) return on average, perhaps the need for further artificial production will be negated.

It may be a stretch to label this project as supplementation, as it appears to have more of a harvest augmentation orientation, than a supplementation orientation; perhaps rightly so, given the Master Plan objectives and the existing ecological constraints in the subbasin. Consequently, the Master Plan might consider options to avoid hatchery-wild interactions and allow the natural population to re-build on its own, if possible, and as

habitat capacity modeling suggests it should. Broodstock development currently involves capture of returning hatchery fish to the Walla Walla Subbasin, with additional brood from Carson stock, if required from elsewhere.

If and when the project moves forward, it should be integrated with other supplementation experiments in the basin, perhaps through the Ad Hoc Supplementation Workgroup. The Walla Walla project might then serve as an valuable comparison to sites where re-building is paramount, compared to harvest augmentation.

In contrast to the plan for rebuilding a self-sustaining spring Chinook population, the goal of releasing hatchery fish for harvest may be attainable. Currently, as stated in the subbasin plan, "no fisheries target Chinook". Appendix X demonstrates, albeit not clearly, that a harvest on approximately 1,000 hatchery Chinook returns annually may be possible, given the SAR rates that are arguably optimistic.

Broodstock and production

As with ISRP concerns spelled out in the NEOH reviews, the choice of Carson strain (which is a mosaic or composite from multiple stocks – p.21) is inconsistent with current thinking about local adaptation. While there is likely no true remnant local stock within the Walla Walla Subbasin upon which to draw, are there other more genetically-related and/or geographically-neighboring stocks from which draw brood? The issue is as critical for neighboring populations that might receive strays from the Walla Walla as an impact on non-target populations or species.

As presented in the WWHMP, the production levels in the "full program" are listed as constants. This probably cannot be if the sponsors will maintain a PNI>0.50 (unless this is supposed to be an average). In years where adult returns of natural production might be low, artificial contribution would need to be decreased to maintain the PNI targets. If this is not the case, perhaps the sponsors need to clarify.

Modeling

Demographic, genetic, and harvest issues and variability therein were not fully explored nor adequately presented. Nonetheless, application of the AHA model to this subbasin proved beneficial towards the issue of PNI and hatchery brood numbers. The derivation of broodstock (broodstock choice and relative fitness) and release goals from that exercise was not clear. Specifically, why 500,000 smolts? Was this based on an historical harvest and a harvest desire, or subbasin carrying capacity, or both? Further, some exploration of the role of natural variability in adult-to-smolt and SAR to modelled results, management decisions, and project plans would prove instructive. Some model adjustments ("probes") to carrying capacity and productivity in freshwater, fitness of various broodstock choices, and other demographic traits would assist the management decision process.

The presentation of model results needs improvement. Specifically, figures are not clearly legible and it is difficult to follow the logic path and interpret the results. Indeed, a process of this nature, i.e., exploration of alternatives with biological models, is best

accomplished in workshop interactive manner, and with documentation provided at least in summary, not just referenced. Similarly, the model results in Appendix X require further explanation for clarity. To satisfy scientific merit criteria, model inputs need to be provided to ensure that they were appropriate and reflect recent observations on the fitness of hatchery fish in the wild, and their observed survival rates.

As a harvest augmentation planning document, this plan may have merit once fully developed. As such, a relation to preferred harvest and hatchery production is required. This was framed in the model results of Appendix X but details of why this harvest amount and how, when and where harvest would occur were lacking. Beyond the expected harvest allocation overall which was provided in Appendix X from modeled escapement estimates, limit and target reference points require development, tabulation, and definition, including the mechanism by which they will be assessed and used for management decision, i.e., delineate the triggers for the proposed management decisions. For example, what numbers or rates lead to decisions such as shifting releases to Mill Creek and Touchet River (page 29), or limiting harvest during low run years (page 15), or shifting, assigning fish to harvest or outplanting- pages 15, 29), and how will these numbers be determined?. On page 23, it is stated that hatchery escapement and harvest will be adjusted as the program develops. How? This framework and its detail were missing from the plan, and are necessary.

ISRP Comments on Step 1 Review Elements

The Council has emphasized that an important part of the Three Step Review Process includes an ISRP evaluation of how well the Master Plan addresses the technical elements listed below. The Council is looking for a full explanation of how the project is consistent with these elements.

A. All Projects

Does the Walla Walla Spring Chinook Hatchery Master Plan:

1) address the relationship and consistencies of the proposed project to the eight scientific principles (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section B.2) (Step 1)?

The Council's Scientific Principles:
1. The abundance, productivity, and diversity of organisms are integrally linked to the characteristics of their ecosystem.
2. Ecosystems are dynamic, resilient and develop over time.
3. Biological systems operate on various spatial and time scales that can be organized hierarchically.
4. Habitats develop, and are maintained, by physical and biological processes.
5. Species play key roles in developing and maintaining ecological conditions.
6. Biological diversity allows ecosystems to persist in the face of environmental variation.

7. Ecological management is adaptive and experimental.
8. Ecosystem function, habitat structure and biological performance are affected by human actions.

ISRP Comment: Pages 5-8 summarize how the Walla Walla Spring Chinook Master Plan is consistent with the Council's eight Scientific Principles. It is evident that the sponsor has given consideration to the environmental conditions within the subbasin. It is less evident that there is an understanding of the limits to improving the abundance and productivity of the population using hatchery fish, if sufficient habitat improvement has not been accomplished. The hatchery program is likely to be able to establish a segregated hatchery population, but is unlikely to establish a self-sustaining natural population. If habitat conditions were adequate, the latter would probably occur naturally, because fish are straying into the watershed from adjacent subbasins. The basic question requiring support is "how this program's facilities would overcome natural productivity limitations in the Subbasin or alter conditions to increase natural productivity.

2) describe the link of the proposal to other projects and activities in the subbasin and the desired end-state condition for the target subbasin (Step 1)?

ISRP Comment: Section VII of the Master Plan addresses the relationship with other projects and programs within the subbasin. Steelhead artificial production is conducted by Washington Department of Fisheries and Wildlife under the Lower Snake River Compensation Plan. A more detailed description of whether this program is achieving the established objectives would improve the Master Plan. This addition could help clarify whether there is sufficient habitat to support reintroduction of spring Chinook salmon.

3) define the biological objectives (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section C.2 (1) and (2), and Technical Appendix) with measurable attributes that define progress, provide accountability and track changes through time associated with this project (Step 1)?

ISRP Comment: The Master Plan provides biological objectives.

4) define expected project benefits (e.g. preservation of biological diversity, fishery enhancement, water optimization, and habitat protection) (Step 1)?

ISRP Comment: The expected benefits in terms of adult returns and harvest of spring Chinook are provided.

5) describe the implementation strategies (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section D.2) as they relate to the current conditions and restoration potential of the habitat for the target species and the life stage of interest (Step 1)?

ISRP Comment: EDT is used to estimate the potential of the habitat to produce spring Chinook salmon under properly functioning conditions; however, there is not an assessment of how far the subbasin has progressed in improving habitat. This is a serious omission in the Master Plan. There is a detailed list of projects that have been completed to improve habitat, but no assessment whether there is sufficient improvement to support reintroduction and establishment of spring Chinook. One thing the sponsor could do would be an evaluation of whether the habitat actions taken so far have improved the abundance and productivity of steelhead (which were apparently not extirpated) as a surrogate indicator of conditions for spring Chinook.

6) address the relationship to the habitat strategies (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section D.3) (Step 1)?

ISRP Comment: Adequately covered.

7) ensure that cost-effective alternate measures are not overlooked and include descriptions of alternatives for resolving the resource problem, including a description of other management activities in the subbasin, province and basin (Step 1)?

ISRP Comment: Five alternatives were summarized. The sponsor concludes that the preferred alternative will produce the desired number of fish with the smallest number of smolts released. This is because sponsors project a higher SAR for fish reared and released from the Walla Walla hatchery than for fish reared at Ringold Springs or Little White Salmon hatcheries and released into the Walla Walla River. This is not a meaningful argument as both estimates of SARs are hypothetical, so the result is pre-determined by the assumptions. The SAR for fish reared at other locations should be tested. Hatchery fish are being released from these locations per US. v. Oregon, so data should become available to assess this. Planning for additional facilities at the Walla Walla site should be deferred until the performance of fish from other locations can be established. In turn, this will help determine whether a self-sustaining population can be established. If a self-sustaining population can be established in the Walla Walla system, then it would be available as broodstock and development of an integrated hatchery program for harvest augmentation can be reconsidered.

8) provide the historical and current status of anadromous and resident fish and wildlife in the subbasin most relevant to the proposed project (Step 1)?

ISRP Comment: This is provided for spring Chinook, but the treatment of the current status of the spring Chinook population is superficial. An analysis of the life-stage survival of the fish stocked is needed, and a stock-recruit analysis is needed for the adult hatchery fish added to provide additional spawners and the juvenile releases to provide additional within subbasin SARs for hatchery fish from other sources. The status of steelhead, bull trout, and lamprey should also be summarized. Especially with reference to improvement in the abundance or productivity of these populations as a consequence of habitat restoration undertaken within the subbasin.

9) describe current and planned management of anadromous and resident fish and wildlife in the subbasin (Step 1)?

ISRP Comment: Adequate

10) demonstrate consistency of the proposed project with NOAA Fisheries recovery plans and other fishery management and watershed plans (Step 1)?

ISRP Comment: Sponsor asserts consistency with various plans – the subbasin plan, recovery plans, US v. Oregon, but the elements of plans other than the subbasin plan and US. v. Oregon that are addressed are not provided. If state or NOAA recovery plans call for specific action in the Walla Walla, it needs to be identified in a revision.

11) describe the status of the comprehensive environmental assessment (Step 1 and 2)?

ISRP Comment: The assessment of the subbasin that was completed for the subbasin plan is briefly summarized. The treatment is not adequate to get a clear idea of whether or not sufficient improvement in passage, irrigation diversions, and temperature has been achieved for the goals of the Master Plan to be met. Briefings from the subbasin plan meetings indicated that the lower section of the watershed had significant impacts from agriculture that were only going to be voluntarily addressed. This was going to limit improvement in the watershed. The status of these voluntary actions and any habitat improvement that may have occurred from the time of the subbasin plan until now is not clear from the Master Plan.

12) describe the monitoring and evaluation plan (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section D.9) (Step 1, 2 and 3)?

ISRP Comment: The sponsor provides a monitoring and evaluation plan, but it needs to be refined. In the broadest sense, it covers the most important metrics that need to be evaluated; but it also suggests elements that are not clearly defined like “production efficiency”, and others that may not be needed like “food quality”. There are metrics like “Environmental and ecological functions”, “limiting factors”, which sound interesting, but do not have sufficient explanation for review.

13) describe and provide specific items and cost estimates for ten fiscal years for planning and design (i.e. conceptual, preliminary and final), construction, operation and maintenance and monitoring and evaluation (Step 1, 2 and 3)?

ISRP Comment: Cost estimates are provided.

B. Artificial Production Initiatives

Does the Walla Walla Hatchery Master Plan:

1) address the relation and link to the artificial production policies and strategies (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section D.4 and Technical Appendix) (Step 1)?

Primary strategy: Artificial production can be used, under the proper conditions, to 1) complement habitat improvements by supplementing native fish populations up to the sustainable carrying capacity of the habitat with fish that are as similar as possible, in genetics and behavior, to wild native fish, and 2) replace lost salmon and steelhead in blocked areas.

The APR standards: The purpose and use of artificial production must be considered in the context of the ecological environment in which it will be used. (See A.1 and A.6)

- Artificial production must be implemented within an experimental, adaptive management design that includes an aggressive program to evaluate the risks and benefits and address scientific uncertainties. (See A.12)
- Hatcheries must be operated in a manner that recognizes that they exist within ecological systems whose behavior is constrained by larger-scale basin, regional and global factors. (See A.1)
- A diversity of life history types and species needs to be maintained in order to sustain a system of populations in the face of environmental variation. (See A.1)
- *Naturally selected populations should provide the model for successful artificially reared populations, in regard to population structure, mating protocol, behavior, growth, morphology, nutrient cycling, and other biological characteristics.*
- The entities authorizing or managing an artificial production facility or program should explicitly identify whether the artificial propagation product is intended for the purpose of augmentation, mitigation, restoration, preservation, research, or some combination of those purposes for each population of fish addressed. (See A.3)
- Decisions on the use of the artificial production tool need to be made in the context of deciding on fish and wildlife goals, objectives and strategies at the subbasin and province levels. (See A.2)
- *Appropriate risk management needs to be maintained in using the tool of artificial propagation.*
- Production for harvest is a legitimate management objective of artificial production, but to minimize adverse impacts on natural populations associated with harvest management of artificially produced populations, harvest rates and practices must be dictated by the requirements to sustain naturally spawning populations. (see B.3)
- Federal and other legal mandates and obligations for fish protection, mitigation, and enhancement must be fully addressed. (See A.10)

See the 2000 FWP for details on Wild Salmon Refuges, Harvest and Restoration Hatcheries, and Experimental Approach.

ISRP Comment: Sponsor provides text that addresses most points in the APR. There is a section on risk. The sponsor concludes that risk is low or moderate and moves on. What is needed from the risk section is linkage to the Monitoring and Evaluation plan. Thresholds for action (i.e., a decision tree) need to be established and the Monitoring and Evaluation plan needs to be able to evaluate whether the thresholds have been reached. Risks to steelhead are not adequately addressed.

2) provide a completed Hatchery and Genetic Management Plan (HGMP) for the target population (s) (Step 1)?

ISRP Comment: The HGMP was listed as an appendix, but it was not provided with the documentation.

3) describe the harvest plan (see 2000 Columbia River Basin Fish and Wildlife Program, Basinwide Provisions, Section D.5) (Step 1)?

ISRP Comment: The relationship of the plan to the Pacific Salmon Treaty, U.S. v Oregon, and Northwest Power and Conservation Council Fish and Wildlife Program measures is briefly identified. Full presentation of who is going to catch these fish and where is not fully developed in this Master Plan, a serious omission..

4) provide a conceptual design of the proposed facilities, including an assessment of the availability and utility of existing facilities (Step 1)?

ISRP Comment: Schematic diagrams of additional raceways and rearing facilities are provided. A summary description of the existing facility is provided. It is not clear how much more water will be needed and if it is already on site.

5) provide a preliminary design of the proposed facilities (Step 2)?

ISRP Comment: Not applicable for this review; this is a Step 2 issue.

6) provide a final design of the proposed facilities, including appropriate value engineering review, consistent with previous submittal documents and preliminary design (Step 3)?

ISRP Comment: Not applicable for this review; this is a Step 3 issue.

Attachment: Past ISRP Reviews

FY 2007 - FY 2009 Project Proposal

Independent Scientific Review Panel Final Review (August 31, 2006) [Download full document]

Recommendation: Not fundable

Comments: The sponsor response emphasizes that they believe there was significant information overlooked in the preliminary Walla Walla Hatchery Master Plan proposal review. They also conclude that the ISRP review contradicted itself.

In the introductory description of the project in the preliminary review the ISRP stated, “More detailed review and evaluation would be encompassed in a Three-Step process, which the ISRP supports.” Apparently the sponsors took this statement to indicate endorsement of progressing to a Three-Step Review. They comment in their response that this statement is inconsistent with the Not Fundable recommendation in the preliminary review. The ISRP regrets the choice of words. The ISRP intent was to communicate their general support for the Three-Step Review, not that this proposal was sufficient to progress to that point. The ISRP regrets having confused the project sponsor.

The response leaves the clear impression that the sponsors thought the ISRP would at least look through the Walla Walla Hatchery Master Plan during this proposal review to find important elements indicating initiating Three-Step Review was justified. In several instances in the response, the sponsors point out that the information requested is in a Master Plan. The ISRP did not have access to the draft Walla Walla Master Plan. Nonetheless, in this review cycle all the information to support a project needed to reside in the proposal or narrative. This misunderstanding is unfortunate.

The ISRP remain unconvinced of the rationale for the hatchery as the appropriate rebuilding tool for spring Chinook in the Walla Walla River, based on the material contained in the proposal. From the proposal it is confusing to determine what mix of harvest augmentation and natural production restoration is the real purpose of the hatchery production. From the proposal it is not possible for the ISRP to conclude that the habitat conditions are actually sufficient to support the hatchery production in addition to the fish that are currently returning to the watershed, even though those numbers are only in the tens to hundreds annually.

From the response the question of the rationale for hatchery production becomes even more of an issue. Sponsors state: “[T]he demographics of spring Chinook remain ‘upside down’, such that recently reintroduced natural production in the Walla Walla is not likely to sustain itself to any great extent without increased human intervention, and c) there is capacity in the system for the use of artificial production to re-establish and sustain both natural and artificial production in the system.”

The observation that recent reintroductions are not likely to sustain themselves argues to delay artificial production, not a rationale to undertake a Three-Step Review to develop a hatchery program that includes a goal of restoring a self-sustaining population. It is not clear to the ISRP what this capacity might be, but it seems mutually exclusive to have natural production sustained by artificial production. In an integrate hatchery program, with both natural and hatchery subcomponents, the natural component needs to be self-sustaining. The ISRP expects that a moderately fecund species like spring Chinook should be able to rebuild from low abundance if habitat conditions are suitably improved.

If a future proposal is developed justification is needed that addresses expected carrying capacity or other information from EDT or similar analyses, and anticipated productivity and abundance of the hatchery and

natural population components. There remains a concern for impacts to non-focal or other species (e.g., steelhead), for which there was insufficient consideration in the proposal. This topic also needs to be fully addressed.

FY 2002 Columbia Plateau Proposal 200003800

ISRP Final Review , ISRP 2001-8	**Recommendation:** Do Not Fund	**Date:** Aug 10, 2001

[There are no budget numbers associated with this review.]

Comment:

Not Fundable: A scientifically sound justification was not given for construction of this facility to increase hatchery fish production. It is a proposal to produce, as soon as possible, adult fish for harvest. Waters of the Walla Walla Basin are viewed, by the sponsors, as a production area that cannot produce the desired harvest, so a hatchery is needed. If the Walla Walla Basin is to be viewed as a fish farming operation, there are few technical questions concerning the proposal. The sponsors have estimated that natural production of spring chinook salmon in the Walla Walla Basin is enough smolts to return 3000 adults. Their goal is to harvest 2000 of these fish. If these desires are to be met in the near-term, hatchery fish have to be added to the run. A kill of 2000 (plus an unknown number of pre-spawn deaths) fish would require improvement of conditions in the system to produce smolts needed for more than 4000 adults. That level of production would be needed to keep the kill below 50%, a level that also may be excessive for these fish. Present productivity would need to be increased by at least 50 percent. So addition of hatchery fish is needed to meet the harvest goal until natural production can be sufficiently increased to meet the goal. The needed increase via habitat improvement may be attainable, so temporary facilities could be used to produce the smolts.

If, however, native stocks of Walla Walla salmonids are to be restored and protected, this proposal is not fundable. The statement that harvest was open in 8 out of the last 12 years while natural spawning was 47% of the (poorly defined) goal suggests that harvest was not managed effectively. The natural production goal was apparently based on available habitat, but there was no explanation of how either was calculated by managers, or why and how habitat enhancement efforts have potentially doubled the adult production from 1000 to 2000 adults. A strong argument for a proposal to support a harvest (and potential overexploitation) that might further affect wild production, was not provided, particularly since the potential of wild production in newly accessible and improved habitat seems the better option.

Population biology theory and existing experimental data suggest that hatchery fish can compromise dynamics and structure of natural populations. Consequently, the scientific

credibility of a program that includes restoration and protection of wild stocks, must be guided by carefully designed experiments to resolve the issues associated with these predictions and findings. Moreover, the 2000 Fish and Wildlife Program stipulates that artificial production must be approached experimentally. How will harvest be managed to prevent excess fish at the hatchery while at the same time prevent overexploitation of the natural fish population? (Under the 2000 Fish and Wildlife Program, even "harvest hatcheries" must be located and operated in a manner that does not lead to adverse effects on other stocks through excessive straying or excessive take of weak stocks in a mixed-stock fishery). What exploitation rate can the wild fish sustain? If overexploitation of the natural fish is permitted so as to take advantage of the hatchery fish production, thus requiring supplementation of the natural fish, how does that compromise "fitness" of the population? How was the donor stock chosen? Apparently, an occasional salmon strays into the system. Why haven't these fish been successful spawners? Does the same fate await other donor fish? How will adaptation of these fish to conditions in the Umatilla Basin be compromised by the continued introduction of hatchery fish to the population? What is the expected interaction with steelhead?

We sense a difference in viewpoint between the state agencies and the tribe as to which alternative is preferred. To some degree policy and technical issues impinge on one another with respect to a decision whether or not to proceed with implementation of a full-scale hatchery program in the Walla Walla River. We feel there should be a statement of agreement among the affected management entities prior to implementation of a hatchery program, because there are potential long-term effects on what might be obtained from natural production and harvest. Based on past experience the Council should be assured prior to construction that the water supply at any facility it approves will be adequate.
