



Independent Scientific Review Panel
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FY2002 Blue Mountain and Mountain Snake Provincial Review: Part III

Preliminary Step Two Review of the Northeast Oregon Hatchery Spring Chinook Master Plan

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ISRP Step Two Review of the Northeast Oregon Hatchery Spring Chinook Master Plan

Introduction

On September 6, 2001, the Northwest Power Planning Council requested that the ISRP complete a review of the Nez Perce Tribes' Northeast Oregon Hatchery (NEOH) Spring Chinook Master Plan Step Two documents, which were intended to address the conditions placed on this project as part of the step one decision. The documents reviewed include: *Response to Issues Raised by the ISRP and NPPC* (responses to conditions placed on the project by Council in approving step one), 2) *Preliminary Design Report*, and 3) *Preliminary Design Drawings*.

This report constitutes the ISRP's preliminary review of the step two submittals. It is part three of three reports the ISRP released on December 21, 2001, pertaining to fish and wildlife projects in the Blue Mountain and Mountain Snake Provincial Review. This step two review should be considered an extension of the review of proposal 198805305 and other NEOH proposals in the Blue Mountain Province (see ISRP 2001-12A). Although progress is obviously being made in planning the NEOH spring chinook program, and the set of NEOH proposals received "fundable" recommendations in the proposal review, the ISRP finds that the Nez Perce Tribe's (NPT) response to previous comments on the Step 1 Submission lacks the detail necessary for technical assessment. The NPT has clearly not completed responses to issues required by the Council (Requirement 3 and 4, pg 25 and 27 in the NEOH response).

The ISRP's preliminary findings are provided below. As part of the step review process, the Nez Perce Tribe, NEOH co-managers and other interested parties are provided the opportunity to address the ISRP's concerns. Please provide comments to Kendra Phillips by January 24, 2001; kphillips@nwppc.org; (503) 222-5161. The ISRP will consider the responses and issue a final report by February 22, 2002.

Comments on Responses to Issues Raised by the ISRP and the NPPC

ISRP Issue 1:

The project still lacks a detailed or focused M&E plan. The project proponents interpret the requirement for project M&E in a very odd way. The response focuses on **facility needs to meet M&E requirements**, and states that all M&E needs cannot be met because of space, water, financial, or design limitations. They thus defer specification of clear and detailed M&E plans until the Step 3 Phase. This is not a sound scientific approach and defers the importance of gathering information to evaluate benefit (or costs) to fish and wildlife of construction and operation of the proposed facilities for the Spring Chinook program. This program is inherently experimental and its actions potentially influence many other populations and interests in the region. It appears that the project proponents have made no significant progress in developing M&E plans. This response is inadequate and greater attention to assessment objectives, experimental design, and data management is required. The response provides no response concerning "long term storage of data and meta-data". The co-managers should ensure that data standards and management are addressed in future responses.

Issue 2:

The response lists and describes many projects in the subbasins of interest, but does not address direct linkage to or coordination with the project. Are these projects addressing the most important problems in the most important places for success of the Spring Chinook NEOH program? Are locations of proposed facilities planned to best take advantage of habitat improvements or to support and complement improvements that are underway or politically most feasible? The linkages to habitat needs (by life history stage) and habitat conditions and programs should be more directly specified. It is not encouraging to hear that the project may rely on transport of fish around a “dewatered zone”. This response must be deemed inadequate in the absence of any data. The co-managers acknowledge these habitat conditions pose risks to program success, but do not provide any evidence of improvements in habitat conditions. Habitat assessments must be more clearly aligned with the development of this major hatchery program.

Issue 3:

Reviewers believe the proponents have misinterpreted the ISRP’s concerns here. The response notes that returning late-season fish would be sampled and included in broodstock, and that these fish would be treated as part of the continuum of life histories within the spring chinook population. This is related to one component of concern, which is the breeding design to be used in the program. That design is not specified here, but we have been told elsewhere that the breeding design to be used is random assortment of all combinations of parents. The ISRP expressed concern that mating in salmon in nature is not random. Such activities as male jousting, some forms of competition between females, courtship, and sneak-fertilization result in more mating by individuals that are more competitive (e.g., cleverer, stronger, more persistent) within their own sex and more attractive to the opposite sex, and less mating by individuals that are less competitive and less attractive. Thus, the mating is complexly selective rather than random--and tends to maintain or increase fitness in the population. Imposed random mating does not imitate this positive selective process and could weaken the population. Thus, random combination of parents may not be the best breeding design. Consideration of alternatives and of ways to experimentally test and evaluate these is desirable. In this example, any fall-run fish would simply be incorporated into the earlier run-timing components.

The second component of concern is not whether late-returning fish would be incorporated into the broodstock, but rather whether solutions to the lack of habitat for these fish late in the season are being sought and implemented. The response does not comment on this. The response to Issue 2 notes that some fish may be transported around a dewatered stream. Fish-out-of-water seems a limited and high-risk approach to preserving and restoring an ESA-listed endemic stock that is described elsewhere as of high conservation concern and priority. This step two response should more explicitly address these concerns, and is inadequate at this time.

Issue 4:

The project proponents clarify that the potential alternative site to Mark’s Ranch is infeasible, and they replace the original facility plan with a plan to build only a final rearing facility at Mark’s Ranch and to move incubation, early rearing, and the first stages of final rearing of the Imnaha stock to the Lostine or Lookingglass Hatchery. The answer references

two Technical Memoranda that present evaluation of the alternative site and evaluation of feasibility of Mark's Ranch for a full incubation/rearing facility. This response is a reasonable solution that recognizes the development costs associated with alternative sites, but it does not comment on any risks associated with transport and off-site rearing. This risk may be low, but have production plans been modified to compensate for any potential losses? For example, are more juveniles to be reared to compensate and/or have facilities been provided to isolate stocks within a hatchery?

Issue 5:

The response specifies a harvest framework, which is shown in Tables 4-4 (page 72, for the Imnaha) and 4-10 (page 87) of the Master Plan. However, this response cannot be assessed technically without information on forecasting accuracy, ability to assess returns in-season, and on the appropriateness of the escapement goals and cut-off value (i.e., 700 in Imnaha example). There is inadequate detail in this response.

Issue 6:

The response lists a number of NATUREs practices to be incorporated into the project. As noted below, many decisions are still deferred to the final design phase so little is added in response to the ISRP issue.

The response confirms that low fish densities will be used, but this brings into question why the facilities design includes provision for implementation and evaluation of both low and high density conditions. This seems a poor use of money and space and causes increased costs and increased risk associated with high stocking levels without getting to the core evaluation issue of hatchery versus wild fish and their intermediates.

The response defers decision on feasibility of using coloring that would mimic natural riverbed color, but notes this decision will be based on an analysis of cost versus estimated efficiency. How efficiency might be estimated is not specified, nor is the operational definition of efficiency, which is not clear in this context.

The response states that fish culture practices such as natural diet training and limited human contact may be employed, which does not provide any increase in information. What will determine whether these are or are not incorporated? When and how will these decisions be made?

Several bullets note that raceways will be designed to allow ready switching from NATUREs to conventional conditions. Why is this a priority if NATUREs strategies are considered to be improvements over conventional strategies, though perhaps not necessarily the ultimate best strategies?

Raceways will be 5 feet deep and will have baffling to produce varied flow patterns and backwaters. Other instream structures such as branches or trees may be provided, but conditions affecting this latter decision are not given.

Volitional release will be provided.

This uncertainty in design implies significant additional costs for rearing containers and assessment. A suggested approach would be to develop a monitoring and assessment framework that begins with a “preferred” rearing condition (based on Regional experience) and to modify as assessments are completed and the NEOH proponents learn from local experience.

Issue 7:

The response addresses the ISRP Issue and is consistent with project proposals reviewed during the Provincial review.

Issue 8:

The adequacy of the Lookingglass Hatchery seems to remain a concern, as evidenced from our site visit. The review team provided a number of comments on and suggestions for water supply and quality problems that linger. The response does not assure that problems will be addressed in a prudent fashion, but final decisions will likely be more of an engineering decision than a biological one. Pathogen-free water must be provided, so future investments require that this issue be resolved

Issue 9:

The response deals with one component of the concern expressed by the ISRP. The proponents discuss the critical need for downstream improvements in both passage and habitat and note that they anticipate that, with these needed improvements, increased productivity and escapement would make the captive brood program obsolete and thus it would be discontinued. However, the further concern that the spring chinook project, including both captive and conventional brood, might fail if needed improvements do not occur is not addressed. How would the co-managers proceed in this event?

The evaluation discussed includes only various hatchery practices, no baseline or comparison with wild or natural fish. If baseline studies of the natural populations are incorporated into other projects then these should be identified and an outline of the comparisons presented. The bottom line is how will the captive brood production be assessed against natural production efficiency?

If the captive brood program is viewed as possibly perpetual, then the ISRP's concerns about the application of a captive brood approach as a long-term solution become substantially greater. The idea that long-term captive brood conditions can support adequate life history and other traits for long-term preservation of a population of fish with such complicated life history and behavior as a salmon is not at all well-supported by science. The ISRP is also concerned that there is no evidence presented on the assessment of genetic concerns for intensive culture. For example, is family performance being assessed within broodlines? This could be an easily conducted measure of risk of genetic impacts.

Council Requirement 3:

The concern with genetic risk management has not been addressed adequately. The response states that a coordinated modification to the ESA Section 10 permit **will be** submitted, but this has not yet been done. The response notes that a tiered sliding scale, which will result in differences in aggressiveness of intervention efforts, will be used. One drainage will have no sliding scale applied, one will have an adult sliding scale, and one will have both adult and juvenile sliding scales. These are stated to result in aggressive to conservative intervention programs. However, the total smolt release numbers are the same for each drainage, 250,000. The response further suggests that this production scheme will help answer some of the questions regarding the role of hatcheries in salmon recovery, but these questions are not specified and how their answers might be derived from the intervention scheme are also not

discussed. As in many other parts of the Step 2 materials, design of this program seems to be driven far more by co-manager conflict and consensus than by scientific considerations.

Council Requirement 4:

The response does not adequately address the Council's recommendation that an MOU be developed outlining the respective responsibilities of co-managers in the Grande Ronde and Imnaha. The response simply states that an agreement has not been reached and that the parties have so far only agreed that an MOU will describe the relationships between LSRC, Grande Ronde Spring Chinook Supplementation, and the NEOH Master Plan. The Council Requirement was that this MOU be completed **prior to** the Step 2 submission, so the requirement clearly has not been met. It appears that little progress has been made on this critical issue.

Summary Comments:

The ISRP continues to have concerns with the proposed monitoring plan (which is not well-developed yet) and with the hatchery design that supports it (and that seems to be the order in which some odd hatchery expansion decisions were made – they are justified as necessary to meet M&E requirements, but the M&E is mistargeted). Evaluating differences in hatchery practices (e.g., comparisons of hatchery versus hatchery fish derived from different rearing density or BKD titre groups) is grossly overemphasized and leads to large cost increases for the proposed facilities as well as increased biological risks of the program by leading to ever-higher numbers of hatchery fish to be reared and stocked so that the different treatment groups can be sampled and compared. Additionally, the M&E remains sketchy and incomplete, with presentation of a concrete plan again deferred to a later stage of review.

The expanded facility design is stated to be necessary to meet the M&E demands, but this conclusion is based on a flawed understanding of the purpose of M&E given the goals of the program, which seeks to protect and restore endangered stocks within an ecosystem that includes other co-existing species of concern. The project proponents focus on evaluation of far less important questions and in so doing may in fact jeopardize likelihood of success of their program for either the endemic spring chinook or other species present in the Grande Ronde and Imnaha drainages. The use of 2 runs per treatment is a minor and probably ineffective concession to replication and power issues, and the use of two rearing densities addresses a question for which the general answer is already known and which is a trivial issue to evaluate here by comparison with the critical issues of performance of the hatchery versus natural or wild fish and the impacts of hatchery fish on other populations. The BKD treatments also seem misdirected effort. So, we now have a minimally replicated study with 6 treatments none of which get at core issues of hatchery versus wild fish or preservation of stocks within the Pacific Northwest. Therefore, the cost and hatchery expansion would not be justified and it appears that little would be learned from this project. However, there is a risk that unwanted side effects could easily occur and be only anecdotally documented.

The ISRP strongly recommends that the co-managers address our on-going concerns for monitoring and evaluation, and that an experimental design be explicitly stated that would consider success of this program compared to natural population productivity and within an ecosystem perspective (e.g., increased integration with habitat issues identified previously). A more comprehensive response to the initial ISRP and Council concerns is required.

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