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June 5, 2002

MEMORANDUM

TO: Committee Members

FROM: Mark Fritsch

SUBJECT: ISRP review of *Safety-Net Proposal Artificial Propagation Program* (SNAPP)
Proposal

Action

As part of the Mountain Snake Provincial review a decision associated with the safety-net artificial production interventions was delayed until the sponsors and Bonneville provided additional detail regarding the initiative. On April 23, 2002 the ISRP provided their recommendations (ISRP 2002- 12A) for the proposal and provided additional comments on June 4, 2002 (see attachment). Council staff will present an overview of their findings and a staff recommendation to the Fish and Wildlife Committee at your meeting in Bend on June 11, 2002.

Recommendation

Council staff recommends that the *Safety-Net Proposal Artificial Propagation Program* (SNAPP) Proposal be returned to Bonneville to continue developing a final work plan that addresses the critical issues as raised by the ISRP in its reviews and those specified in the Council's decision document for the Mountain Snake recommendations.

Background

The 2000 hydrosystem biological opinion noted that there are particular populations in the Snake River basin and in the upper-Columbia that are at extremely depressed levels and at risk of extinction. A series of Reasonable and Prudent Alternatives (RPA's 175 -178) direct Bonneville to work with NMFS, USFWS, and the state and tribal co-managers to begin a four-step planning process for three specific population aggregates, and to identify additional candidates for safety-net artificial production interventions. The BiOp also states that these artificial production safety-net interventions should not be permanent projects, and that they are not to substitute for addressing the factors that led to the decline of the candidate populations.

The National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service, Bonneville Power Administration (acting on behalf of the Action Agencies for the Federal Columbia River Power System), and the fishery co-managers of the Snake River Basin formed a Safety-Net Artificial Propagation Program (SNAPP) to implement the above RPA measures. The purpose of this program is to establish contingency action plans, potentially applying the best available artificial propagation techniques, to prevent extinction of key populations of ESA-listed salmon and steelhead while necessary improvements to main-stem passage and tributary habitats are effectuated. The program's goal is to reduce the short-term risks of population extinctions and preserve stock structure and genetic variability that will contribute to future recovery actions.

At the time of the Mountain Snake project solicitation, no mechanism was in place for the managers to develop a coordinated proposal. Therefore, five independent proposals¹ addressing aspects of the safety net contingency planning needs of the Biological Opinion were submitted in the Mountain Snake Provincial Review. Total cost of these initiatives was \$1,105,500.

The ISRP reviewed each of the individual safety net proposals as part of the provincial review and was extremely critical of the initiative -- each received a "do not fund" rating. The ISRP concluded that:

"The 4-step process is not ready to go forward, and may even be a flawed strategy. Its technical credibility depends on objective selection of populations for safety net consideration, on the availability of information to permit development of strategies that will do more good than harm, and on standards for management of artificial production. In addition, the process does not seem to be coordinated with the subbasin planning effort. None of these elements are in place." (ISRP Final Report 2001-12A, page 36).

A consolidated and coordinated SNAPP proposal (#28061) was subsequently drafted under the direction of NMFS, USFWS, BPA and Snake Basin fishery co-managers (Idaho Department of Fish & Game, Nez Perce Tribe, Shoshone-Bannock Tribe, and is assisted significantly by the Columbia River Intertribal Fish Commission) to better reflect the needs of the Biological Opinion and replace the original five proposals and submitted in November 2001. The consolidated proposal was submitted past the deadline for the provincial review, and was not reviewed as part of the solicitation. Total cost associated with this version of SNAPP totaled \$830,000 over the two year period.

As part of the Fiscal Year 2002 Programmatic Issues for the Mountain Snake and Blue Mountain Provinces the Council concurred with the ISRP and recommended that the sponsors and Bonneville demonstrate how the many criticisms and inadequacies detailed in the ISRP review will be addressed in the consolidated SNAPP proposal before commitments are made to these projects. The Council requested that a report addressing the ISRP's concerns point-by-point should be provided for another possible review prior to funding this initiative.

¹ The five proposal submitted as part of the Mountain Snake Province solicitation: #28057 - Four-Step Safety-Net Plan for Lower Salmon River A-Run Steelhead, #28056 - Four-Step Safety-Net Plan for South Fork Salmon River B-Run Steelhead, #28055- Four-Step Safety-Net Plan for Upper Lochsa River B-Run Steelhead, #28012 - Four-Step Planning to Identify Safety-Net Projects for Idaho Steelhead, and #28015 - Benefit/Risk Analysis to Promote Long-Term Persistence of Chinook Salmon in the Middle Fork Salmon River.

As per the Council direction, the ISRP was requested to officially review the consolidated SNAPP proposal and the specific responses to ISRP comments as provided as part of their review of the individual safety net proposals. The ISRP completed that review in April², expressing significant concerns and concluded:

“Not Fundable. As presented, the methods are inadequately described, there is no analysis to support the process, and there is no basis for determining that this is a “sound scientific” procedure to protect endangered chinook and steelhead. Consequently, from an analytical perspective, we strongly recommend not supporting this proposal. Additionally, while the proposal attempts to address issues of habitat status and demographic risk in assessing population status and the need for intervention, the proposed methods fail to incorporate adequate assessments of the risks associated with artificial production effects on fitness and adaptation.”

In addition, the ISRP had several specific comments regarding the SNAPP proposal that focused on the following.

- existence of additional data not assessed in former reviews (e.g. PATH),
- overlap with the ongoing analyses by NMFS’s Technical Review Team (TRT),
- relationship to existing control streams (i.e. ISS),
- is the proposed analysis feasible and of a power to detect the uncertainty of risk,
- current returns seems to indicate intervention is not appropriate,
- issue regarding local adaptation not being provided in hatchery life cycle.

Based on these findings the Council staff requested that the SNAPP proposal be revised based on ISRP comments and presented to ISRP members on May 20, 2002. On June 4, 2002 additional comments were received from the ISRP regarding their review of the revised proposal and their impressions from the meeting that occurred on May 20, 2000 with the sponsors (see attachment - SNAPP Briefing Memo 020604). The following points were discussed at the meeting.

- presumption of hatchery intervention
- overlap with NMFS’s TRT
- effect of strong run years
- effect on regional supplementation studies
- captive breeding strategies
- technical justification for the extinction risk and benefit-risk analyses

Though several of the issues raised by the ISRP during the numerous reviews were addressed, there remain substantial issues regarding technical merits of the methods being used with the risk assessment and how the effort is relates to the analytical elements of the Council’s subbasin planning and NMFS’s Technical Review Teams efforts.

² Review of “Safety-Net Proposal Artificial Propagation Program (SNAPP)” 2002 Mountain Snake Proposal No. 28061, April 4, 2002 (ISRP 2002 - 12A)

Based on the interaction with the ISRP at the above meeting the SNAPP proposal was further refined in Section 4, Objective 1, tasks 1.2, 1.3, 1.4, 1.5 and Objective 2, task 2.1³ that provided additional cost savings. These changes reflect the additional integration with TRT work. In summary, the total 2-year SNAPP budget declines from \$830,000 to \$605,000.

Analysis

As expressed, as part of the Fiscal Year 2002 Programmatic Issues for the Mountain Snake and Blue Mountain Provinces, the Council had reservations regarding the high costs associated with expedited artificial production programs launched in the past, such as, a suite of projects that deal with endangered Sockeye in the Snake River, and the High Priority Supplementation Projects in 1996. These projects have been implemented to varying degrees.

In addition, the Council agreed with the statements in the BiOp that these sorts of programs are not a long-term solution for the target populations and the safety-net initiatives should fully develop benchmarks that permit an evaluation of the program and provide the “exit strategy.” As has been the Council’s urging with the captive brood projects proposed and/or implemented in the past, there must be a clearly established and time-limited application of this interim intervention.

The Council, as part of the provincial decision, suggested that the SNAPP sponsors provide a “decision-tree” that outlines the basic benchmarks and timelines that will guide the evaluations and decisions to continue or discontinue intervention. Also, the safety-net initiative needs to incorporate the conclusions and direction of the Artificial Production Review completed by the Council in 2000, and must demonstrate how it is consistent with the policies adopted. The implementation of the APR is underway with the Artificial Review Advisory Committee, and these initiatives need to demonstrate how they can be coordinated with those efforts. The sponsors should work with Council staff to develop a written description of how this SNAPP proposal implementation is consistent with APR implementation, and provide that documentation to the Council.

The SNAPP effort needs to be a very conservative as it relates to implementation of the tool of a hatcheries. Intervention via a short-term hatchery alternative is only considered as a last ditch effort to help stabilize the gene pool while limiting factors are better understood, identified and addressed. The proposal is a contingency planning process to meet requirements of the Biological Opinion and any follow through is dependent on the Council’s three-step review process, NEPA, and permitting.

The objective of SNAPP is to prepare contingency plans for chinook and steelhead populations or population components in case short-term intervention necessary to reduce an excessive risk of extinction. In SNAPP, artificial propagation is not presumed to be a long-term

³Task 1.2, extinction risk analyses, reduce the budget from \$143,000 to \$103,000 to reflect the work being done by TRT and reduced participation of CRITFC.

Task 1.3, developing options for intervention, reduced the budget from \$76,000 to \$48,000 based on a revised assumption that we would be examining 12 populations rather than 19. Costs per population stay the same.

Task 1.4, Benefit/Risk Analyses budget has been reduced from \$229,000 to \$184,000 based on a lowered assumption that we would be examining 12 populations rather than 15.

Task 1.5, developing contingency plans, in the 2nd year the budget is reduced from \$290,000 to \$215,000 assuming work on 10 populations rather than 15.

Task 2.1, Middle Fork population work, has reduced the budget from \$92,000 to \$55,000, to reflect what the TRT has already done or is planning to do.

solution for recovery of ESA-listed species, but a possible interim measure until sufficient survival benefits from habitat and passage improvements are realized. SNAPP is not a replacement for correcting the causative factors for salmon and steelhead decline and it is critical that the assessments developed during this contingency planning be scientifically sound and standardized for application throughout the Columbia basin.

At this point, and notwithstanding the significant attempts to date to exchange information to address the scientific inadequacies and other questions raised by the ISRP, numerous and significant scientific and coordination inadequacies exist with the proposal. As stated in the recommendation above, the staff recommends that the Committee urge Bonneville and the SNAPP sponsors to continue to work to address the issues raised by the ISRP prior to further committing to this initiative.

Attachment 1: ISRP briefing memorandum (without attachments)⁴ regarding the SNAPP proposal received on June 4, 2002.



Independent Scientific Review Panel
for the Northwest Power Planning
Council

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June 4, 2002

To: Doug Marker, Fish and Wildlife Division Director, Northwest Power Planning Council

From: Rick Williams, ISRP Chair

Subject: ISRP comments from May 20, 2002 meeting with project sponsors for the “Safety-Net Proposal Artificial Propagation Program (SNAPP)” 2002 Mountain Snake Proposal No. 28061

At the Council staff’s request, the ISRP provides this memo to describe our impressions of: 1) a May 20, 2002 meeting between the ISRP and the sponsors⁵ of the SNAPP proposal and 2) a draft revised SNAPP proposal provided for the meeting. It is the ISRP’s understanding that the proposal is currently being further revised. The meeting was arranged at the request of BPA for the SNAPP project sponsors to describe how the SNAPP process was envisioned to work and how they were addressing the ISRP’s earlier review concerns (see Attachment A).

From the discussions, it was apparent that the SNAPP proponents made a good faith effort to address the ISRP concerns given that just over a month had passed since the ISRP review. However, the ISRP continues to have technical concerns with the risk assessment methods, and it was not clearly demonstrated that SNAPP would provide significant analytical functions beyond what the NMFS’s Technical Review Teams and the Council’s subbasin planning efforts would provide. A more detailed account of points discussed at the meeting follows.

Integration of Several Blue Mountain and Mountain Snake Province Proposals: The present SNAPP proposal integrates several proposals originally submitted to BPA independently. The ISRP found the consolidation to be worthwhile.

Presumption of Hatchery Intervention: The ISRP was concerned that although the SNAPP process mentions that various restoration approaches will be considered, hatchery intervention would be assumed. The SNAPP proponents emphasized that hatcheries were but one of the restoration alternatives. In fact, NMFS's current thinking on recovery strategies is very conservative concerning their view of hatcheries as the tool of choice. Intervention via a short-term hatchery alternative is only considered as a last resort effort to help stabilize a declining gene pool while limiting factors

⁴ ISRP document 2002-12A - ISRP review of the initial consolidated SNAPP proposal.

⁵ Attendance included SNAPP proponents Steve Smith (consultant to BPA), Larry Rutter (NMFS), Chris Beasley and Rishi Sharma (CRITFC); ISRP chair Rick Williams; joint ISRP/ISAB members Dan Goodman, Susan Hanna, Chuck Coutant, and Lyman McDonald; ISAB members Eric Loudenslager (chair) and Bob Gramling; Council staff Erik Merrill and Bruce Suzumoto.

are better understood, identified, and addressed. The proponents stated that if intervention was recommended through SNAPP, the region, through the Provincial Review Process and Council's 3-Step would need to approve implementation. NMFS would also play a strong role and would have the ultimate authority to reject a proposed intervention. The proponents emphasized that SNAPP is not equivalent to proceeding with artificial production; it identifies the need. This process to approve intervention needs to be clearly stated in the SNAPP proposal. Currently, the SNAPP proposal suggests that one or more "safety-net projects might need to be implemented prior to the next Mountain Snake Provincial Review. BPA and the Council should consider a contingency review process or reserve funding for this possible outcome."

Overlap with NMFS's Technical Review Teams: The ISRP's original concern regarding overlap with the TRT process was very real, and the SNAPP proponents have met with the TRT and NMFS to coordinate the efforts. The TRT apparently would use the SNAPP products, and SNAPP provides a more direct venue for tribal input than the TRT. SNAPP would rely on the TRT's delineation of populations. The ISRP was not convinced that there was a real distinction between what SNAPP and the TRT would do, other than SNAPP, in title at least, was focused on artificial production as a strategy. The ISRP was told that SNAPP would be looking at preventing populations from going extinct, while the TRTs would focus on recovery of species at risk of extinction. However, it is hard to see this distinction, as both groups are working on the Snake Basin chinook and steelhead ESUs, which are both listed as Threatened ESUs. Finally, the TRTs would be doing limiting factors analysis and recovery scenarios, which sound a lot like SNAPP. Consequently, although the BiOp calls for both SNAPP and TRTs, it certainly makes sense to determine whether the TRT (and even the Council subbasin planning effort) would fulfill the SNAPP RPA requirement.

Effect of the Last Few Years' Strong Runs: The SNAPP proponents indicated that although the safety net planning is still needed, its urgency is less now that the runs are larger, overall. There is more time to work things out. However, the proponents argue that getting the planning started quickly would prevent a knee-jerk use of hatcheries when a crisis appears suddenly and the region is not well organized for it. On its face, this is a good point, but the ISRP suggests that the Council, BPA, and NMFS use this time to carefully consider the role of SNAPP in the context of other analytical planning efforts.

Effect on Regional Supplementation Studies: SNAPP would look at tributaries such as the Middle Fork of the Salmon that are controls in the Idaho Supplementation Studies. The SNAPP proponents said they are very aware of that issue and would choose to intervene only in the most dire of circumstances. However, the ISRP notes that a similar risk assessment to that proposed by SNAPP was done on Johnson Creek in the mid- to late-1990s, which led to artificial production intervention on that declining chinook stock. Previously, Johnson Creek had been a control stream in the Idaho Supplementation Studies (ISS).

In our review of Mountain Snake proposals, we critically questioned the appropriateness of the Johnson Creek intervention effort (Project 199604300; Nez Perce Tribe) given the strong natural returns in 2001 and expected returns for 2002. We recommended that artificial production intervention cease there, that only wild chinook salmon be allowed access to Johnson Creek and returning hatchery fish be denied access, and that Johnson Creek be reinstated as a control stream in the ISS. In 2001, adult summer chinook returns in Johnson Creek were approximately 1700 fish, slightly exceeding the estimated adult carrying capacity for the system. The fact that the summer chinook population in Johnson Creek could vary from a few dozen fish annually in the late 1990s (and initiate an artificial production intervention program) to an adult run in 2001 that exceeded

estimated adult carrying capacity for the system (without a contribution from the artificial production effort) indicates the difficulty in estimating population viability, productivity, and long-term trends. It also emphasizes the resiliency and reproductive capacity of the anadromous salmonids when environmental conditions are favorable.

Captive Breeding Strategies: The SNAPP proponents agreed that captive breeding elevates the risk of domestication, etc. and said that strategy would be a last step, stating that intervention should occur prior to this late stage.

Technical Justification for the Extinction Risk and Benefit-Risk Analyses: A major point of the ISRP's previous review is that the proposed methods for the extinction risk and benefit risk analyses were not described in enough detail to facilitate scientific review. The groups briefly discussed the proposed risk/benefit analysis, but the discussion did not get to the detail needed to resolve the issues. The proponents stated that the base for the risk assessment is a no action alternative, and their approach would emphasize risk aversion. Currently, most inputs are qualitative, but they are working on making it more quantitative.

Although the proponents of the SNAPP proposal made a concerted effort to address the ISRP comments and concerns, the biggest weakness in the proposal lies in its potential bias toward implementing artificial propagation. A major reason for this potential bias is the looseness with which both the extinction risk analysis and the benefit-risk analysis are approached.

Extinction risk analysis (ERA): At least as applied to natural resource management issues, the methods for ERA's are not well understood, well described, or standardized for application. SNAPP proponents described the methods in general terms during the briefing and referred to them as "semi-quantitative", which when pushed further by ISRP questioning, boiled down to a largely subjective assessment of risk assessment. The time series of data is not specified ("a number of years"), but referred to as "historical." What does "historical" mean and why should it serve as a reference point? Given levels of natural variability, why should a baseline be determined by whatever time series exists? How is "excessive risk" defined? How is a level of risk tolerance set? "ERA methods will be determined working with the TRT" (p.9) suggests that ERA is not an established methodology.

Steps 2 and 3: The intervention options and recommended strategy steps are backwards. How would you know which option is recommended before you did a benefit-risk analysis of each option? If a benefit-risk analysis is done only on the "recommended strategy", it is guaranteed to find benefits that exceed risks.

Benefit-risk analysis (B-RA): Although some detail on benefit-risk analysis is given, the proposal mostly describes a process of listing potential risks and benefits, then weighing them against each other through some unspecified process. This is much too vague to provide useful structure or guidance to decisionmakers. The B-RA should be better defined. The process for weighing the benefit/risk elements should be clarified. The analysis should be done according to a well-defined process, with a clear template in mind, or it will simply consist of selecting elements of emphasis from a list. As described, B-RA sounds structureless and more like an enumeration of all factors that might influence a decision regarding a specific action. This in itself does not provide guidance about how to evaluate the relative risks and benefits. It is troubling that there are no references to peer-reviewed publications on benefit-risk analysis. Reference is made to a framework that has been developed, but this framework is not presented in the proposal. The fact that previous B-RAs have been over 100 pages long does not say anything about their "scientific rigor."

Perhaps the proponents could provide the needed clarity and structure. It sounds as if they have conducted several B-RAs. However, the ISRP's concern with the risk assessment methods is not unique to the project. As part of its Supplementation Review assignment from NMFS, the ISAB is looking at risk assessment tools that have been used to analyze risks associated with the intentional mixing of hatchery fish with wild fish to boost natural production. So far, the ISAB has not reviewed a risk assessment that is technically sufficient to meet the goals described in the SNAPP proposal. The current risk assessment tools in use in the basin are largely subjective.

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