Independent Scientific Review Panel
for the Northwest Power Planning Council

Preliminary Review

of

Fiscal Year 2001 Project Proposals for the Columbia River Gorge and Inter-Mountain Provinces

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Independent Scientific Review Panel

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Introduction

This report is the Independent Scientific Review Panel's (ISRP) preliminary review of proposals submitted for funding in the Columbia River Gorge and Inter-Mountain provinces. This report provides project sponsors an opportunity to respond to the ISRP's preliminary comments and recommendations before the ISRP makes its final recommendation to the Council on December 1, 2000. This report is also intended to be available to inform the Columbia Basin Fish and Wildlife Authority in its project prioritization effort.

The report includes an overview of the evaluation process, identification of general issues, and detailed comments for each project in the set. The report was reviewed and commented upon by all of the ISRP review team members assigned to the subject province. All recommendations were reached by consensus. The report was presented to the full ISRP for review prior to release.

This report is the result of the first province reviews, and although the process can use some fine-tuning, the ISRP is enthusiastic about the new approach. The ISRP found the addition of subbasin summaries, site visits, and project sponsor presentations to be a major improvement in the peer review process.

ISRP Review Process for Preliminary Report

Project evaluation and selection occurs in several steps. This report marks the end of the first step, which included peer review of proposals and subbasin summaries, site visits to the provinces, and project sponsor presentations. This first step and the subsequent steps in the process are described below.

Proposal Review

By August 18th, proposals for the Columbia Gorge and Inter-Mountain provinces were distributed to the ISRP and CBFWA review teams. To ensure the most consistent and fair evaluation of proposals, standard formats and criteria were applied to all proposals. These criteria are included below (see Attachment 1). At least three ISRP/Peer Review Group members reviewed each proposal in detail based on the ISRP review criteria and generated comments and scores prior to the proposal review workshop. These scores and comments were not made available to the project sponsors at the workshop, but were used by the ISRP to scope questions for the site visits and workshop presentations.

In addition, at least one ISRP reviewer was assigned to be familiar with the key technical background material submitted along with the proposal.

Project Review Workshop

The project review workshop for the Columbia Gorge province was held from September 11th - 15th; the Inter-Mountain from September 18th - 22nd. The workshops were split into three stages: a) Site Visits (two days), b) Project Presentations (two days), and c) ISRP Evaluation (ISRP only; one day).

a) Site Visits

The first two days of the workshop (September 11-12 for the Gorge and September 18-19 for the Inter-Mountain) were dedicated to a tour of the province by the ISRP and CBFWA review teams. CBFWA organized the tour in consultation with the ISRP, Council, BPA, and project sponsors. The tour was arranged to give the reviewers a basic understanding of the ecological conditions and limiting factors in the province so that the projects were placed in their geographic context. In addition, the review teams visited a cross section of ongoing wildlife, habitat restoration, and artificial production projects in each province.

The Inter-Mountain Province team covered a large amount of territory in northeastern Washington by chartered bus, with periodic stops. Beginning at Spokane, the team (with CBFWA representatives and many project staff) crossed the Spokane Indian Reservation viewing dams on the Spokane River, wildlife habitat on the reservation, and managed lakes. From the confluence of the Spokane and Columbia rivers in lower Lake Roosevelt, the team drove nearly the full length of Lake Roosevelt to Kettle Falls and several miles up the Kettle River, viewing shoreline erosion, net pens, stream rehabilitation, and Sherman Creek Hatchery. The team crossed the Colville Indian Reservation, viewing managed lakes, stream rehabilitation projects, and large tracts of managed wildlife habitat in the Lake Roosevelt and San Poil watersheds, as well as Lake Rufus Woods, Grand Coulee Dam, and Banks Lake/Grand Coulee. The wild habitats of the reservations were contrasted with seemingly endless agriculture on the return to Spokane from lower Banks Lake. The long drives were filled by on-bus video presentations of areas we could not schedule to see in person, oral presentations by project staffs, and general conversation with participants about their projects and the landscape. The tour was ably facilitated by the Lake Roosevelt Forum, which generated excellent maps. The ISRP team greatly appreciated the lively, informal exchanges and the chance to see the landscape and many project sites first-hand.

The Columbia Gorge review team made two excursions in the Gorge province. The first was on the Washington side to the White and Wind River subbasins to visit the Hemlock Dam and the Middle Wind River Restoration Project then to Condit Dam and the Middle Rattlesnake Creek Project. The team then crossed the divide to travel down the Klickitat subbasin where the team visited Leidl Bridge, Klickitat Mill, and Lyle Falls. On the second day, the team traveled on the Oregon side up the Hood River beginning with a visit to the Powerdale Dam Fish Facility, and visiting the Neal Creek irrigation diversion site, the Baldwin Creek habitat restoration site, the Parkdale Fish Facility, and the East Fork irrigation diversion site. The team crossed the divide and traveled down the Fifteenmile Creek subbasin visiting habitat

restoration sites and opportunities, a desilting basin, a bioengineering site, and the downstream migrant trap site (witnessing cleanup efforts at a major herbicide spill accident then underway). The team profited from and is thankful for informal discussions with project leaders during all of the excursions. These and the oral presentations at Hood River were invaluable in making clear the nature of the projects.

The ISRP teams appreciated reading the subbasin summaries and proposals before taking the tour of the province. The tours and discussions with staff were given more context and specificity by knowing what was actually being proposed. The value of this prior reading was highlighted to certain team members who toured the Mountain Columbia Province in August without having seen the relevant proposals (only subbasin summaries). The sequence of subbasin summaries, proposals, tours, oral presentations, ISRP deliberations, as occurred for the Inter-Mountain and Columbia Gorge provinces seems to be the most appropriate and effective.

b) Project Presentations

Project presentations occurred during the third and fourth day of the workshop (September 13-14 for the Gorge and September 20-21 for the Inter-Mountain). Each set of subbasin presentations began with a presentation of the subbasin summaries. All project proponents were given the opportunity to provide a concise presentation on their project. Presentations were expected to address the proposal review criteria including the relation of the proposed project to the subbasin summary. Following each presentation, there was an opportunity for a question and answer session between the reviewers and the project proponents. Each project was limited to about 15 minutes for the presentation, and the question and answer session.

The presentations often clarified matters left unclear in the written proposals. Questioning clarified others. However, the oral presentation may have been seen by some proposers as a substitute for a good written proposal, a belief that the ISRP team wishes to dispel. Some proposers were more at ease giving oral justification for their work than others, and some relied on more erudite project staff to field questions of them (suggesting that the best person may not have been selected to give the presentation). The ISRP team believes, however, that this is a useful exercise for both the ISRP and the project staff.

The quality of the presentations varied. Future presentations will be strengthened by attention to the following suggestions. Use of visual aids, especially orientation with visual maps, is essential. Projects need to present data demonstrating the biological results of past efforts rather than simply presenting lists of tasks accomplished or planned. New research projects should demonstrate scientifically sound experimental designs by describing hypotheses, sampling protocols, and statistical methods. The initial presentation of a subbasin summary before each set of projects in the subbasin was helpful. For the December 1 report, the ISRP plans to develop presentation guidelines that outline the elements of an effective project presentation.

In the Inter-Mountain, five minutes per presentation was the standard time allotment for the presentation with another five to ten minutes for questions and answers. This was too short for the subjects most of project sponsors had to cover. For each project, 10 minutes for presentation (the minimum time generally used) and 10 minutes for questions might be about right.

In addition, the ISRP benefited from the opportunity to visit informally with project sponsors who were not able to attend the tour.

c) Review Team Evaluation Meeting

On the last day of the workshop (September 15 for the Gorge and September 22 for the Inter-Mountain), the ISRP peer review team met alone to share impressions of the review, compare results with standard evaluation criteria, and reach consensus of the full review team on project scores and comments. Findings from the review are included in this preliminary report.

Background on Preliminary Recommendations

Preliminary recommendations are provided for each proposal. These recommendations are split into three basic categories: 1) fundable, further ISRP response review is not needed (16 projects); 2) fundable only if the response adequately addresses the ISRP concerns (36 projects); 3) do not fund, a response is not warranted (9 projects). One project was not amenable to scientific review.

The "fundable only if" means that a project will not be recommended as fundable by the ISRP without more information provided to address scientific concerns noted to date. However, provision of more information does not necessarily mean a project will then be recommended as fundable. It could be that the response will not adequately address concerns

A summary score of level one, two, or three is given for each proposal based on the original ISRP evaluations and information gained during site visits and oral presentations (see Attachment 2). Level one refers to proposals that met the ISRP review criteria, are judged to be potentially of significant benefit to fish and wildlife, and are acceptable as written or can be easily modified to satisfy the criticisms of the ISRP. Level two refers to proposals that are of potential benefit to fish and wildlife. Most of the proposals that scored level two will require significant modification to satisfy criticisms of the ISRP.

Level three refers to proposals that are judged to be of limited value to fish and wildlife or to proposals that need major rewriting, significant changes in goals, objectives and tasks, etc. Some level three proposals contain important goals and objectives, which should be addressed by the Province at this time, but the proposals are so poorly prepared or prior results from ongoing projects are so lacking that preparation of a response requires a significant rewrite. In these cases, a response to ISRP criticisms is invited, but major improvements must be provided before the proposal can be recommended for

funding. The nine proposals that received "do not fund, a response is not warranted," received level three scores. The ISRP found that these proposals were either so deficient that they did not warrant further review, or the ISRP concerns were so significant that the proposals would need to be reworked to such an extent that the response proposal would not cover the same objectives, tasks, and methods as the original proposal.

The level one, two, and three scores should not be used as a definitive rank of the proposals. In preparation of responses project sponsors and CBFWA should focus on the ISRP comments. Comments range from criticisms that should be responded to, and which will receive further ISRP review to suggestions for improvement that generally do not require a response.

The Next Step: ISRP Response Review and CBFWA Prioritization

With this release of the ISRP report, project proponents and the public have the opportunity to respond to the ISRP's preliminary report. Responses should focus on the ISRP's technical comments provided in the report, answer any review questions, and clarify any uncertain facts. Responses should be formatted to address each concern raised by the ISRP point by point, clearly identifying the concern and providing a response. The title and project number of the proposal at issue should be displayed prominently on the front page of the response. In addition, the ISRP welcomes comments on the "General Issues" described in the report that apply across projects and basins.

A hard copy and electronic copy on diskette of the response must be received at the Northwest Power Planning Council no later than 5 p.m., October 27th.

Mail the response and diskette to:
Northwest Power Planning Council
Attention: Kendra Phillips
Response to ISRP
851 SW 6th Avenue, Suite 1100
Portland, OR 97204

If you have any questions regarding the response process please contact Doug Marker at the Northwest Power Planning Council at (503) 222-5161 or 1-800-452-5161, or by email: dmarker@nwppc.org. For the ISRP's Fiscal Year 2000 response review, see ISRP 99-4 on the Council's website at www.nwppc.org/isrp_toc.htm.

Concurrently, CBFWA, with the ISRP's technical review in hand, will generate a list of projects recommended for funding and finalize the subbasin summaries as part of its draft annual implementation work plan. The work plan is scheduled for release on November 8th. For more details on the CBFWA process and province reviews in general see www.cbfwf.org/province.htm.

The ISRP will then review the responses and CBFWA's recommended list of projects and provide a second and final report to the Northwest Power Planning Council by December 1, 2000.

The Final Step: Northwest Power Planning Council Recommendations to the Bonneville Power Administration

Finally, based on the advice provided by CBFWA and the ISRP, the Council makes the final selection of annual projects to be recommended for funding and transmits these recommendations to Bonneville by early January 2001. If Council decisions differ notably from recommendations of the ISRP, the basis of their decisions is to be documented and included in the Council's final recommendations.

When a project is recommended to Bonneville for funding, the amount budgeted by the Council for the project and the description of the project as recommended by the Council becomes the starting point for Bonneville's contracting process. However, during the course of the contracting process further information, such as a project management plan, may be required to establish more specifically the work to be performed and the reasonable cost of that work. The amount of funding ultimately approved by Bonneville for a project may be greater or less than the amount initially budgeted by the Council in its recommendations.

General Issues

During the review, the reviewers identified several issues that cut across the provinces and projects. The ISRP as a whole has not had time to fully discuss these issues but will explore them more fully in the December 1 report. The issues are included here to initiate discussion and comment and to aid those in the Mountain Columbia who are preparing material for the proposal review in their province.

1. **Opportunities.** Both subbasin summaries and proposals could benefit from further emphasis on timely opportunities as well as limiting factors. For example, wildlife habitat mitigation often depends on specific properties being on the market. Proposals to specifically capitalize on such opportunities could be submitted. In the aquatic arena, there may be timely opportunities to collaborate with other projects or to monitor the results of other work (e.g., monitor the effects on fish populations in Lake Roosevelt from strobe-light deterrence of entrainment).

2. **Subbasin Summaries and Plans.** The connection between proposals and subbasin summaries and plans needs to be communicated more effectively. Only some proposals made explicit reference to the descriptions or lists of priorities in summaries/plans, and when they did, it was helpful to reviewers. This practice of cross-referencing could be further used to great advantage for planning and reviewing. Further, subbasin plans should become the leading documents in this

dialogue. They should not simply list needs and objectives that have been collected from existing projects, but should establish goals and an agenda to which current and future projects can respond.

3. **Subbasin Planning Workshops.** A workshop approach in the subbasin planning effort could be of great benefit in improving understanding and communication, if not in re-directing projects.

4. **Proximate Limiting Factors.** Most of the "limiting factors" for fisheries mentioned by project personnel during the tour were human activities or human-generated processes. Mining, logging, road building, overgrazing, agricultural land uses, entrainment at dams, stream straightening, recreational development, and blockage of fish movement by hydro-dams, often cropped up in the list. Seldom did the proximate limiting factors, such as lack of woody debris (hiding/security cover), other improper channel conformation, sedimentation, unfavorable water temperature, and so on receive discussion, although the thermal/dissolved oxygen squeeze in lakes did get a lot of attention. Many (perhaps most) of the project objectives are, except for the matter of entrainment, not directed toward remedying these human and human-induced problems. Instead, most of the money seems to be directed toward stocking hatchery fish. That does nothing about causative problems. Indeed, it tends to mask them. Perhaps also some of the habitat work is directed more toward manipulating stream channels than toward removing the human actions (land use) that create the unfavorable conditions. The wildlife projects may be dealing with human problems more directly than the aquatic ones. A solid, ongoing educational effort about the connection between land use and aquatic ecosystem health, starting with the children, as the Lake Roosevelt Forum is doing, should pay off in a major way in the long run. The aquatic managers would do well to put major effort into working with (securing credibility with) private landowners and joining the educational programs.

5. **Data Repository.** Projects should identify their plans for when and how data will become available for use beyond the project staff. In principle, all data obtained with public funds should be available to the public. Generally accepted methods in the basin are to use StreamNet or other database for permanent storage of both the data and metadata. If there are restrictions on use of data (e.g., sensitive species locations, provision of a specified time for investigators to prepare reports and manuscripts) these should be specified and justified.

6. **Adaptive Management.** In general, and despite the frequent use of the term "adaptive management" within proposals, much of the activity does not qualify. Detailed process models are suggested for the most part in the monitoring and evaluation components, rather than the required control and treatment in experiments. A detailed process model approach is unlikely to effectively deal with temporal and spatial variability and lead to useful information for adaptive management.

7. **Monitoring and Evaluation.** Monitoring must incorporate a temporal and spatial scale. Some detailed monitoring and evaluation at key sites (e.g., life stage survivals in treated and untreated areas of experiments) should be complimented by data from more extensive surveys. Where data was presented or referenced, current trends suggest that many of the proposed projects (including some large-scale constructions) have high risk of failure.

8. **Stock Assessment Information.** Currently, there appears to be a lack of stock assessment and monitoring information to guide the work in anadromous fisheries (requiring some years of information such as escapement, catch, fecundity, smolt yield, age structure, survival during freshwater and marine life stages, etc.), and a further lack of a coordinated process of watershed assessment, prescription, rehabilitation, and monitoring/evaluation. Hatchery operations for harvest management or for supplementation were confused, and not well justified nor supported by data, which should be available. Even incidental harvest is unjustifiable if the stock is below replacement levels based on stock assessment.

9. **Buffering Wild Stocks With Hatchery Fish.** Several proposals or HGMPs expressed the common "buffering belief," namely that stocking hatchery trout will reduce harvest of wild trout in the same water body—perhaps through some process of diluting fishing pressure. In no proposal was this idea substantiated with data from either project M&E or outside studies. Indeed, on the tour one biologist related to us a situation in which hatchery stocking created excessive harvest of wild kokanee. In questioning about the buffering effect after his presentation on a hatchery project, another biologist launched into an explanation of the process in which he laid out a hypothetical situation, followed a logical sequence of reasoning from it, and came out at the end with a result that described just the opposite of buffering. The idea that stocking buffers the harvest of a non-stocked fish population may be one of those common-sense ideas that can lead to self-deception among managers who hold it and who with all good intentions try to apply it. Stocking to increase a water body's fish abundance should be expected to have a buffering effect (dilute fishing pressure and reduce harvest of the pre-stocking population) only if angling pressure does not increase in proportion to the increase in combined abundance of wild and hatchery fish achieved by the stocking. If, on the other hand, stocking hatchery fish leads the angling public to do much more fishing than they would otherwise have done on the water body, the well-known effect of overharvesting weaker stocks in mixed-stock fisheries may more likely take hold, thereby reducing the wild population more than if the hatchery fish had not been introduced. A large body of literature exists on this. Without solid evidence of buffering by stocking, it will be prudent to treat the idea as a dangerous notion that can mislead managers, administrators, and the public—and harm wild fish populations.

10. **Density as a Limiting Factor.** Related to the item above "buffering" is that density limits in the Bonneville Pool and lower Columbia River need to be addressed in subbasin summaries as a potential factor limiting salmon productivity. Without

appropriate assessment of stocks including survival in the pool and lower river, and without consideration of density as a potential limiting factor, managers may inappropriately increase smolt releases to the detriment of future cohorts of native salmon. Reviewers note with concern that proposers in several programs contemplate marked increase of hatchery production as a method of supplementation; the detrimental effect of this increased density of salmon smolts on the survival of native salmon has apparently not be considered.

11. **Test Site for Supplementation.** The Hood River may be a choice site for evaluation of supplementation or as a key stock monitoring site for freshwater and marine survival (smolt enumeration may require further support), because potentially every immigrant fish can be monitored.

12. **Trust Funds for Land and Water Acquisition.** In general, the ISRP agrees that purchasing land or water is a good process for recovery. Over the past few years we have reviewed several projects that propose to establish a trust fund. Our concern with many of these proposals has been the lack of specificity; consequently, the proposals have not been amenable to scientific review. The ISRP recognizes that there is a need to be able to take advantage of rapid purchase situations so that valuable opportunities are not lost. The ISRP encourages the Council, BPA, and CBFWA to consider mechanisms such as establishment of a central trust fund just for such situations. The ISRP also recognizes there is an equity issue involved; e.g. establishment of a trust in one subbasin may not represent a fair distribution of dollars to best benefit fish and wildlife across the basin.

13. **Grazing/Fencing Strategies.** New strategies for alleviating the effects of grazing are needed. Project personnel cited livestock grazing as a problem but told about no other control measure than riparian fencing. Such “stream-parallel” fencing can be very effective but costly, and as we were shown, soon fails without ongoing maintenance. In many parts of the West, livestock grazing ranges and stream mileages involved are so immense that building and maintaining fences along each side of most stream-riparian corridors is infeasible. However, the destructiveness of grazing to fish and wildlife habitat is greatly reduced by dividing the landscape into huge pastures with fences that cross the streams rather than paralleling them, then devising a grazing plan that is attuned to the needs of the livestock, the range, and the rancher, while allowing the animals into the stream-containing pastures only at such seasons and for such durations that the riparian vegetation and stream banks will be grazed only lightly. Neither in the Intermountain Province project proposals nor in the subbasin plans nor on the tour did we hear about such grazing plans. Is the FWP giving due attention to the utility of livestock grazing plans, rather than just fencing?

14. **Walleye.** The projects need to address the existence of walleye populations. More emphasis should be placed on understanding the role of walleye and the influence that walleye will have on the aquatic community, fish stocking, and fisheries.

15. **Animal Care.** Federal guidelines for animal care in experiments are specific. When there are plans for use of animals experimentally, these guidelines should be referenced and compliance ensured. Voluntary compliance would be better than having lawsuits, as has happened in other areas of the life sciences.

16. **Reporting of Results.** Several projects failed to include recent results in their proposals in spite of annual admonitions to do so. Ongoing projects must give clear evidence of achievements and progress toward meeting goals. Where appropriate, results should be illustrated with graphs or tables.

17. **Out-year Obligations.** The proposal review process does not give sufficient attention to out-year costs. In some instances, a relatively small initial investment obligates BPA to substantial long-term funding. Although costs are not strictly a responsibility of the ISRP, the scientific/technical feasibility of some proposals depends on assurance of continued funding.

18. **Project Mislabeling**. Some projects are poorly titled resulting in misperceptions of approach and priorities by managers. This may lead to misdirection and reduced effectiveness of management and to confusion among project personnel, the public, and policy-makers. At least one of the projects labeled "hatchery," the Colville Tribal Hatchery (198503800), is really a much broader fishery management effort. It should be labeled and fully recognized as such. It has production and stocking of hatchery fish as the major component but includes other important aspects that have implications broader than their bearing on production and use of hatchery fish. These include creel census, gill-netting to determine relative abundance of fish stocks, food habitat analyses, determining presence, distribution, and status of native bull, redband, and cutthroat trout, and studying macrophytes, phytoplankton, and zooplankton of lakes. Most of these non-production investigations fall under the M&E effort. Also the presentation on the Spokane Tribal Hatchery project discussed stream habitat restoration. Even within just the function of producing and stocking the hatchery fish, it will be most effective in terms of resource management for all parties involved to keep in mind that the effectiveness of the program lies mainly in how the fish are *used*, not how they are produced. Therefore, *fishery management* per se constitutes the project. Proper fishery management is what the personnel, the public, and the policy-makers should be focused on, not the hatchery. Although a big one, the hatchery is just one of the "tools" involved in achieving that management. It should not be the project title.

19. **Review by Submitting Organization.** Review by sponsoring organizations is essential to ensure high quality proposals. This review should cover project concept, scientific and technical soundness, organization and logic of presentation, and writing form—including grammar and spelling. It was apparent that several proposals had not received adequate internal review. The extreme brevity of some proposals and typos suggested that those proposals were prepared hastily and without much thought. Some proposals were poor first drafts of the fill-in-the-blank variety. The negative impressions on reviewers by such proposals are directed at both the proposer and the

authorizing organization. If the computer-style format is viewed as the problem, then mechanisms are available for computer-driven documents to receive approval by an authorizing person.

Reviewer Comments on Inter-Mountain Province Proposals

ProjectID: 21003

Upper Columbia Subbasin Native Rainbow Population Study
Sponsor: Washington Trout
Short Description:
Evaluate structure, dynamics, and long-term viability of selected rainbow populations in Colville National Forest
Subbasin: Inter-Mountain
Comments:
Do not fund. Further ISRP response review is not warranted at this time. The idea is good and warrants a revised proposal in future years. The experimental design is not adequate for the objectives and the objectives are not focused on the key problems such as assessing the status (both in population and genetic terms) of the species, variability in their abundance among years, and habitat-related population variability. The proposal identifies a potential problem (interaction of brook trout with rainbow trout leading to reduced production of rainbow trout), but fails to address it, only to further study details of it. Proposers might refer to Hearn's 1987 review of salmonid species interactions in Fisheries 12(5):24-31. A stronger proposal with greater utility for U.S. Forest Service resource managers (but not with tribal resource managers because of the perceived value of brook trout there) would also be directed measures that could be taken to reduce the interactions of brook trout with rainbow trout. Instead, the proposal is aimed at very basic research such as studies of trout age structure, recruitment dynamics, hydrologic conditions, and channel dynamics.

The main limitation with the study design (which may be unavoidable because of cost considerations) is the fact that there is only a sample size of six as far as some of the objectives of the study are concerned, and additionally those sites collectively are so small that reviewers estimate that only about 1% of the trout population would be sampled. As a result, one wonders what a significant difference between rainbow trout populations with and without brook trout (Section IA) might mean, particularly as the habitat conditions will confound comparisons and the criteria for selecting study streams are not defined. Differences between populations will be present. The extent to which these are meaningful in terms of the presence/absence of brook trout and other factors will be a matter of judgement only, and there is a high risk of generating a distorted view of abundance of various age groups. Reflecting the discussion during the Inter-Mountain presentations, the study could be made more valuable by expanding its scope in terms of treatment replications and examining more than just perceived optimal habitat types.

The study populations should also be characterized genetically, if this has not already been done. Also, it is important to know whether they are redband, rainbow, or a hybrid swarm, because this will likely affect the management priority given to the population. From the presentation, it seemed that some (but not all?) of the populations had already been screened genetically.

The proposal's inclusion of assessing flyfishing as a population estimation technique was not viewed favorably, because it is probably better to combine snorkeling with electrofishing, giving consideration to the use of unpulsed DC.

ProjectID: 21006

Characterize and Assess Wildlife-Habitat Types and Stuctural Conditions for Sub-Basins within the Inter Mountain Ecoprovince
Sponsor: NHI
Short Description:
Fine-scale wildlife habitat assessment for the Inter-Mountain Ecoprovince will produce critical baseline data for planning and monitoring efforts that is consistent within the NWPPC Framework wildlife-habitat relationships process.
Subbasin: Inter-Mountain
Comments:
Fundable only if three conditions are met 1) a regional need by resource managers is demonstrated and 2) the ground truth methods are presented in more detail, and 3) the maps to be generated are specified as a deliverable to the funding agency rather than a product that NHI may own and sell. Further, the ISRP questions whether objective 2 should be included. This might better be left to local resource managers to evaluate with direct, primary local data. A response is needed that provides sufficient information before the project could be recommended for funding.

Overall evaluation. The proposers appear competent for completion of the project. Except for field testing, the proposal appears to provide adequate technical background and justification, however it is not written for reviewers who are not expert in GIS. The proposal does not refer to any subbasin plan objective, only asserts that "planning requires a finer resolution of mapping than what [sic] currently exists", the objectives are not measurable with respect to wildlife restoration. The proposal indicates that it would build on previous work and emphasizes information transfer. However, the direct benefits to fish and wildlife and relationship to other projects are not explained. The usefulness of resulting maps to resource managers is not demonstrated, and resource managers in the province have not been asked to support the project. Proposed methods for monitoring and evaluation of the utility of the classification maps are lacking.

Specific comments and questions.
1. The field-based ground truth task is not presented in sufficient detail. Procedures for defining strata, selection of random points within strata, and methods for dealing with access problems should be presented. For example, will the number of random points that could not be accessed in the field be reported? Will all 32 classes be ground truthed

in the field? What is the procedure for determining the number of random field points to be visited in each class? What is the criterion and sample size to have an accuracy of 75% on each class? Will the lower limit of a 95% confidence interval be required to be above 0.75? It was stated during the oral presentation that if the criteria are failed for some class, then a completely new random sample of points from that class would be visited in the field? We would like to see this commitment more clearly expressed in the proposal. Will the field-testing be conducted blind, i.e., will field personnel not know the "office classification" before they visit a random point in the field? What are the criteria for identification of each of the 32 classes when the biologist is standing at a random point in the field?

2. Are this proposal and its sister proposal in the Columbia Gorge Province the initial proposals to map the entire Columbia Basin at this scale? Is there a Columbia Basin wide need for vegetation maps at this scale? Will there be any cost savings to other provinces if this proposal is funded? Perhaps a pilot project should be funded to demonstrate the utility of the project.

3. The maps and resulting classifications should not be viewed as primary data. The mapping project uses primary data from the current Landsat Thematic Mapper, but classifications are derived and are subject to change in the future based on a different procedure.

These comments and recommendations mirror those for the Gorge proposal, #21005.

ProjectID: 21032

Eastern Washington Survey for Townsend's big-eared bat
Sponsor: WDFW
Short Description:
This project will search and inspect all appropriate old cabins, barns, buildings for Townsend's big-eared bats. It appears these rare bats prefer these older human structures for maternity colonies. If found, efforts will be made to conserve these sites.
Subbasin: Inter-Mountain
Comments:
Do not fund. A response review is not warranted. The proposal failed to present evidence of a scientifically sound approach that would lead to benefit to fish and wildlife. The proposal does not adequately tie the work with the Fish and Wildlife Program and the survey designs and sampling methods are not presented in adequate detail.

This proposal has the worthy objective of collecting critical information on a sensitive species. The background, rationale, and objectives/tasks/methods are much too brief to support meaningful scientific review. The proposal lacks linkages to the Columbia Basin Fish and Wildlife Plan or to other projects within the Inter-Mountain Province. It provides no explanation as to why the FWP is the appropriate funder for bat research. Sampling methods are only minimally described. It is not clear how sites are to be selected for surveys. There is not information on how many potential sites there might be, whether it is possible to check all, or how a subset to be checked would be selected. In

addition to ad hoc and extensive searches for Townsend's big-eared bats, the proposal should include a valid field sampling component. For example, it might be possible to define a stratified random sample of blocks within towns and sections of land elsewhere for intensive searches. The proposal also fails to present details on how data will be analyzed. Similar concerns about sampling methods and analyses apply to the goal of locating maternity roosts. Additionally, the project does not develop any rationale for why old structures might be preferred as nesting sites: Is it because they are old? Because of their location and degree of isolation? Their proximity to food or water? The lack of an analytical approach to this subject significantly limits the utility of the findings.

ProjectID: 21023

Determine causes of mule deer population declines in the IM Columbia Basin: a test of the "apparent competition " hypothesis
Sponsor: WSU
Short Description:
Determine if increasing white-tailed deer and resulting increased cougar predation are responsible for mule deer population declines in the IM Columbia basin.
Subbasin: Inter-Mountain
Comments:
Fundable only if methods are better described and the regional support for this study in relation to other mule deer studies, e.g. 21029, is better documented. A response is needed.

This project proposes to add FWP funding to ongoing research on declines in mule deer populations. The project would complement existing research by testing a specific hypothesis on the causes of mule deer decline, which are of regional interest and importance. The proposed study has the potential to be important in addressing a reasonable but rarely considered hypothesis (that the population interaction between two apparent competitors, in this case mule deer and white-tailed deer, is in fact caused by a common predator, in this case cougars) and the proposal presents background data that strongly suggest that apparent competition is occurring. However, the study design and experimental methods are not clear in the proposal and should be better developed in a revised proposal or addendum. The proposal specifies two study areas, and that each area will contain a control and a treated site. The treated sites will have reduced white-tailed deer densities but we do not know what the changes will be, or when these will be made. Also, nothing is said about the effects (if any) of movement between the control and treated sites which could remove the treatment over time. There are potential statistical difficulties in the apparent design. For instance, the proposal implies that individuals will be used as samples (replicates) and the assumption of their independence needs to be justified, especially since the individuals to be studied will be drawn from what are described as 2 sample areas of each experimental treatment. There will be differences between control and treated areas irrespective of any treatment effects, so that the simple t-test types of analysis that are mentioned may not be sufficient for testing for treatment effects. Some sort of paired comparison analysis may be appropriate, but it is difficult to know without being sure of what the experimental design entails. If animals are to be considered independent samples, then the proposal should acknowledge that this involves

pseudo-replication and requires some justification. Also, they should randomly select the two sites for 'treatment', i.e. white tail removal. It is stated that 50 adults and 50 fawns in each of the four control and treated areas is a more than adequate number to test for ecologically significant effects, with no justification for this statement and no indication of what ecologically significant means. For survival differences it seems that these sample sizes might be insufficient to get good power to detect important changes. With cougars the sample size will be 10 in each of the four control and treated areas. This sample size is said to be more than sufficient, and an unpublished report is referenced (Katnik and Wielgus, 2000). Again, more details are needed to know whether a study with these sample sizes has good power to detect the types of effects that are likely to occur. Many other details of sample design and justification also need to be supplied: What is the size of the treatment and control areas? How are they located relative to one another? How will areas be assigned to treatments? What type of movement of predator and prey occurs between adjacent treatment and control areas, and how will differences in these rates of movement be tested for significance after the treatment is completed? Is five years sufficient to test for predator and prey responses? Are habitat differences controlled? Will the number of observations be sufficient to test the hypotheses? Also, the details of how cougars are to be tracked until two kills are not clear: how are individuals chosen for tracking? How are they followed? How successful is the technique, on average? Are the procedures free of sampling bias?

The proposal should include assurance that animal care and use guidelines will be followed.

ProjectID: 21029

A cooperative approach to identifying the role of forage quality in affecting physical condition….of mule deer in north central Washington.
Sponsor: WDFW
Short Description:
We are proposing a cooperative, five-year research investigation involving the WDFW, the lead agency, and Washington State University (WSU), a collaborating agency, to assess the role of habitat in maintaining mule deer numbers.
Subbasin: Inter-Mountain
Comments:
Fundable, but only if the response provides more details on field methods and sources and uses of other funding. These should be clearly specified or summarized and references cited.

This proposal presents good scientific background and justification for the work, relating it well to the sub-basin plans and the FWP. The project should have good long-term benefits for mule deer. The project has good information transfer plans, in particular the synthesis of project findings into prescriptions for mule deer management plans, and the two PIs doing the lab work have produced many widely-cited and widely–applied publications. The work is likely to be done well as evidence by the investigators' previous work. This project complements an ongoing cooperative project being

conducted outside FWP funding, though the proposal is short on detail about the cooperative project.

The response should clearly identify the distinctions and complementarity between it and 21023. There are apparent overlaps in both project scope and some tasks. For instance, Task 3 of Objective 4 apparently includes project 21023. Will the sample areas be the same? Are there possibilities for the two projects to produce synergistic results?

More information on sample design should be presented, in particular the spatial sampling scheme (e.g., where are sample sites located and how are they chosen for study?) and statistical justification for the sample size. There is no justification for any sample sizes such as would normally be required on a study involving human patients. In some cases sample sizes are not even mentioned (e.g., for estimating the survival rates of radio-marked deer. What evidence is there that the sample sizes are sufficient to meet the objectives of the study? A sampling plan for collecting fecal pellets and forage samples should be presented and justified.

More detail on statistical analysis should be presented for each task. Additionally, it is stated that analysis of variance and analysis of covariance will be used for analyzing the feeding trials. Growth data may need some special treatment here rather than what is in the standard statistical packages.

The proposal should include assurance that animal care and use guidelines will be followed.

ProjectID: 21025

Intermountain Province Resident Fish Symposium
Sponsor: LRF
Short Description:
The Lake Roosevelt Forum will develop, coordinate, promote and convene an annual three-day symposium dealing with resident fish programs and related research within the Intermountain Province, with particular emphasis on the Lake Roosevelt Subbasin.
Subbasin: Inter-Mountain
Comments:
Fundable. No further ISRP response review is needed. This well-written proposal deserves strong support. It presents a compelling argument for the benefits of an annual symposium to provide evaluation and information exchange on resident fish research. The proposal makes clear linkages to the FWP. The annual symposium would be a valuable contribution to the fisheries program in the Inter-Mountain Province and would produce lasting benefits for a relatively low budget. Based on the ISRP's site visit, fisheries management and research in the Inter-Mountain Province appears to lag behind the standard of quality exhibited in the province's wildlife management and research program. The resident fish symposium proposed by the Lake Roosevelt Forum could be an important organizing and energizing event for the province's fisheries program.

The symposium in itself provides one means to monitor research progress and connectedness in the Subbasin; in addition the Lake Roosevelt Forum will monitor and evaluate the effectiveness of its own approach. Plans to bring in outside experts as keynote speakers and plans to produce symposium proceedings (hopefully peer-reviewed), are particularly commendable. The annual symposium may be most effective by inviting presentations and other participation by outside experts with regard to such pertinent overarching subjects as restoration ecology and management, relationships of fish and wildlife restoration to human activities and attitudes. If funded, CBFWA should strongly encourage attendance and active participation (presentation or taking part in discussions) by all professional personnel involved in the Inter-Mountain program. Finally, we suggest that a one or two day 'continuing education' short course be a part of the annual symposium. For example, a short course on statistical sampling procedures with emphasis on vegetation sampling would be valuable in all of the terrestrial projects. Capture/recapture methods for estimation of population size would be valuable for both the aquatic and terrestrial projects.

The proposal itself, and the previous accomplishments of the Lake Roosevelt Forum, reflect the competence and vision of the Forum's staff. Mr. Dunau and Ms. Squier have extensive experience developing educational events that include public outreach, thus ensuring the success of this project.

ProjectID: 21034

Colville Tribes Restore Habitat for Sharp-tailed Grouse
Sponsor: CCT-FWD
Short Description:
Conduct a population viability analysis for a comprehensive, adaptive management plan to restore critical shrub-steppe and riparian deciduous habitat to secure a viable metapopulation of sharp-tailed grouse on the Intermountain Province region.
Subbasin: Lake Roosevelt, Lake Rufus Woods, San Poil
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. Although the proposal ranks high on most counts, more detail should be provided on sampling design, on specific research methods, and on data analysis. The Panel was impressed with and enthusiastic about the opportunity of this project to significantly extend understanding of sharp-tailed grouse ecology and to provide direct benefit to both grouse and other species associated with its habitat. The Panel believes that the omissions of detail in methods that are in the original proposal can be addressed effectively in a proposal revision or addendum.

This proposal takes advantage of the presence of a stable local population of sharp-tailed grouse, a rarity and well worth protection and study in the interest of supporting other such populations. The proposal presents a reasonable case for restoring grouse habitat but fails to provide sufficient detail as to how the project will be conducted. The sampling and analytical methods are described in general terms, but without specific information

on sample design, types of analysis to be done, or the rationale for choosing particular types of analysis. The analysis is given too little attention. The proposal is weak in explaining how the data are going to be used to obtain the objectives, and $16k per year may not be enough for that. The proposal is vague about analyses to be used. Cluster analysis is mentioned, as are several computer programs, but it is not clear how these will provide a predictive management model, and no relevant references are provided. It may be that this project needs more funding for analysis, including the development of a specific simulation model, and less money for data collection. The investigators may want to involve someone with more experience in development and analysis of population models as an advisor or subcontractor.

ProjectID: 21035

Phalon Lake Native Redband Rainbow trout Trap Construction and O & M
Sponsor: WDFW
Short Description:
Construct and operate a pumped water trapping facility to capture and spawn a laocally adapted, indigenous stock of redband rainbow trout for subsequent use in the subbasin.
Subbasin: Lake Roosevelt
Comments:
Do not fund, based on present proposal. Further ISRP response review is not warranted. Good and fundable idea; poor and non-fundable proposal. The proposal fails to provide a scientifically sound concept.

The proposal and oral presentation were poor. They were disorganized and created confusion about what is asked for. The writing was careless. However, the panel believes the trap construction is important for the use of native stocks and that the broodstock in Phalon Lake represent a good start toward developing appropriate hatchery products.

This project's immediate objective is a purely technical activity. The broader, underlying reasons for it are properly expressed in the abstract's second paragraph. The overall procedure should be clearly and concisely spelled out, however—the capture of native fish from their home waters, holding them in Phalon Lake, keeping them separate (or identifiable as to origin), trapping them, spawning them, rearing them, stocking them, and so on. In other words, the relationship to other projects is poorly described both in the front-end listing and in the narrative, especially for a set of projects that is supposed to be so intricately linked. The flow of fish among projects is not well described.

The proposal background was short and weak. The stated objectives are really tasks, though they are understandable. The proposal does not provide evidence that this type of trap works under exactly the same conditions (pumped flow). When questioned after his presentation, the PI mentioned examples, but they differed from the planned trap. In later solicitations, a revised proposal with clear and focused justification, objectives, work to be done, etc. with review by WDFW would be welcome.

The underlying objective of this proposal, which is to replace hatchery rainbow trout released into Lake Roosevelt subbasin waters with native redband trout stocks, is commendable and supported strongly in the resident fish portion of the FWP. The ISRP also supports this goal. Replacing coastal rainbow trout hatchery stock with hatchery stocks derived from native redbands—if properly done—would alleviate our concerns about stocking non-native trout in the province. Those concerns are rooted in the insidious effects of hybridization on indigenous stocks.

The proposal suggests that the major reason to use the native stock is that it is less likely to entrain through Grand Coulee Dam than the present hatchery stock. This objective should be testable and is relevant to the difficult fisheries management situation in the hyper-dynamic Lake Roosevelt. Nevertheless, the more relevant longer-term reason to do the proposed work is to replace the non-native stock presently used in the hatchery program(s) with native stocks. There is a significant and rich literature that addresses the effects of hybridization on native stocks that should be described and referenced in the proposal more thoroughly. The proposal would benefit from significant development of the objectives, tasks, and methods sections, with particular emphasis on a monitoring and evaluation component in order to assess the success of the project.

With regard to the problem assumed in the proposal that genetic contamination of downstream stocks of rainbow trout might result from entrainment of the present hatchery strain now used as the main source of net pen-reared rainbows for Lake Roosevelt, we question whether this approach would really solve the supposed problem. Two elements are of significance: the propensity for downstream movement of native-derived stocks and the genetic implications, if any. Regarding downstream movement, the proposal states the Phalon Lake stock "may be less likely" to migrate downstream. In other words, it is unknown whether their tendency toward downstream movement is any less than in the present hatchery strain. And with respect to genetic implications, the proposal does not discuss what, if any genetic implications there might be if the "Phalon Lake stock" were to contaminate downstream stocks—which some of them are certain to do via entrainment. The proposal does not convince that a real problem exists, or that if it does, the method proposed will deal with it effectively.

With respect to trap design (item g), what alternatives were considered? Why was this the most advantageous type? How many cubic feet per second of water will be pumped, and what is the evidence that this amount will attract fish sufficiently and be economically justifiable?

The proposal contains unsubstantiated statements, for example (italics added):

(1) In item a: "Current and future augmentation of redbands in this subbasin will ensure their persistence." The sponsor could balance this thought with consideration of genetic corruption via artificial propagation such that the target population dwindles or, when stocking eventually ends, perhaps even cannot persist.

(2) In item c: "use of hatcheries will be critical to the success of providing subsistence and recreational resources and conservation of native species." Just saying so doesn't make it so. And again, what of the potential harm to native species through use of hatcheries?

(3) In item e: "Broodstock replacements were and continue to be taken from the wild each year so that the genetic make-up is not compromised." It would be naïve to believe that this absolutely ensures that genetic make-up will not be compromised, and such should not be implied. Exactly what is the genetics-based plan for replenishing the Phalon Lake broodstock(s)?

(4) Also in item e: "Fourty-one [sic] percent of fish caught were hatchery produced wild fish." How was 41% determined, and by whom? A reference seems to be missing. And if the fish were produced in a hatchery, then they couldn't have been wild. Hatchery-reared fish from a native strain or words to that effect would be more accurate.

(5) In item f, under objectives: "The ultimate goal of this proposal is to produce a facility..." This expresses the immediate goal. The ultimate goal was stated in the abstract.

(6) At end of the next paragraph: "Tributary use of these fish will be dependent on the progress of inventory and enhancement efforts." What is meant by "enhancement"? If stream habitat restoration is meant, then part of the sentence makes sense, but why would the fish care whether an inventory has been conducted before they decide to use a tributary?

Apparently to try to support the broad objective and such statements as 1, 2, and 3 (above), the sponsor provides a reference list (item h) of just two articles, neither of which, however, is referenced in the text. The first of these (Anders 1998) pertains to conservation hatcheries, not to the proposed operation's purpose of using the target stock for "recreational and subsistence fisheries," which makes it a harvest augmentation project (of the "supplementation" sort?) rather than a conservation project. The sponsor draws on nothing from the major book on the subject by Ryman and Utter (1987) and fails to include consideration of the large literature pertaining to reduced fitness caused by artificial propagation of fish, even when that propagation is intended to augment wild populations, e.g., Reisenbichler and Rubin (1999), Peery and Bjornn (1993), and Fleming et al. (1996).

In the questioning after his oral presentation, the PI revealed that some of the hatchery fish produced from Phalon Lake broodstock, originally collected from the Kettle River, are being stocked back into the Kettle River. He indicated that this is done to bolster the Kettle River native redband population which is severely diminished because WDFW angling regulations until recently led to overharvest. However, if the changed angling regulations are properly protecting the trout, and the river's habitat is suitable for the fish (as it appeared to be during our bus tour, and we weren't told otherwise), then the natural

trout population should recover on its own. Augmentation stocking should not be needed—and indeed could be harmful. Besides the probable needlessness of the stocking, the possibilities should be considered that stocking will stimulate continued excessive harvest, and that stocking fish reared even for just one generation in the hatchery will decrease the reproductive fitness of the wild population into which they are mixed, hence actually depress trout abundance. See Reisenbichler and Rubin (1999) concerning the latter process.

References:

Anders, P. J. 1998. Conservation aquaculture and endangered species: can objective science prevail over risk anxiety? Fisheries 23 (11):28-31.

Fleming, I. A., B. Jonsson, M. R. Gross, and A. Lemberg. 1996. An experimental study of the reproductive behavior and success of farmed and wild Atlantic salmon. Journal of Applied Ecology 33. ("The results of this study agree with other evidence that suggests captive breeding and artificial culture reduce natural productive ability of fish.")

Peery, C. A., and T. C. Bjornn. 1993. Ecological effects of spring-reared spring chinook salmon on naturally produced chinook salmon. Idaho Supplementation Studies Annual Report, 1991-1992. Bonneville Power Administration, Portland, Ore. ("Thus, it is possible that a hatchery supplementation program may inadvertently replace the target natural population with a population having a lower survival and reproductive potential.")

Reisenbichler, R. R., and S. P. Rubin. 1999. Genetic changes from artificial propagation of Pacific salmon affect the productivity and viability of supplemented populations. ICES Journal of Marine Science 56:459-466. ("When the published studies and three studies in progress are considered collectively. . .they provide strong evidence that the fitness for natural spawning and rearing can be rapidly and substantially reduced by artificial propagation.")

Ryman, N., and F. Utter. 1987. Population genetics and fishery management. University of Washington Press, Seattle.

ProjectID: 199502700

Develop and Implement Recovery Plan for Depressed Lake Roosevelt White Sturgeon Populations.
Sponsor: STOI
Short Description:
Current population of a few hundred mature fish are unable to recruit YOY into reservoir. Recruitment is limited by hydropower development, and possible predation of eggs and larvae, and pollution. Investigate limitations and develop mitigative actions.
Subbasin: Lake Roosevelt
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. This generally persuasive project is a mix of recovery plan preparation and data collection, but is weak on methods for data collection. Delay the field work until the research plan is fully developed and reviewed by an independent review group familiar with sturgeon biology in the Columbia River basin (not necessarily the ISRP).

Overall Comments:
This is a project for assessment of lake sturgeon populations in Lake Roosevelt, developing a plan for improving recruitment of juveniles to the population (which is dwindling), and initial sampling primarily to identify spawning and presumed nursery sites. Other relevant sampling is also proposed broadly. The goal is to develop a mitigation recovery plan. This project was approved but not funded since 1995, although funding was initiated in August 2000.

The proposal demonstrates a clear problem with sturgeon in the reservoir. The once-broad-ranging species has a population isolated in Lake Roosevelt, there are no signs of successful recruitment in the past several decades in spite of some indications of successful spawning in Canada, and remaining sturgeon adults are underfed. The proposal adequately describes the technical background and significance of this situation, although more specific results from Canadian researchers and those on the Kootenai River would have been helpful. The relationship of this project to others is clear. The proposal relates the work to the FWP and the Upper Columbia Blocked Area Mgmt. Plan. The work is linked to other Lake Roosevelt work (especially the monitoring program), and to other white sturgeon work in the Basin. The objectives and tasks are clear, and there are apparently good facilities and equipment for doing the work. Personnel may, however, be stretched thin with other monitoring activities. Overall costs are shared by collaboration with the British Columbia Ministry of Environment. All consistency criteria were met.

A strong case is made for conservation of this white sturgeon stock. Continued viability of the white sturgeon population above Grand Coulee Dam and below Canadian Treaty dams is tenuous. Presently, we have no or very little knowledge of the biological and physical factors affecting white sturgeon abundance, population dynamics of the white sturgeon, and when and where they may spawn. All of this information is essential for formulating a biologically sound restoration program. This project proposes to obtain the

above information in a scientifically sound manner. The project is tied to restoration and recovery and not strictly enhancement of a native species.

It is not clear that recruitment is the only weak link, as there is not good feeding by remaining fish in the reservoir (as shown by low condition factor). Successful recovery of the population with mitigation aimed at improving juvenile recruitment is questionable without attention to the full life cycle. At a broader level, the managers should evaluate the relative merits of saving this isolated stock and its alternative, species substitution (active program).

A critical element missing from this proposal, however, is detail on sampling plans to be included for most of the factors that relate directly to the life history of the sturgeon themselves. For example, under the objective "Identify and define potential for white sturgeon spawning between Grand Coulee Dam and the international border", on page 6 of the proposal, there is a statement indicating that numerous potentially suitable spawning sites have been identified. It then appears that the primary thrust of the proposal at hand is to confirm (or not) the use of these sites by sturgeon by placing artificial substrates downstream of those locations and examining them for eggs that may have drifted onto them. There is no indication of the reaches of the river that are free-flowing (during the tour it was not made clear whether the reservoir extends into Canada). There is no description of the size of substrate mats intended to be used nor of their number. The reviewer is left to assume that project leaders will design a sampling survey that will produce convincing results. Our previous experience in reviewing project proposals makes us unwilling to make that assumption. Surveys on the Kootenai River should provide useful guidance. On the other hand, the sampling methods proposed for evaluating physical attributes of the habitat are described in sufficient detail to satisfy review. A question arises with respect to the plan to assess available food for white sturgeon. The proposal states that benthic invertebrates are important for juvenile sturgeon, and that their density and distribution will be assessed. Again, the reviewer is left to assume that the investigators will design a sampling protocol that will convincingly describe local variations in abundance of food for sturgeon. With respect to sub-adult and adult sturgeon, the proposal emphasizes distribution of food items, without mention of density or other abundance measures, until late in the paragraph where it is stated that density and distribution of major food items will be plotted as an individual GIS layer on a bathymetric map of Lake Roosevelt. Are we to assume then that densities of fish species that constitute the diet of larger sturgeon will be included? To accomplish this task will require a well-designed, statistically valid sampling survey. There is no description of such a survey. Abundance of food is very likely to prove to be a limiting factor to sturgeon populations, while distribution of food will be of secondary importance (sturgeon may move to abundant food supplies). Factors involved in limiting abundance are described in the Lake Roosevelt Subbasin Summary.

We recommend consideration of a three-part sequence for a three-year project. A revised proposal for the response review might simply provide more details on study methods. Alternatively, the revision could indicate that priority attention would be given to additional assessment (based on available knowledge in this subbasin and elsewhere, and

from research conducted with the initial funding) and further development of a detailed research program to guide a recovery plan. Over the three-year duration of the project, more assessment could be accomplished, plans for the research could be further refined and be given detailed peer review by colleagues knowledgeable about sturgeon biology, and then field studies beyond those already part of the project and the Lake Roosevelt monitoring program could be conducted (probably in the second year). The recovery plan could be drafted at the end of the research period, depending on results. It is likely, however, that more than 3 years of study effort will be required. A response should demonstrate examples of more detailed study plans.

ProjectID: 198503800

Colville Tribal Fish Hatchery
Sponsor: CCT
Short Description:
Produce 22,679 kg (50,000 lbs) of resident salmonids for distribution to reservation waters in an effort to provide a successful subsistence/ recreational fishery as partial mitigation for anadromous fish losses above Chief Joseph and Grand Coulee Dams.
Subbasin: Lake Roosevelt, Lake Rufus Woods
Comments:
Fundable, this very good proposal reflects considerable effort and responds to past ISRP comments on the need for native stocks and M&E. Further ISRP response review is not needed. Hatchery production is now less than half the budget. They need better records of return of creel to justify the economics. The project could use a review by economists to potentially improve the economic return. The broad picture of relationships among the basin's hatcheries, net pens and reservoir fish is not very clear.

The Colville Tribal Hatchery successfully produces resident salmonids to mitigate for anadromous fish losses from Grand Coulee and Chief Joseph dams by stocking reservation lakes and streams. The technical and scientific background for the mitigation is clearly defined. The scientific rationale for stocking coastal rainbow trout, eastern brook trout, and some Lahontan cutthroat trout is clearly defined as largely a put-grow-and-take fishery for tribal members and some non-members. It is active management for a consumptive fishery using non-natives where they fit the habitat. The project has responded well to previous ISRP reviews and has oriented less to production and more to native stocks, evaluation of ecosystems before planting, and compliance with the Council's artificial production guidelines. It reflects both conscientious hatchery production and a change in scope to hatchery/wild comparisons and native salmonids consistent with past ISRP reviews. The presentation of data was appreciated. There is an excellent reference list (despite some editorial glitches) and informative resumes. However, limnological data suggest poor summer conditions for salmonids in some lakes, which may limit successful stocking. We anticipate further adaptation of the program to match species stocked to the habitats of the lakes as these results are integrated.

This is largely a stand-alone project, but reflects interactions. It seems well developed and coordinated with the subbasin scheme. The proposal provided a good project history and relevant data. There are clearly defined and measurable objectives that relate directly to the fisheries of the stocked waters. Methods are appropriate and well described. The project includes good monitoring and consistent evaluation. However, the HGMP looks incomplete. Monitoring ensures that the lakes are not overstocked, that the hatchery produces what people want to catch, and that the lakes and streams are appropriate for the fish species (but see above). Facilities seem adequate for the work. Information seems adequately transferred. Within the objective of perpetually providing consumptive fisheries that match the people's desires and the available aquatic systems, there is a persistent benefit to fisheries. There seem to be no adverse effects on other species. The project meets all consistency criteria.

The proposal enlarges upon the objective to specify a catch per unit of effort to be achieved in the fishery created by the fish that are planted. Further thought needs to be given to specification of this objective. It needs to be recognized that the catch per effort experienced in any fishery is a function of both the number of fish in the population and the total number of fishermen participating in the fishery (in this context or total effort in a general context). There is no suggestion in the proposal or elsewhere that the number of fishermen might be restricted in some way. It appears to be assumed that it will remain constant. However, it is well established that fishermen will regulate their effort to the expected catch per effort. Therefore, the fishery resulting from these planted fish will probably reach an equilibrium with a catch per effort value that satisfies the fishermen rather than one that satisfies the hatchery manager or planner. The end result might be that the planner is continually under pressure to provide more fish as the fishing effort mounts. The text should at least discuss this issue.

Economics warrants further evaluation by others beyond the ISRP (IEAB?). The budget doubled over forecast due to prior ISRP review such that the M&E budget is now greater that the O&M budget. By our calculations, $395,000/yr is spent for 49,000 fish stocked, = $8/lb. One might question whether this is good value and whether examination of some of the details of the project could make the return more beneficial economically.

ProjectID: 199104600

Spokane Tribal Hatchery (Galbraith Springs) Operation and Maintenance
Sponsor: STOI
Short Description:
Operate and maintain the Spokane Tribal Hatchery to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake fisheries.
Subbasin: Lake Roosevelt
Comments:
Fundable. Further ISRP response review is not needed. This is a well-written proposal in nearly every respect. It mentions an important Lake Roosevelt Hatcheries/Fisheries Coordination Team, which was not emphasized in the subbasin summary. Background was excellent, and the map was much appreciated. The rationale is excellent. The

collaborative aspect with other projects is well presented. Information transfer is specially noted. Objectives are more like tasks, but ok. The project is important for fish. It meets the consistency criteria.

This proposal provides a useful umbrella-like summary of the Lake Roosevelt Subbasin goals and objectives and how each of 8 projects fits into the big picture, (a) Galbraith Springs (this proposal), the Sherman Creek Hatchery, and net pen rearing of fish in Lake Roosevelt, (b) Lake Roosevelt Evaluation, (c) Lake Roosevelt Habitat and passage improvement, (d) Chief Joseph Enhancement Project, (e) Phalon Lake Wild Rainbow, (f) Ford Hatchery, (g) Banks Lake Monitoring and Evaluation, and (h) Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams.

The project needs to integrate results from M&E project to evaluate its own success (as previously implied in the last one of the FY00 ISRP comments). The project seems to depend too much on M&E from the LRFEP; it should get data from LRFEP, apply it in adaptive management, and show how it is doing this. A summary of results, from an annual report, ought to be part of the proposal. Scientific soundness depends on the data produced. Cost-effectiveness of hatchery operation should be assessed via data on rate of return to the creel.

Some statements would be improved if supported by references, e.g., on p. 6, last paragraph last sentence: “This technique is used in British Columbia where naturally producing kokanee are supplements with artificial production.” Where can we read about that—and its results? Same problem at end of first paragraph on p. 8.

In kokanee and rainbow trout HGMPs’ sections 2.3, the claim is made that “Lake Roosevelt fisheries specifically benefits [sic] from this program by increased harvest and alleviation of fishing pressure on limited naturally producing populations” (emphasis added). Are there data to substantiate such “alleviation”? Might not the opposite be occurring via the effect that stocking can have in stimulating overharvest of less numerous natural stocks in mixed-stock situations?

Should kokanee HGMP section 2.5 cover the interactions of stocked kokanee with naturally-reproducing kokanee?

Rainbow trout HGMP section 2.4, paragraph 8 pertains only to kokanee, therefore does not belong in this HGMP. The paragraph is identical to one in the kokanee HGMP. Indeed, the whole section 2.4 are the same in both HGMPs—as are some other sections and paragraphs. Much of the boilerplating is probably unwarranted.

Question: Has the staff contemplated whether the hatchery will be needed forever, especially if the entrainment deterrent system works at the dam?

Question: Is it mostly shoreline spawning of kokanee that is affected by drawdowns or are the tributaries also affected? (see bottom of p. 3).

ProjectID: 199404300

Lake Roosevelt Fisheries Evaluation Program
Sponsor: STOI
Short Description:
Monitor and evaluate the performance of hatchery fish. Develop and maintain a model able to predict the effects of hydro-operations and management actions on the lake ecosystem and fishery. Use model results to refine a fisheries management plans.
Subbasin: Lake Roosevelt, Lake Rufus Woods
Comments:
Fundable only if a response is provided that shows the results of past efforts and addresses the other ISRP concerns described below. The proposal is not scientifically sound without description of past efforts and their success or failure. What have the project leaders learned? They should show analyzed data in the project history section of the proposal to document their progress and competence. The ISRP has commented on the lack of data in the past and again data presentation was lacking in this proposal and the presentation. If the PIs cannot show and synthesize the results, a different contractor should do the evaluation. The project needs consultation and oversight. The PIs do make recommendations for management actions, but the basis of the their recommendations need to be better substantiated. A senior biometrician should supervise data collection design and data analysis. The project has gathered data for 12 years so they should at least be able to show stock status. Results from this project should be integrated with the other projects to be useful. Too much emphasis on models takes away from producing descriptive data analyses intermediate in the process, yet these data are critical to operation of the many projects for which monitoring and evaluation data are provided.

This project conducts the overall monitoring and evaluation of Lake Roosevelt limnology, aquatic ecosystem, fish, and fisheries, which is used as a basis for measuring success of several other projects, especially hatcheries. It is a core project of the subbasin with high regional significance.

The technical and scientific background is adequate but could benefit from more explicit use of the scientific literature on reservoirs as unique aquatic environments. Although the PI said in oral presentation that there is little conceptual literature on reservoirs, there actually is quite a lot (for example papers by Kimmell, Thornton and others, and management experiences with other storage reservoirs with deep drawdowns such as in the TVA system, as well as many papers in the journal Regulated Rivers). The project could benefit from additional outside assistance from reservoir managers who have dealt with large reservoirs with deep drawdowns. Synthesis of information through use of a model for reservoir hydraulics and water quality is a good idea as a conceptual foundation, but its use could be improved with outside consultation. A description of the model would have been helpful. The relationship to other projects is clear, but might have been described in more detail. The project history is informative but lacks specific project results (as requested last year by the ISRP). The project has developed over the years, embodies a comprehensive and appropriately basic approach, and has resulted in

improved management. The project personnel obviously continue to work toward improving the work plan. The objectives are clear, and the tasks and methods are appropriate and related to objectives (a problem noted last year). We appreciate the difficulty of focusing on specific tasks in a system so large and hydraulically complex.

The objective of affecting hydro operations because of fishery objectives in the reservoir is probably unrealistic when taken in a regional perspective. Lower river managers expect Lake Roosevelt to provide water when needed. The project would be more realistically scoped in the context of managing fisheries in an unstable and non-natural environment. Having more modest expectations for the usefulness of the model for obtaining specific results is essential, although the model is a useful conceptual guide and synthesis tool. The establishment of an ecosystem model for Lake Roosevelt is a laudable goal, but will it be able to capture the unique features of this system and truly be useful as a fisheries management tool?

Facilities and personnel are adequately described but may not be adequate for the goal of managing fisheries in such a large and complex system. Collaborative use of personnel from other projects is important for mounting large field operations. Additional use of outside consultants, including a senior biometrician, could bolster the professional capabilities.

The project is represented as adequately transferring its information to other projects for their M&E needs, but no data were presented in the proposal and little data appeared in the other proposals to illustrate or substantiate this. The project should have a large and important benefit for fish and fisheries of Lake Roosevelt. There are likely benefits to non-target species and habitats from increasing general understanding of the system. All consistency criteria are met.

The proposal is informative but contains parts that lead to concern. One example: on narrative p. 6, paragraph 2, is it really meant that “all kokanee with an adipose fin clip” (i.e., those from the hatchery) are to be excluded from harvest, or should it be that all unclipped kokanee are to be excluded from harvest?

The project has budgeted $40K per year for "writing studies for the public in professional journals.” We applaud publication, but wonder if the expectation of $40k/year worth is a realistic target. There is no publication yet from the project but one has been submitted. A major concern is that the project is behind schedule for both modeling and data collection (p11) but there is no indication of how extra money will allow catch-up. Both the proposal and the oral presentations caused us to wonder if staff is adequate to handle the statistical analysis and modeling aspects of the project. Outside consultation by a senior statistician and a trained modeler could be helpful.

Another project is proposing evaluation of strobe lights as an entrainment deterrent at Grand Coulee Dam. There was no mention of whether this monitoring project is gearing up to be able to detect differences in kokanee population dynamics in the reservoir when (if?) strobe lights are successful at reducing entrainment. If that technology works, it

could mean a big change in the way several hatchery and net pen projects are operated. Monitoring the reservoir for effects of reduced entrainment should be a major objective of this project.

ProjectID: 199104700

Sherman Creek Hatchery Operations and Maintenance
Sponsor: WDFW
Short Description:
Operate and maintain Sherman Creek Hatchery (SCH) and the Lake Roosevelt Kokanee Net Pens to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake Fisheries. SCH is a key component of the Lake Roosevelt Fishery Enhancement Project.
Subbasin: Lake Roosevelt
Comments:
Fundable. Further ISRP response review is not needed. The move toward using native stocks is commendable and should continue. This project is well integrated with the other Lake Roosevelt Hatchery projects. They should present results from the M&E project, 199404300, to support their own operation.

The three HGMPs are thorough but perhaps are inappropriately boilerplated in parts. Section 2.3.1 of all the HGMPs alludes to the idea of "alleviation of fishing pressure in limited naturally reproducing populations." Is this fact or myth? References to studies supporting (and/or failing to support and/or refuting) this idea should be cited.

ProjectID: 199500900

Rainbow Trout Net Pen Rearing Project
Sponsor: LRDA
Short Description:
Operate and maintain the net pen program to aid in the enhancement and restoration of the Lake Roosevelt fisheries.
Subbasin: Lake Roosevelt
Comments:
Fundable. No further ISRP review is needed. Good use of volunteers. This very effective project operates and maintains net pens at several locations throughout Lake Roosevelt to provide final rearing for the output of several province hatcheries. Fish are released to the lake to support recreational fisheries. The project is conducted largely by volunteers with BPA financial support for coordination and maintenance of facilities. There appears to be excellent organization and enthusiasm. It is a highly visible and popular program.

There is a clearly identified problem in sustaining a reservoir fishery in the face of large amount of entrainment of fish through Grand Coulee Dam and lack of spawning habitat. The rationale and significance are well described. There are good relationships with other projects. In fact, the net pens are integral (and final) to the interlocking sequence of fish movements between adult capture, hatching, rearing, and release that involve other

multiple facilities and a planning committee (the oral presentation of this project did the best job of explaining the whole sequence). The history is well described. Objectives are clearly explained in relation to fishery benefits. Methods are clear. Monitoring and evaluation are well formulated and handled by the Lake Roosevelt Fisheries Evaluation Program. Facilities are appropriate. The volunteer efforts are laudable. The proposers do an excellent job of providing information to the public, which is essential to maintaining a volunteer work force. There is clear benefit to fish, judged in terms of human use through fisheries. The project meets all consistency criteria.

Some details of the proposal raised comment by the reviewers. Section c (Rationale and Significance) contains unsupported statements in 2nd paragraph of p. 5 concerning (lack of effect on?) genetic integrity of native rainbow trout and, as in other projects of this province, the idea that stocking hatchery fish "tends to reduce harvest of native stocks thereby helping to enhance their recovery." These points are relevant on a broader basis than just this one project, and warrant further evaluation on a subbasin basis. On the positive side, reviewers were pleased to see some mention of a goal for angler harvest: 500,000 fish released for 190,000 fish in creel, (p5) overall 35-57% harvest. This is not great, but probably in an acceptable range. The claim is that "survivors spawn along shoreline in autumn, not in tributaries with native rainbows in spring" should be substantiated somewhere. The possible issue of dilution of native rainbow stocks because of successful spawning by netpen survivors is of concern here.

ProjectID: 199502800

Restore Moses Lake Recreational Fishery
Sponsor: WDFW
Short Description:
Restore/enhance the failed recreational fishery for resident species in Moses Lake, once the premier fishery for resident game fish in the Columbia Basin, in lieu of lost recreational anadromous fisheries.
Subbasin: Lake Roosevelt
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. In the response, sponsors should incorporate material presented at the meeting and revisions should be better focused on the causes of fish species shifts and their potential management, e.g. those actions that have more potential for pay off. The proposal was inadequate, but the presentation cleared up some of the ISRP concerns. There is need for thinning the tasks.

This is a project for conducting research, evaluation, and mitigation to restore a once-productive warm-water panfish fishery in Moses Lake. It is included in the Intermountain subbasin because it receives water from the Columbia River via diversion from Lake Roosevelt through Banks Lake. Management of Moses Lake is considered substitution/mitigation for loss of anadromous salmonids above Chief Joseph Dam. Although listed as a 1995 project, it has been funded for one year.

The project seems to be off to a good start by compiling past records and monitoring the system. Presentation of this information was informative and interesting. Species composition in terms of numbers does not fully support the suggested trends, although biomass does it better.

However, this is a poorly developed proposal that has problems, although the oral presentation was much better and alleviated many concerns. The proposal seems not founded on a basic understanding of lake processes, thus not directed toward investigating why the ecosystem fails to support the desired fishery—or a suitable substitute for it. It is not clear why the fishery declined. It is imperative to know what the problem is before solutions can be found. The project proposal is concentrated on superficial fishery matters and doesn't get at the underlying habitat system. Some of the deficiencies were identified in last year's review.

The project would benefit from consultation with a senior scientist specializing in limnology. The history of change in the lake's drainage basin (vegetation, soils, land use, other human activities, hydrology, etc.) should be examined, as well as basic change in basic lake characteristics (limnology). Several basic questions need study. What are the lake's depth and wetted basin shape? Thermal stratification? Seasonal dissolved oxygen profiles? Macrophyte types and extent? Ice cover? Do Dissolved Oxygen levels ever become critical? What are the concentrations of toxic chemicals in the lake water? What is the status of reproductive habitat for the various species of fish? What is their reproductive success in different habitats? Where do the trout come from? Were they stocked? Were other fish stocked? The proposal, despite its various tables of data, does not touch adequately on any of these questions.

Various graphs in the proposal are labeled as growth of fish, whereas they are really just length-at-age plots, from which growth rates are difficult even to infer. They were not drawn in such a way as to show growth. Sample sizes and variances are not indicated.

Specific comments relate to certain objectives. The objective for a fish diet study seems too large in scope (includes too many non-critical species). Also, gillnetting is not an effective tool for a feeding study because of regurgitation. The objective to conduct a population estimate (p 21) does not adequately demonstrate how this will be accomplished. The objective of obtaining more age data is not critical to rational management – a good idea of age and growth is already available. The same may be said regarding GIS maps, except as incidental to other tasks. On the whole, this study plan needs modification, largely to trim tasks to a critical few, and re-review.

The population trends look very much like those seen when common carp take over a lake in the eastern United States. This observation is strengthened by the proposal's comment that commercial carp harvest had been curtailed for lack of a market. Fishery management in such cases has been to stimulate carp harvest, either commercial or through angler incentives (e.g., carp derbys which can be fun for all ages, youth carp fishing days, spearing carp along shore during spawning). Once carp numbers are

reduced, other species such as the panfishes may bounce back on their own. An outside advisor familiar with managing such carp lakes could be a benefit to the project.

On further revision of the study plan, the project should have a good benefit for fish, and it meets the consistency criteria.

ProjectID: 21021

Ford Hatchery Improvement, Operation And Maintenance
Sponsor: WDFW
Short Description:
Improve water supply and operate and maintain Ford Hatchery to enhance the recreational and subsistence kokanee fisheries in Lake Roosevelt and Banks Lake, and bolster put-and-take resident trout fishing lakes in Region 1 (Eastern WA).
Subbasin: Lake Roosevelt
Comments:
Fundable. Further ISRP response review is not needed. This is a straight-forward proposal for upgrading a deteriorated water supply system in a hatchery that provides fish for Lake Roosevelt and Banks Lake stocking programs (and a few others). The state has agreed to pay for a new building that was once part of the proposal. The proposal also includes M&E for Banks Lake and other minor lakes to assess success of the "plantings" (which seems oddly placed in this proposal, although important).

There is well-written, informative background material. However, it is not clear that added hatchery capacity is needed considering all the other hatchery facilities in the subbasin, although the oral presentations indicated that there really is a need for more hatchery rearing space. The relationship of this project to others in Lake Roosevelt is described in the Spokane Tribal Hatchery (Galbraith Springs) Operation and Maintenance Project 199104600. There still seems to be a need for prioritization among the several hatcheries, but that goes beyond the ISRP role. There appears to be good benefit to fish from stocking. Consistency criteria are met.

ProjectID: 199106200

Spokane Tribe of Indians Wildlife Mitigation Project
Sponsor: STOI
Short Description:
Mitigation and protection of lands purchased for partial mitigation on the Spokane Indian Reservation due to the construction and inundation of winter range habitat caused by Grand Coulee Dam.
Subbasin: Lake Roosevelt
Comments:
Fundable only if the response includes more detail concerning methods for identification of limiting factors to and for population-indexing (monitoring) of target species.

Specific comments and questions.
1. The proposal is well written with attention to detail and ranking of lands that might be purchased.

2. This is reported to be an ongoing project, but a project by this name and number was not reviewed in the ISRP July 15, 1999, report. If this project is the same as the 1999 proposed project 20081, STOI Wildlife Land Acquisition And Enhancements, then significant progress has been made in the quality of the proposal.

3. The proposal should contain designs and protocols with references for data collection in the monitoring and evaluation section. Plans should be included for electronic storage of data and metadata. Comparable methods are needed for monitoring and evaluation of this and the other projects in the Inter-Mountain Province and to evaluate progress toward meeting objectives of the sub-basin summaries.

ProjectID: 199204800

Hellsgate Big Game Winter Range Operation And Maintenance Project
Sponsor: CCT-FWD
Short Description:
Protect, enhance, manage and evaluate wildlife habitats and species for partial mitigation for losses to wildlife resulting from Grand Coulee and Chief Joseph Dams.
Subbasin: Lake Roosevelt, Lake Rufus Woods
Comments:
Fundable. The proposal addressed the ISRP's past comments well and thoroughly. The presentations and site visits further substantiated the value of the project. This appears to be a well-managed and effective program. Further ISRP response review is not needed.

ProjectID: 199506700

Colville Tribes Performance Contract for Continuing Acquisition
Sponsor: CCT-FWD
Short Description:
Acquire, protect, enhance and evaluate wildlife habitat and species for partial mitigation for losses to wildlife resulting from Grand Coulee and Chief Joseph Dams.
Subbasin: Lake Roosevelt
Comments:
Fundable. The proposal addressed the ISRP's past comments well and thoroughly. The presentations and site visits further substantiated the value of the project. This appears to be a well-managed and effective program. Further ISRP response review is not needed.

The proposal is to acquire an additional 2,000 to 4,000 acres of land (or management rights thereto) for habitat mitigation. Criteria to be used for acquisition of particular lands are specified and the site visit verified past effectiveness of purchases in addressing fish and wildlife mitigation goals. The panel noted a need for this project to be able to have

more money readily available so that high priority properties can be purchased when they become available. Perhaps a different arrangement with BPA could be arranged for wildlife mitigation purchases for projects such as this that have established a sound scientific approach. See the general ISRP comments on "Trust Funds for Habitat and Water Right Acquisition."

ProjectID: 199800300

Spokane Tribe of Indians Wildlife Operations and Maintenance
Sponsor: STOI
Short Description:
Partial mitigation to protect, mitigate, and enhance wildlife mitigation lands on the Spokane Indian Reservation for construction and inundation losses of wildlife habitat on the Spokane Indian Reservation caused by Grand Coulee Dams.
Subbasin: Lake Roosevelt
Comments:
Fundable only if the response provides adequate detail concerning the methods for enhancement and monitoring of target species. The concerns with the proposal were mostly addressed at the presentation and should be elaborated on in a written response.

Comments and specific questions.
1. The proposal is improved from past versions, however additional details are needed on enhancement and monitoring methods for target species. For example, what are the methods for "…more intensive vegetation monitoring …", including criteria for location of sites for noxious weed control.

2. It is not acceptable to include tasks of, for example, "This year we will determine how many plots are needed and protocol on collecting information ..." Proposals should contain designs and protocols with references for data collection in the monitoring and evaluation section. Plans should be included for electronic storage of data and metadata. Comparable methods are needed for monitoring and evaluation of this and other projects in the Inter Mountain Province and to evaluate progress toward meeting objectives of the subbasin summaries. The site-specific management plan that is stated as having been submitted to Bonneville might be provided to facilitate review of methods and sampling designs.

3. Explain why it is possible to have too much bitterbrush on deer winter range. Are these old desiccate stands? What are the criteria for planting the different grass species, e.g., crested wheatgrass? Crested wheatgrass has frequently been used to quickly stabilize soils, but has proven to be poor habitat for wildlife. Explain other apparently contradictory management practices such as burning to reduce shrubs versus active fire suppression and planting to increase them, and planting crested wheatgrass versus actively removing non-native species. This does not sound like working with natural habitat potential.

ProjectID: 21008

Evaluation of the Banks Lake Fishery
Sponsor: WDFW
Short Description:
Determine the abundance and ecological interactions of fish populations in Banks Lake. Identify limiting factors for naturally recruiting and hatchery supplemented fish. Provide management recommendations to maximize the fishing potential of Banks Lake.
Subbasin: Lake Roosevelt
Comments:
Fundable. Further ISRP response review is not needed. This is a very thorough proposal (indeed outstanding) that describes a gigantic, expensive project, which, however, looks worthwhile in terms of yielding much benefit. It seems to cover most of the bases needed for a great start, but we have a few misgivings, mentioned below. The proposal is strong on technical background, bringing basic literature to bear, and on relevance to the FWP and the subbasin plan. It has problems, though, in connecting the tasks and methods to critical tests of the hypotheses. The material is well written; few terms and thoughts need further explaining.

The emphasis of this project is to develop Banks Lake as major kokanee fishery. This may not be possible in the face of warm summer temperatures, drawdown, and entrainment. It would be better to make that assessment quickly rather than to futilely increase future stocking of kokanee.

The role of walleye is unclear. It is ignored for the most part in the proposal objectives, yet walleye have been stocked since 1992. The proposal contains vague words about increasing burbot. It lacks further discussion about attempts to understand limiting factors and management options.

The creel census that is described for the Ford Hatchery project (21021) might be more appropriate for this project.

The personnel are well qualified for the task.

ProjectID: 21020

Monitor and Enhance the Lakes and Streams of the Spokane Indian Reservation
Sponsor: STOI
Short Description:
Monitor current and future hatchery stocking of 4 interior lakes. Monitor natural and hatchery fish stocks in streams within the Spokane Indian Reservation. Enhance lakes and streams to maximize mitigation benefits to tribal members.
Subbasin: Lake Roosevelt
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. The proposal needs to be re-written. The proposal is sketchy and sometimes unclear. It does not reference any pertinent fundamental scientific literature, only gray literature on the local situation. Therefore, the technical and scientific background is deficient.

This should be an important M&E project for hatcheries (e.g., Spokane Tribal Hatchery) that are stocking the reservation waters and for native populations in streams, but the proposal does not convince us that the project is being properly conducted. Much of the background material is helpful. The map was appreciated. The general rationale and relationship to other projects are good. The objectives are good, but the methods are weak (it is stated what would be done, but not how). There should be much value to fish from this project if it is reworked. It meets consistency criteria.

The scientific/technical background provides much detail on conditions of tributaries and creeks but doesn't lay out the central problem in a clear way. For how long have hatchery fish been stocked, and what is known about the effects? Given that healthy tributaries are needed, why do the researchers need to determine the limiting factors when they state (p.6) that limiting factors are levels of dissolved oxygen combined with temperatures? Later on that page it states that this project will produce carrying capacity objectives for each water body. This is different from identifying limiting factors.

The sampling design needs detail. If it hasn't yet been developed, then at least the likely literature sources for it should be shown. If the sampling methods and designs are not yet set, then how can facilities, equipment and staffing be thought adequate?

Data would be gathered upon which to manage four "lakes" that total 75 acres and apparently provide little angling. This appears to be a low-priority situation. Even if the priority is adequate to warrant keeping this as part of the project, we are not convinced that it is necessary to monitor all the physical and chemical characteristics of these lakes. The limiting factors seem to have already been identified as anoxia and high temperatures. The proposal mentions possible evaluation of measures to destratify the lakes. Such an engineering evaluation may be more to the point than further studies to refine details of the problem. The stated objectives are rather general and vague. The proposal states that it is designed to "monitor (fish) stocking of 4 interior lakes", yet there is no mention of conducting a creel survey either by this project or another one. The catch of stocked fish probably ought to be the first focus of a monitoring program. Estimates of

carrying capacity in the lakes that are mentioned are unlikely to be useful if they are derived from the plan described.

One proposal objective is to monitor trout populations in the tributaries. Obviously, such populations and "assemblages" can be strongly affected by fishing. Again, where is the creel census and sampling design?

Also, tributaries to Lake Roosevelt will be sampled to secure 5 spawning populations of wild kokanee. This task has higher potential value for Lake Roosevelt fishery.

Before improvements in culverts or diversions (p. 9) are made to enable fish passage, the risks of damage to upstream native fish stocks by new stocks that move in should be considered.

On narrative p. 8, paragraph 2, "instream structures" are mentioned. What kind were they? What was their exact purpose? Similarly, in the next paragraph, reference to "habitat restoration and connectivity efforts" is vague.

P. 9, last paragraph: What does "direct and indirect habitat improvement" mean?

The intentions regarding information transfer are unclear. This project should result in reports containing analyses and interpretation, not just in the data base that is indicated on p. 2 of the proposal's part 1.

"Elecroshocking index sites" are mentioned (p. 9, paragraph 3). The type of electrofishing gear to be used may well be the backpack units mentioned later in the same paragraph for removing non-native fish. If so, this probably involves pulsed direct current, and its drawbacks in terms of high rates of fish injury and death should be acknowledged. The advantages of using far less destructive unpulsed DC (non-backpack units) should be considered. The Montana Department of Fish Wildlife & Parks has banned use of pulsed DC for sampling fish in that state.

Question: When restoration of anadromous fish populations above Grand Coulee is mentioned, it is not clear that you really mean anadromous fish. The emphasis is on habitat improvement. Please clarify.

ProjectID: 21022

Evaluate Fish Habitat on the Middle Spokane / Little Spokane Rivers
Sponsor: Spokane County Public Works Department: Utilities Division
Short Description:
Identify target reaches on the Middle Spokane and Little Spokane Rivers. Use the Instream Flow Incremental Methodology to characterize the amount of available habitat for target reaches.
Subbasin: Spokane
Comments:
Do not fund. No response is warranted.

The proposal is generally well organized with respect to hierarchy of subjects but does not link the project closely to the Fish and Wildlife Program or other projects in the basin, does not indicate benefits to fish and wildlife, and does not adequately describe methods and analyses. The methods section is a mere list of general procedures, often phrased as objectives. What lies behind this proposal appears to be a controversy over minimum instream flows set by the Washington Dept. of Ecology, following input from WDFW.

The proposed project is based on IFIM/PHABSIM technique, the validity of which is controversial among fish biologists (Castleberry et al. 1996; Van Winkel et al. 1997), and the sponsor does not seem aware of the drawbacks and cautions with regard to its use. We question whether the IFIM parameters proposed here are comprehensive enough for this area. The effort would need to incorporate ground truthing—measures of important physical habitat features and fish abundances at a wide variety of flows. Stalnaker (1990) maintained that the minimum flow concept is a myth and should be discarded. Stream ecologists now realize that, instead, full annual flow regimes should be considered; a wide, in part seasonal variation of flows tends to be the natural condition to which the biota is adapted and therefore often requires (Hill et al. 1991).

The project includes the tasks, 1. Consultation, 2. Collection of data for use in a model, and 3. Complete the validation study (p. 2). What is meant by "consultation," and what is to be accomplished by it? Exactly what data will be collected and by what means? What are statewide preference curves? Why would they be valid rather than site-specific data? What are the properties of the model that is mentioned? What is meant by "complete the validation study"? How would the report use factors such as physical feasibility, risk and economics to formulate recommendations? The abstract provides more information (incomplete as it is) on some of these subjects than does the body of the proposal.

Facilities and equipment (item g) required to complete the proposal were not given. The information on qualifications of the project personnel is completely inadequate. Input into the proposal from biologists seems to be lacking. No basic literature on stream ecology and fish habitat was referenced. Unless basic stream ecology and stream fish requirements are well understood, then the project is unlikely to pay off in terms of fish and wildlife benefits.

References:

Castleberry, D. T., and 11 co-authors. 1996. Uncertainty and instream flow standards. Fisheries 21(8):20-21.

Hill, M. T., W. S. Platts, and R. L. Beschta. 1991. Ecological and geomorphological concepts for instream and out-of-channel requirements. Rivers: Studies in the Science, Environmental Policy, and Law of Instream Flow 2:198-210.

Stalnacker, C. B. 1990. Minimum flow is a myth. U.S. Fish and Wildlife Serv. Biological Rept. 90(5):31-33.

Van Winkel, W., and 7 co-authors. Uncertainty and instream flow standards: perspectives based on hydropower research and assessment. Fisheries 22(7):21-22.

ProjectID: 21017

Implement Wildlife Habitat Protection and Restoration on the Coeur d'Alene Indian Reservation: Hangman Watershed.
Sponsor: Cd'A
Short Description:
Protect and/or restore riparian, wetland and priority upland wildlife habitats within the Hangman Watershed on the Coeur d'Alene Indian Reservation as part of implementation efforts in the Spokane River Subbasin.
Subbasin: Spokane
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. This is a well-prepared, highly persuasive proposal that deserves funding; however, additional detail is needed on monitoring and evaluation methods.

Overall evaluation.
This proposal offers an exciting opportunity through a fortuitous set of land ownership circumstances that will lead to major land and habitat reform within the upper Hangman Creek watershed. The interaction with proposal 21018 is commendable for simultaneous improvement of riparian habitat for wildlife and instream conditions for fish. The monitoring and evaluation section does not have sufficient detail.

Specific comments and questions.
1. Long term planning for this proposal should include and emphasize peer-reviewed publication of the results, as this is a novel and exciting approach.

2. Limiting factors are explicitly addressed. Objectives are specific and the establishment of a trust fund for flexibility in securing management rights is a good idea.

3. The proposal should contain designs and protocols with references for data collection in the monitoring and evaluation section. Plans should be included for electronic storage of data and metadata. Comparable methods are needed for monitoring and evaluation of projects in the Inter Mountain Province and to evaluate progress toward meeting objectives of the subbasin summaries.

ProjectID: 21018

Implement Fisheries Enhancement on the Coeur d'Alene Indian Reservation: Hangman Creek
Sponsor: Cd'A
Short Description:
Determine the current distribution and enhancement opportunities for redband trout in Hangman Creek and its tributaries within the Coeur d'Alene Reservation.
Subbasin: Spokane
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. The proposers should be able to satisfy ISRP concerns in the response review. They made a good case on improving riparian health and wildlife benefits, but were weak on the fish population assessment component. The interaction with proposal 21017 is commendable for simultaneous improvement of riparian habitat for wildlife and instream conditions for fish. The two projects offer an exciting opportunity through a fortuitous set of land ownership circumstances that can lead to major land and habitat reform within the middle and upper Hangman Creek watershed.

Fish assessment methods were not adequately presented. The proposal needs additional detail in its methods (including documentation) and M&E. The project staff should ensure that they are familiar with fisheries methodologies and the relevant literature beyond the immediate intermountain province. For example, backpack electroshocker is listed as fish sampling gear. This probably means the current used will be pulsed DC. The potential for high rates of fish injury and death from pulsed DC should be addressed, and the advantages of using far less destructive unpulsed DC (non-backpack units) should be considered. No basic, refereed literature on stream ecology and fish habitat was referenced. If basic stream ecology and stream fish requirements are not followed, then the project is not likely to pay off.

Similarly, data on the upper reaches needs to be included in the response. Specifically, the watershed apparently was surveyed for westslope cutthroat trout and bull trout in 1998-99 – and weren't at least preliminary data gathered on redband trout? To what portions of the subbasin are redband trout likely to be restored, and are those the portions of the subbasin where riparian and instream improvements are planned?

Long term planning for this proposal should include and emphasize peer-reviewed publication of the results, as this is a novel and exciting approach.

ProjectID: 21030

Forest Carnivore Surveys for Spokane Subbasin
Sponsor: WDFW
Short Description:
This project will conduct surveys to verify many reported sightings of the lynx, wolverine, marten and fisher in the Spokane Subbasin. Techniques will include the use of remote cameras, bait stations, scratch stations, and track stations.
Subbasin: Spokane
Comments:
Do not fund. A response review is not warranted.

This weak proposal fails to establish why surveys of forest carnivores are of particular relevance to the Fish and Wildlife Program. It provides an inadequate technical background to the problem, simply describing the animals. It fails to present methods by which the surveys will be conducted and does not establish how the work would be beneficial to fish and wildlife. Although it would be useful to verify the sightings of the forest carnivores, the proposal contains few details about methods and no indication of what the likelihood of detecting a species may be assuming it is in fact present.

ProjectID: 21031

Land Use Analyses of Spokane County
Sponsor: WDFW
Short Description:
This project analyzes and compares past and current vegetation types and land uses in order to determine, and for the future, predict, the impacts different land uses and human development has had and will have on wildlife in Spokane County.
Subbasin: Spokane
Comments:
Do not fund. The proposal is not adequately tied to the Fish and Wildlife Program and potential benefits are not demonstrated. A response review is not warranted.

Specific comments and questions to address in future proposals.
1. Field sampling procedures for public and private land should be described for ground truth (field testing) of the accuracy of classifications from the recent photographs. How many randomly selected points would be visited in each class? What procedures will be applied if access is denied? What accuracy is required and what are the criteria for accepting the results? If changes are made based on field visits, will a second set of random points be selected?

2. We assume that procedures developed for digitizing and classifying the recent photographs would be used to digitize and classify the old photographs, but these kind of

assumptions should be spilled out in detail. How will the accuracy of classifications based on the old photographs be assessed?

3. No reference is given to the FWP or other projects funded by BPA.

ProjectID: 199501100

Chief Joseph Kokanee Enhancement Project
Sponsor: CCT
Short Description:
Determine natural production kokanee status using adult recruitment, genetic stock mapping and entrainment at Grand Coulee Dam as indicators. Enhance kokanee and rainbow trout populations by augmentation and entrainment prevention.
Subbasin: San Poil, Lake Rufus Woods
Comments:
Fundable. Further ISRP response review is not needed. It was evident that the project has been significantly re-energized over the preceding year, dropping two objectives and focusing on assessing and ultimately reducing kokanee entrainment. Results presented from the year 2000 study of fish distribution and water velocity adjacent to the third powerplant were exciting and provided compelling evidence of recent progress toward those goals.

The proposal for ongoing work clearly outlined efforts to monitor kokanee abundance and collect genetic sample material at a number of sites, to contract analysis that will hopefully complete characterization of the stocks present, and to contract evaluation of a prototype strobe light system. These tasks seem well organized and staffed by personnel likely to produce quality scientific results.

The ISRP is gratified that this important project has demonstrated its previous results and embarked on a rigorous research program directed at a principal problem of Lake Roosevelt that affects many other BPA-funded projects. The turn-around from last year's review is to be commended.

ProjectID: 199001800

Evaluate Rainbow Trout/Habitat Improvements Of Tributaries To Lake Roosevelt
Sponsor: CCT
Short Description:
Increase the quality and quantity of spawning and rearing habitat in selected streams that drain into Lake Roosevelt by eliminating migration barriers, improving riparian conditions, and improving instream habitat.
Subbasin: San Poil
Comments:
Fundable only if the response adequately addresses the ISRP concerns. Proposers have focused on evaluating fish barriers because they have shown that strategy works. The proposal to continue to evaluate and improve fish passage seems appropriate. However,

there is risk if remnant populations of bull, redband or cutthroat trout exist above a barrier and would be impacted by introgression or competition if the barrier were removed. Protocol for assessing and protecting any remnant populations should be added to the proposal.

The proposal focuses on Bridge Creek, where a fish passage problem clearly exists. Plans to evaluate, monitor, and recreate the original stream channel seemed well thought through. But what about after Bridge Creek? Are there similar problem sites elsewhere? A three-year plan, or description of how such a plan will be developed, should be presented.

The figures provided to convey data in the proposal and presentation were inadequate to allow reviewers to understand past results. Those figures should be re-done with more appropriate axes and labels. Also, the scientific background material contains only gray literature. It should include also substantial reference to basic material on stream ecology and fish habitat.

Figure 2 on p. 10 shows "Fish Density." Does this pertain to juveniles or adults?

Paragraph 2 on p. 10 begins: "Habitat improvements such as drop structures and meander construction were selected as the method to extend flow duration [emphasis added]. . ." What does this mean?

Same paragraph: a "strategy" is mentioned in the last sentence. What strategy?

P. 13, near end of paragraph 2: "The exclosure was less than effective in reducing livestock damage to the plants stocked." Why was the exclosure less than effective?

P. 14, near end of first paragraph: "Fencing projects to control livestock use in riparian areas is [sic] not a guarantee of success for recovery of the riparian function." Why not?

P. 17, paragraph 2: A backpack electrofisher is mentioned as the sampling gear for population estimates. This probably means the current used will be pulsed DC. The drawbacks of high rates of fish injury and death from pulsed DC should be acknowledged, and the advantages of using far less destructive unpulsed DC (non-backpack units) should be considered. We understand that the Montana Department of Fish Wildlife & Parks has banned use of pulsed DC for sampling fish in that state.

P. 18, Task 12: Landowner maintenance of riparian protection fences is stated. What will be the quality control on the maintenance?

ProjectID: 21002

Early life history and survival of adfluvial rainbow trout in the San Poil River Basin
Sponsor: PNNL
Short Description:
Investigate overwintering behavior and survival of juvenile adfluvial rainbow trout in the San Poil River drainage and examine relationships between habitat parameters and survival.
Subbasin: San Poil
Comments:
Fundable. Further ISRP response review is not needed. This was viewed as an excellent proposal in all respects. It examines a time period (winter) when mortality of juvenile salmonid fishes is high but causes of death are poorly understood. During the field tour there was ample evidence that habitat in streams throughout the subbasin was impacted by land use practices enough that winter fish habitat was probably far below optimal, and in some cases almost non-existent. Results of the proposed study should assess that possibility and identify critical habitat needs. It will be especially important for the PIs to actively involve biologists from the Colville Consolidated Tribe and Colville National Forest and for them to be proactive in communicating results to other land managers in the province.

The proposal's PIs have strong publication records and substantial winter research experience. They are very well qualified to perform outstanding work on a key topic here. Videography under ice is largely an untested technique, but probably worth a try here.

Reviewer Comments on Columbia River Gorge Province Proposals

ProjectID: 21012

Evaluate Status of Coastal Cutthroat Trout in the Columbia River Basin above Bonneville Dam
Sponsor: USGS-CRRL
Short Description:
Survey Columbia River tributaries above Bonneville Dam for coastal cutthroat trout to determine population status, to identify limiting factors, and to understand the role of current and past human and natural disturbances affecting status.
Subbasin: Columbia Gorge
Comments:
Do not fund. A response is not warranted. The proposal was generally well written and the PI has superior qualifications and a strong publication record, and the proposed work is needed. However, this project appears likely to duplicate other subbasin efforts that already should have collected (or are collecting) some data on coastal cutthroat populations. While it is important and timely to complete a comprehensive status assessment of coastal cutthroat trout, it would make more sense to expand this type of

assessment work beyond individual species and include all varieties of resident salmonids and amphibians. For example, bull trout surveys will likely cover much of the same ground and observe cutthroat trout, if present. It would be much more cost-efficient if this cutthroat survey work could be combined with the bull trout survey, project 199405400. From a sampling standpoint, a single survey for all salmonid fishes (and nongame fishes) and amphibians would yield superior data and pose less risk of physical injury from repeated electrofishing.

The curent proposal only vaguely addressed the approach that would be used to characterize limiting factors. There is a need to better review the existing literature and existing population data on coastal cutthroat trout and to utilize that information to develop a stronger proposal that more specifically targets limiting factors. The study methods in general seemed appropriate. However, the proposed study would include data collection only under summer low-flow conditions, but there is no longer any reason to only sample at that time. Fall/winter sampling is technically feasible and often enables better assessment of limiting factors. Would that not be the case in this situation? Also, a just-published test of stream sampling methods (Roni and Fayram (2000) North Amer. J. Fisheries Mgt. 20:683) should be helpful.

We suggest that if at all possible, the principal investigator from this project could act as a coordinator for coastal cutthroat trout status assessment work in the province.

ProjectID: 21005

Characterize and Assess Wildlife-Habitat Types and Stuctural Conditions for Sub-Basins within the Columbia Gorge Ecoprovince
Sponsor: NHI
Short Description:
Fine-scale wildlife habitat assessment for the Inter-Mountain Ecoprovince will produce critical baseline data for planning and monitoring efforts that is consistent within the NWPPC Framework wildlife-habitat relationships process.
Subbasin: Columbia Gorge
Comments:
Fundable if three conditions are met 1) a regional need by resource managers is demonstrated and 2) the ground truth methods are presented in more detail, and 3) the maps to be generated are specified as a deliverable to the funding agency rather than a product that NHI may own and sell. Further, the ISRP questions whether objective 2 should be included. This might better be left to local resource managers to evaluate with direct, primary local data. A response is needed that provides sufficient information before the project could be recommended for funding.

Overall evaluation. The proposers appear competent for completion of the project. Except for field testing, the proposal appears to provide adequate technical background and justification, however it’s not written for reviewers who are not expert in GIS. The proposal does not refer to any sub basin plan objective, only asserts that "planning requires a finer resolution of mapping than what [sic] currently exists", the objectives are

not measurable with respect to wildlife restoration. The proposal indicates that it would build on previous work and emphasizes information transfer. However, the direct benefits to fish and wildlife and relationship to other projects are not explained. The usefulness of resulting maps to resource managers is not demonstrated, and resource managers in the Province have not been asked to support the project. Proposed methods for monitoring and evaluation of the utility of the classification maps are lacking.

Specific comments and questions.
1. The field-based ground truth task is not presented in sufficient detail. Procedures for defining strata, selection of random points within strata, and methods for dealing with access problems should be presented. For example, will the number of random points which could not be accessed in the field be reported? Will all 32 classes be ground truthed in the field? What is the procedure for determining the number of random field points to be visited in each class? What is the criterion and sample size to have an accuracy of 75% on each class? Will the lower limit of a 95% confidence interval be required to be above 0.75? It was stated during the oral presentation that if the criteria are failed for some class, then a completely new random sample of points from that class would be visited in the field? We would like to see this commitment more clearly expressed in the proposal. Will the field-testing be conducted blind, i.e., will field personnel not know the "office classification" before they visit a random point in the field? What are the criteria for identification of each of the 32 classes when the biologist is standing at a random point in the field?

2. Are this proposal and its sister proposal in the Inter-Mountain Province the initial proposals to map the entire Columbia Basin at this scale? Is there a Columbia Basin wide need for vegetation maps at this scale? Will there be any cost savings to other Provinces if this proposal is funded? Perhaps a pilot project should be funded to demonstrate the utility of the project.

3. The maps and resulting classifications should not be viewed as primary data. The mapping project uses primary data from the current Landsat Thematic Mapper, but classifications are derived and are subject to change in the future based on a different procedure.

These comments and recommendations mirror those for the Inter-Mountain proposal, #21006.

ProjectID: 21013

Western Pond Turtle Recovery - Columbia River Gorge
Sponsor: WDFW
Short Description:
Protect existing WPT population through habitat improvements, expand WPT population through "head start " program and continue reintroductions at USFWS Pierce National Wildlife Refuge.
Subbasin: Columbia Gorge
Comments:
Fundable only if the response makes a better case for the proposal's tie to the Columbia Basin Fish and Wildlife Program. Although this project relates to a Washington State Recovery Plan, it does not make any reference to the Fish and Wildlife Program. It was unclear if this was a species of concern across the region, e.g. in Oregon.

Otherwise, the project was well described, with clear objectives, a competent research and implementation team, and offers what appears to be a high likelihood of success. It was a bit difficult to assess PI credentials – no CVs provided.

This proposal addresses a recovery problem that already involves a number of agencies and NGOs. There were no explicit plans for information transfer from the project's results, however. The presentation was good and addressed several questions generated from the proposal review such as the results of the "head start" effort.

ProjectID: 21011

Assess the Current Status and Biotic Integrity of the Resident Fish Assemblage in Bonneville Reservoir
Sponsor: USGS/CRRL
Short Description:
Resident fish in Bonneville Reservoir will be sampled to provide baseline information on the population characteristics and status of resident fish species and the biotic integrity of the resident fish assemblage.
Subbasin: Bonneville Reservoir
Comments:
Do not fund. A response is not warranted. The proposal is generally well written and addresses some concerns (i.e., reference to data sources for other large river/reservoir settings) identified by last years review (project 20066). Other sampling concerns (i.e., possible utilization of more quantifiable sampling techniques) were not addressed. In the reviewers minds, the proposal continued to contain only vague allusions to a general need for more data, without indicating why it is priority work or identifying substantative problems that need to be solved. The major task proposed - assessing efficacy of various sampling gear - could have been done in preliminary fashion as part of proposal preparation, allowing the proposers to focus on critical questions as significant objectives. The database the project could generate would be very useful if a major

change in the hydrosystem or its operation was being planned, as baseline data from which to assess changes. Alternatively (or additionally) there is a need for biological investigation of the reservoir to help understand its carrying capacity for salmonids and to assess whether that capacity is currently exceeded. As written, the proposal was not pointed in that direction.

Reviewers are concerned that the biologic integrity portion of the proposal likely will not provide a product that will be of substantial use in the context of the Fish and Wildlife Program. IBI was developed for detecting disruptions in stable communities, but was not developed for use in highly perturbed systems. The most likely result of the analysis would be to describe the system as high variable and highly perturbed - which we already know. Collaboration with others is not identified. Specifically, the project is not tied to northern pike minnow work.

Reviewer Comments on the Hood River Subbasin and Hood River Production Program (HRPP)

The Hood River Subbasin Summary was well written and thorough. The Hood River group is on the right track with their watershed assessments and rehabilitation plans listed by priority of action. Concerns are with the hatchery program and the issue of passage at the dam.

Summer and winter steelhead stocks have been in decline during the 1990s, and are now down to less than 200 and 300 fish, respectively, and far below the escapement goal of 2,400 fish. A crude recruitment analysis, assuming these fish were, on average, 4 years-old at return, suggested both stocks are below replacement. The abundance of each seemed correlated, suggesting factors in the decline are affecting both stocks, now down to less than 1or 2 fish/km. It is not possible to separate the freshwater from the marine factors in the decline since no data on wild smolt yield is given. However, the decline is likely related to marine conditions, as found elsewhere. Data on smolt yield exists (five rotary screw traps in the watershed) so an analysis of overall smolt yield and return may be possible. Survivals on hatchery steelhead seemed peculiar in that winter-run hatchery releases faired worse, at less than 1% from 60,000 releases, than summer-runs, which apparently had survivals near 3%. Something is odd about this difference - either the release numbers have varied, summer and winter runs are misidentified, or summer runs are doing something different (migration pathways?). A more thorough treatment of the stock assessment information available is required.

The use of wild brood stock for hatchery purposes, while commendable and correct at the best of times (i.e., when survivals warrant it), is likely depleting the limited wild stock without increased return, given these poor survival rates. Furthermore, supplementation is focusing on the wrong life stage if the current limitation is in the smolt-to-adult stage. It is difficult to separate the "supplementation" from the fish released for harvest. All fish for harvest should be released below the dam. A review and justification of the supplementation program is required.

The comparisons and conclusions on acclimation (Figs. 11 and 12 in the summary) suffer from having no within-year control, and were not in agreement with the presentation on this issue which indicated there was no benefit to acclimation. Fish released from these facilities will compete with wild parr and smolts, particularly if a large portion residualize. Half of the males (perhaps as many as 15,000 of 60,000 releases in this watershed) may fail to migrate, and compete for food and space with wild fish. They plan to study residualism, but some information should already be available, and presented.

A review of the harvest-fish release and returns and consequences to the wild population is needed. What are the consequences within the Bonneville Pool and elsewhere when hatchery smolts out-number wild by several fold? Even catch-and-release fishing has an impact, particularly where effort is high, and this wild population can withstand no harvest impact. This form of supplementation may be doing more harm than good to the wild population; likewise for the harvest program.

They should proceed with their watershed rehabilitation plans and hope that these attempts will improve productivity and capability in freshwater to offset the dramatic declines in smolt-to-adult survival. Meanwhile, there is a need to do more work on the latter, including mortality in the downstream migration within the Hood, within the Bonneville Pool, down the Columbia, at the river mouth, and during the coastal migration. Comments above on hatchery harvest and supplementation will apply to several watersheds, thus an overall review may be required.

Recommendation for the set of HRPP proposals: Fundable only if the response adequately addresses the ISRP's concerns.

Issues to address:

1. The proposals contained little specific data presentation.
2. Quantify the juvenile loss through the Powerdale hydro facility.
3. Consider using PIT tags or acoustic tags in the smolt evaluations.
4. Release all smolts below the dam where the goal is to increase the available harvest but consider/address the indirect impacts to wild fish from C&R.
5. The turn-back of hatchery steelhead at the ladder has increased straying, and may have lad to increased angling effort within the lower river (thus further C&R of wild). Alternatives to turnback should be provided (cull?).
6. What are the consequences of increased hatchery smolt presence within the Bonneville Reservoir, the lower Columbia River, and at the mouth, and given the aggregate hatchery releases in the Province and elsewhere?
7. Justify hatchery production levels. In the absence of quantitative stock assessments, the proposals fail to justify technically the need for the projects presented. For example, what is the basis for the numbers of hatchery fish to be released?
8. Develop a monitoring and evaluation plan for the separate tasks of harvest development, supplementation, and habitat rehabilitation.

As with our FY2000 comments, these six projects are inextricably linked together to form the Hood River Production Program. It was difficult to evaluate each project singly, particularly with respect to the methods and M&E criteria. The proposals contained little specific data presentation, in spite of monitoring at some level for up to 6 or seven years. Presentations were similarly lacking in data presentation and reinforced these observations.

The Hood River Production Program has many things going for it, including its dedicated staff, high quality facilities (Powerdale collection site and Parkdale), links between the habitat restoration efforts and the production program, etc. Nevertheless, the M&E portion of the program fails to adequately address monitoring and evaluation questions that are critical to the program's success. These include quantifying the juvenile loss through the Powerdale hydro facility, lack of consideration of using PIT tag technology to gather additional juvenile migration and adult return data, and deeper integration of the wild and hatchery production components for winter steelhead goals.

Acclimation as a supplementation strategy, as a means to enhance the survivability of artificially produced smolts released into the watershed, seems not to have been demonstrated, at least by the data presented in the proposals. Reviewers perceive that a better strategy for enhancing winter steelhead fisheries would be to release all smolts below the dam.

Recycling as a fishery-enhancement tactic, returning marked steelhead to the mouth of the tributary to make them available to harvest again, seems to have been responsible for enhanced straying into other watersheds; if so the practice is detrimental to the maintenance of biodiversity in the subbasin and should be curtailed.

Finally, density limits in the Bonneville Pool and lower Columbia River need to be addressed in this Subbasin Summary and others as a potential factor limiting salmon productivity. Without appropriate assessment of stocks including survival in the pool and lower river, and without consideration of density as a potential limiting factor, managers may inappropriately increase smolt releases to the detriment of future cohorts of native salmon. Reviewers note with concern that proposers in the Hood River program contemplate doubling of hatchery production as a method of supplementation; the detrimental effect of this increased density of salmon smolts on the survival of native salmon has apparently not been considered.

ProjectID: 198805307

Hood River Production Program: Powerdale, Parkdale, Oak Springs O&M (88-053-07 & 88-053-08)
Sponsor: CTWS and ODFW
Short Description:
Restore depressed populations of StS & StW and re-establish a self-sustaining ChS population in the Hood River subbasin. Broodstock will be collected at the Powerdale Facility. Broodstock will be held and spawned at the Parkdale Fish Facility.

Subbasin: Hood
Comments:
Recommendation for the set of HRPP proposals: Fundable only if the response adequately addresses the ISRP's concerns. See subbasin comments, above.

The reviewers were concerned by the proposed goal to double hatchery production as a method of supplementation. This goal seems inconsistent with our understanding of supplementation (e.g., RASP 1992; SRT Report 1999).

Using data from the proposers own presentation during the site visit, acclimation does not increase survival, yet they are proposing construction of more acclimation sites. Instead, we suggest releasing all hatchery winter steelhead smolts below Powerdale Dam, because of mortality associated with passage at the dam and increased interaction with wild fish in the river above the dam. Therefore, the need for the acclimation sites is questionable.

The M&E portion of the program (nearly one million dollars between projects 198805304 and 198805303) fails to adequately address questions that are critical to the program's success. See comments above on the set of proposals.

With current return levels and the indication of SARs of ~6% for wild steelhead, compared to SARs of 1% or less for hatchery winter steelhead, why is there a winter steelhead hatchery program at all? If the preliminary SAR data are indicative of fitness differences between wild and hatchery produced fish, then continuing the hatchery program could undermine the fitness of the wild stock. Decisions on when to proceed with hatchery programs for harvest generation or supplementation for population re-building need to be based on demographic information and life-stage survival rates.

In spite of these shortcomings, this was a fairly complete and often detailed proposal. The project proposal is well crafted and went into some detail about the rationale for the Hood River Production Program, but contained insufficient detail about performance to date, specifically, with respect to escapement and SARs. This was not covered more fully in the HRPP M&E proposal; thus, the omission from both proposals was surprising since specific escapement and SAR goals were mentioned for chinook and both races of steelhead.

ProjectID: 198805304

Hood River Production Program - ODFW M&E
Sponsor: ODFW
Short Description:
Monitor and evaluate actions taken to re-establish spring chinook salmon, and improve wild production of summer and winter steelhead, in the Hood River subbasin. Data will be used to develop, and refine, management objectives for the HRPP.
Subbasin: Hood
Comments:
Recommendation for the set of HRPP proposals: Fundable only if the response adequately addresses the ISRP's concerns. See subbasin comments, above.

The lack of peer-reviewed publications at present is understandable, due to the incomplete evaluation datasets. Additional years will be required (out to 2007 for some stocks) to collect the necessary data for evaluation. Nevertheless, the study is likely to generate results that will be of great interest throughout the basin.

According to the related proposal 1989-029-00, the average spring chinook smolt-to-adult return from the 1993, 1994, and 1995 brood years have been ~0.15%. This is far below the 0.68% SAR target, which suggests that there may be opportunities to improve survival of hatchery smolts. Perhaps taking 50% of the returning adults for broodstock is a bit risky until the performance of hatchery releases can be demonstrably improved. There doesn't seem to be a mechanism in the set of proposals to evaluate the relative benefits and risks of bringing 50% of the run into the hatchery versus passing them above Powerdale Dam for natural reproduction, where SARs may be better (or worse) than for the hatchery cohort. Provide this evaluation.

ProjectID: 198902900

Hood River Production Program - Pelton Ladder - Hatchery
Sponsor: ODFW
Short Description:
Re-establish a self-sustaining spring chinook salmon population in the Hood River subbasin. Broodstock will be collected from Hood River. Broodstock will be held at the Parkdale Facility. Incubation and rearing will be completed at Round Butte Hatchery
Subbasin: Hood
Comments:
Recommendation for the set of HRPP proposals: Fundable only if the response adequately addresses the ISRP's concerns. See subbasin comments, above.

The ISRP comments from the FY2000 review of the project proposal remain relevant. This project is integrally linked to a number of the other key ongoing projects within the Hood River subbasin. The fish production described in this proposal is critical to the Hood River Production Program, as it stands defined.

Objectives are well delineated, although the technical details of methodology are not always so detailed. If procedures are not changing, the details may not be all that necessary. The methods could better line up with the objectives.

ProjectID: 198805303

Hood River Production Program - CTWSRO M&E
Sponsor: CTWSRO
Short Description:
Implement, monitor, and evaluate actions outlined in the Hood River and Pelton Ladder Master Plans pertaining to smolt production, acclimation, and habitat. Coordinate Pelton Ladder production.
Subbasin: Hood
Comments:
Recommendation for the set of HRPP proposals: Fundable only if the response adequately addresses the ISRP's concerns. See subbasin comments, above.

The ISRP's FY2000 review comments remain germane to this project. Past progress (in general terms, but not data results) is described; feasibility and value of continuation seems very high. While the program is still in its early implementation phase, this proposal (and others in the groups) would have benefited by the inclusion of more results of previous studies by ODFW and CTWSRO.

The progressive nature of this project warrants publication in peer-reviewed journals. As project evaluations occur from 2000 through 2007 (based on the four-year minimum datasets described on pp. 5-6 of the narrative in proposal 1988-053-04), the region and the fisheries community at large will have great interest in the program's results. We encourage project planning that facilitates dissemination of the program's results through publication in peer-reviewed journals beyond the required annual reports to BPA.

ProjectID: 199500700

Hood River Production - PGE: O&M
Sponsor: PGE
Short Description:
This contract funds the Facilities O&M at the PGE Pelton Ladder - Round Butte Hatchery Complex
Subbasin: Hood
Comments:
Recommendation for the set of HRPP proposals: Fundable only if the response adequately addresses the ISRP's concerns. See subbasin comments, above.

This is integrally linked to a number of the other key ongoing projects. The fish production herein is critical to the HRPP as it stands defined. It appears that the original concerns of using non-native fish have been addressed - unless there are some difficulties that are not apparent from the narrative. The objectives are listed only in tabular form and aren't really objectives, and measurable biological objectives are not really biological objectives, either (they at least are not clearly stated). This proposal does not follow the standard write-up. No completion date is given, though the budget goes out through at least FY 2004. This proposal was not as well justified as the other HRPP proposals.

ProjectID: 199802100

Hood River Fish Habitat Project
Sponsor: CTWSRO
Short Description:
Implement habitat improvement actions that will support wild fish and supplementation efforts within the Hood River subbasin as approved by the NPPC and supported by the BPA Environmental Impact Statement for the Hood River Production Program (HRPP).
Subbasin: Hood
Comments:
Fundable. Further ISRP response review is not needed. This watershed effort is a good example of a well run Watershed Council process. With the addition of the document delivered at the meeting, *Hood River Fish Habitat Protection, Restoration, and Monitoring Plan*, the ISRP's concerns were addressed.

Many of the ISRP's FY2000 review comments remain pertinent to our present review of this project. This is a complex project involving substantial funding from a large number of sources. It is linked to a number of other projects within the subbasin. The cost share looks attractive; the rationale looks appropriate. The proposal would have benefited from more presentation of biological gains, even at this relatively early juncture in the project's proposed tenure. We recognize that the project is relatively new and that benefits to fish and wildlife from habitat improvement projects take time to accrue and measure. Nevertheless, the project sponsors generally tended to describe past accomplishments in terms of actions completed without discussing the biological benefits gained from the action (some of which could have been measured even at this early stage).

The weakest part of the proposal is the lack of a clear evaluation methodology for assessing long-term success of the alterations. How will success/failure be defined? For example, "spawning ground surveys will be completed annually to assess the upstream passage/spawning benefits." What level of adult returns will be used to define success? How will variability be addressed? Time lags? At this cost, the project sponsors need to assure that the work is providing measurable benefits to fish and wildlife. They need to better document the interaction of this project with 1988-053-03, the monitoring and evaluation component of the HRPP. See General Issues and comments on the need for an integrated approach to M&E in the Province across all subbasins. Given smolt yield as a possible response variable to watershed rehabilitation, is the Hood River a candidate for detailed monitoring or routine monitoring, and compared to what?

ProjectID: 199304000

Fifteenmile Creek Habitat Restoration Project (Request For Multi-Year Funding)
Sponsor: ODFW
Short Description:
Provide for continued operation and maintenance of all completed habitat restoration measures within the Fifteenmile Subbasin. Continue photo documentation of habitat recovery and the collection of stream temperature data.
Subbasin: Fifteenmile
Comments:
Fundable only if the response adequately addresses the ISRP concerns. Roll the proposal up into an overall watershed restoration plan that includes all related activities tied to watershed assessment, prescriptions listed by importance of implementation, rehabilitation plans, and a monitoring and evaluation stage that is coordinated within the province. The monitoring plan needs to go beyond the photopoint approach, and expanded to monitor key water quality, vegetation, and fish community responses. Comments from the FY2000 still apply. Using solar pumping stations to replace watergaps is a valuable improvement; thus, they should emphasize the solar pump work. They should also look into options of other mechanisms than 15-year leases.

This proposal provides a good description of the project since its inception, and actions taken to restore riparian habitat. After an implementation phase of the project, which involved the acquisition of 15-year leases as well as direct actions taken to restore riparian habitat, the project in now in an operations and maintenance phase.

Despite the clear and detailed description of the project's history and of subbasin limiting factors, the proposal provides much less detail on monitoring progress toward meeting objectives. For example, the six initial objectives include unimpeded passage, reduced sedimentation, increased flows, reduced temperatures, etc. But these specific measures are not all addressed in the discussion of photopoint monitoring. Moreover, despite O&M work since 1986, the proposal gave no indication of water temperature improvement to date and no indication of increase in fish population.

The proposal also should include a more detailed assessment of what is likely to happen in 2012 when the last lease expires. Are the incentives facing landowners sufficient to ensure that riparian protection will be maintained? Will the cost of fence repair, etc. be considered affordable? How would maintaining the existing riparian improvements benefit landowners?

To assess whether objectives of the project are being met, the tasks should be directly tied to objectives in a measurable way. Objective 1, to "protect, enhance and restore" is too vague to be directly measured. Objective 2, to monitor the success of recovery efforts, is limited to stream temperature and canopy closure. What about the other factors listed as original objectives? Objective 3 could use more specifics as to how the transfer of information will take place, and what is expected for outcomes.

This work (and others) could benefit from a comparative approach (treated /untreated). It seems population viability may remain at question, but this work addresses the only current means of increasing survivals overall by increasing it in the freshwater life stage.

ProjectID: 199304001

15-Mile Creek Steelhead Smolt Production
Sponsor: ODFW
Short Description:
Estimate subbasin smolt production for the wild population of winter steelhead in Fifteenmile Creek and collect information on selected life history and biological characteristics of downstream migrant fishes endemic to Fifteenmile Creek.
Subbasin: Fifteenmile
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. The anticipated improvements from the fencing and water acquisition projects suggest that the productivity of the system for winter steelhead may improve for the future. The proposed budget for a screw trap may be necessary for stock assessment; but reviewers are concerned about the adequacy of the proposed stock assessment. Proposers do not seem to consider gathering information about survival outside the basin (PIT tags), nor do they consider the value of demographic sampling (scales for aging) or of size and condition information. It may be that steelhead fry and parr may not rear only in Fifteenmile Creek but also may use the Columbia mainstem for rearing, historically; this project could provide information about this life history. A review of the methods and effectiveness of rotary screw traps in providing reliable smolt yield estimates may be required. Recapture rates may be low, but methods of improving the technique may be available (such as separate marking and recapture sites). A province-wide agreement on monitoring protocol and sites would assist (see comments on subbasin planning workshops under Programmatic Issues).

ProjectID: 21001

Fifteenmile Creek Riparian Fencing / Physical stream Survey Project
Sponsor: ODFW
Short Description:
Construct approximately 30 miles of riparian protection fence over a three year period along Fifteenmile Creek and it's tributaries. Conduct a phyical stream of 90 miles of privatly owned stream in the Fifteenmile Subbasin.
Subbasin: Fifteenmile
Comments:
Fundable only if the response adequately addresses the ISRP concerns. This project should be rolled into the habitat restoration proposal 199304000 and they should explore cost saving by seeking alternatives to 15 year leases. The fencing work to date is an impressive record, and the proposed work finishes the task (maintenance will need to continue). They might also consider tree planting to accelerate the recovery process. However, the proposal and presentation did not indicate that steelhead rear in the lower

sections – the majority of the spawning and rearing occurs in the upper part of the watershed, thus rehabilitation needs to focus to this area. The lower area has low flow and temperature problems and may partly be improved over time by the actions proposed, although the lower reaches are primarily a migration corridor. Nevertheless, other fish and wildlife may benefit from this fence work during summer rearing. The area fenced should be a function of the riparian area requirement and the local landscape and not a fixed width. An overall watershed restoration plan with tasks listed by order of importance is required. Evaluation and monitoring should be integrated within the province, and should be approached on a watershed scale where the treatment is restoration (all aspects) compared to no treatment, and where the response variables may be smolt yield or smolts per spawner at some point on the recruitment curve (max recruitment, MSY, or capacity production).

ProjectID: 21014

Mitigate Streambank Sediment Sources in Fifteenmile Watershed using Bioengineering Techniques

Sponsor: Wasco SWCD

Short Description:

Treat seven sites of active streambank erosion using bioengineering techniques that promote revegetation of banks, dissipates hydrologic energy and create instream habitat.

Subbasin: Fifteenmile

Comments:

Fundable. Further ISRP response review is not needed. Roll up into an overall watershed restoration plan. Past success with this approach in the watershed was evident from the site visit. This is costly work thus there is a need to ensure the habitat is protected from future bank erosion. Do salmonids use these areas for spawning and rearing? Areas visited did not appear to be prime rearing habitat. Proponents have been active at this and other tasks in the watershed (fencing, etc.). Some indication that major sediment sources are being addressed is required – has there been a sediment source analysis and is this the key source? Perhaps some level of monitoring success at achieving reduced erosion and sedimentation by a sub-sampling scheme (sediment traps?) could be considered. Done right, the bank erosion work in this watershed could provide demonstration of the techniques and benefits for other subbasins in the area with similar plans.

ProjectID: 21015

Riparian Buffers
Sponsor: Wasco SWCD
Short Description:
Implements riparian buffer program using cost share provided by USDA, state of Oregon, and private landowners
Subbasin: Fifteenmile
Comments:
Fundable. Further ISRP response review is not needed. This one FTE should also be part of the watershed assessment and restoration team. Consider this application in the other watersheds under an integrated plan.

This proposal is to take advantage of federal incentive programs to implement riparian buffer contracts with private landowners. It convincingly describes the potential benefits that could be added to previous riparian protection efforts by using existing federal programs. Good detail on cost-sharing and coordination with other agencies is provided. The project's objective – to implement at least 36 riparian buffer agreements - is specific and measurable. CREP plans and FSA requirements will provide monitoring of buffer strip outcomes. This proposal will monitor the progress of implementing agreements.

ProjectID: 21016

Accelerate the Application of Integrated Fruit Management to Reduce the Risk of Pesticide Pollution in Fifteenmile Sub-basin Orchards
Sponsor: Wy'East RC&D
Short Description:
Accelerate the implementation of Integrated Fruit Management in orchards that use new generation pesticides and sprayer technology to reduce the risk of pollution to land and aquatic resources from pesticides affecting salmon and steelhead.
Subbasin: Fifteenmile
Comments:
Fundable only if the proposers make a convincing case of benefits to fish and wildlife and a closer tie to the Fish and Wildlife Program (FWP). The presentation made a better case than the proposal and the proposers were forward thinking. The agriculture experiment station should be a source of assistance for these proposers.

This proposal describes an approach to reducing non-point source pollution resulting from the application of orchard pesticides. It is a problem relevant to the water quality aspects of fish habitat. The proposal does a good job laying out objectives and comprehensive tasks, and takes care to include criteria for success and timelines in the methods. Adaptive management is included through explicit plans for modifications of procedures. The proposal establishes connections to other non-FWP projects, but does not tie the proposed work into other projects within the FWP.

The proposal places an emphasis on collaboration with growers, outreach and education. This is a real strength of the proposal. The main question has to do not with the relevance of this work, but with who should pay for it. This might be more appropriate as part of a more collaborative project that would include specific assessment of a potential problem for resident and anadromous fish.

ProjectID: 21019

Fifteenmile Subbasin Water Right Acquisition Program
Sponsor: OWT
Short Description:
Acquire 2 cfs of existing Fifteenmile Creek Subbasin water rights on a voluntary basis and transfer to instream water rights under Oregon state law; target acquisitions to maximize fulfillment of habitat objectives for instream flows.
Subbasin: Fifteenmile
Comments:
Fundable only if a response is provided that describes how monitoring and evaluation will be provided that accesses the benefits to fish and wildlife from the water acquisition. This proposal was highly supported by the reviewers. It complements the other work in the subbasin. The Oregon Water Trust has a track record in these acquisitions, and the proposal demonstrates appropriate coordination with other agencies to ensure that the rights acquired are beneficial to fish. As stated above, the monitoring and evaluation, especially ecological aspects, needs to be strengthened and better explained and part of the overall monitoring in this watershed. It may be that other agencies will accomplish aspects of monitoring and evaluation, but the programs should be explicitly identified in the proposal and endorsements from the agencies should be provided.

ProjectID: 199801900

Wind River Watershed Restoration
Sponsor: UCD,USFS,USGS-CRRL,WDFW
Short Description:
Restore habitat within the Wind River subbasin to support healthy populations of wild steelhead
Subbasin: Wind
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. The project anticipates Hemlock Dam removal and the restoration of considerable habitat to the access of anadromous salmon. It is a large, ambitious, well-coordinated restoration project, but the proposed project is deficient in evaluation and monitoring.

1. Despite progress in habitat restoration there is no evidence that fish numbers are increasing.

2. Interannual variability will mask underlying change in the proposed monitoring approach more than it would in an approach entailing comparison studies of treated and untreated watersheds. In this subbasin (and elsewhere) the major limitation on

salmon productivity has been demonstrated to be in the smolt-adult life stage, and not the egg-smolt stage, so it is necessary to incorporate life stage monitoring into the plans. Such monitoring may not be necessary everywhere, but an index management system should be included in a Basin-wide evaluation plan, i.e., collectively select monitoring sites (watersheds) for comparison of rehabilitation treatment/no treatment and consider ther response variables for intensive monitoring (e.g., smolts) versus routine monitoring (e.g., snorkle counts of juveniles in representative sections). See comments under General Issues. Nonetheless, it is wise to increase freshwater capability and survivals. Can production from sections treated be compared to untreated sections, including a before-and-after comparison?

3. The proposed costs for monitoring juvenile fish and smolts need to be further justified by providing detail of the approach.

ProjectID: 21010

Feeding, growth, and smoltification of juvenile steelhead infested with the ciliated protozoan, Heteropolaria lwoffi
Sponsor: USGS-CRRL, USFWS
Short Description:
Infestations of Heteropolaria lwoffi on the body, eyes, and gills of wild juvenile steelhead may interfere with feeding success, growth, and smoltification, lowering parr to smolt and smolt to adult survival of fish in the Wind River subbasin.
Subbasin: Wind
Comments:
Do not fund. A response is not warranted. Compelling evidence that the infestations are limiting salmon production is lacking in that smolt production has increased over the years that the infestation has been documented. There is no indication of the extent of the infestation in salmon populations. There is no indication of lethality or of a proposed study of lethality. There is no indication of the actions that might be taken if infestations are limiting salmon productivity. This project would be better focused on the natural populations rather than on laboratory studies (Why has there been infestation on parr, but not on smolt?) An appropriate study would probably be accomplished in less than four years, would be incorporated into regional fish pathology programs, and would be pertinent to subbasin limiting factors. If in fact this is a significant health problem, a different project should be proposed that focuses on the natural populations.

ProjectID: 21024

Evaluate Hatchery Reform Principles
Sponsor: NMFS
Short Description:
Investigate implementation potential of conservation hatchery principles at production hatchery scale using NATURES raceway habitat rearing, anti-predator conditioning, and growth modulation in a statistical design allowing partitioning of effects.
Subbasin: Wind
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. Clarify and resubmit in response review.

The uncertainty about the project design and the power analysis precludes us from currently recommending funds for this proposal. The basin should consider what evaluation standard should be applied to these comparative studies. For example, past studies have examined survival for a short period or migration distance downstream. However, the ultimate measure of success must be the return rate of adults. Modest increases in juvenile survival won't be a major gain in the Basin unless they lead to substantially greater increases in SARs … (e.g., a 25% increase in a 1% SAR is still only 1.25%; not enough to resolve our problems). Before any major changes in procedures are endorsed, we need to be realistic about our expectations from these tools.

The design of the intended 'experiment' needs to be clarified, as the presentation of the experimental design during the site visit was quite different than that described in the proposal. Interactions were dropped (a mistake we think) and the power analysis was not completely explained. The proposal (but not the presentation!) described a 2X2 treatment experimental design that seems appropriate to examine the treatment effects of bottom substrate and predator avoidance. The approach is also used to examine the effects of controlled temperatures and water source (spring water) versus ambient temperatures and river water. In many cases preliminary data support survival advantages by smolts reared under one of the NATUREs environmental conditions. It will be most interesting to see if those trends continue with a larger scale study and to try to quantify any survival advantage of multiple factors and their interactions. There is a lot of interest in the region to determine if NATUREs is a viable tool. The methods do not describe where detections are to occur.

A long history of this project is described. Why has there been so little peer review of primary results? Most publications seem to be reviews of the good ideas of NATUREs, not publications of results. Why isn't this group involved with Beckman and his colleagues who have published pertinent results on growth patterns and SARs? Why aren't they part of this study's design team? Elements of NATUREs haven't been studied in designs that isolate effects and interactions. To date, NATUREs has been a potpourri of gravel bottom, christmas trees, arbitrarily chosen culture densities, diets, etc. Apparently, the only benefit has been darker coloration's protection immediately (hours) after release in clear streams where birds are present. None of the rest of it has been

tested in isolation or interaction with other elements. So the design here is to test the potpourri. We still won't know which element is significant.

Despite the concerns expressed above, this research proposal addresses timely and important questions central to hatchery reform in the Columbia River Basin. The project sponsors collectively have an impressive research and publication background – and have been diligent about publishing results from many of their previous studies. The efficacy of hatchery reform and the potential for reform that exists in many older production facilities are critical questions in the basin. The sponsor's commitment to rigorous research and their willingness to seek peer-review scrutiny of this work is commendable. One of the reviewers questioned whether Carson Hatchery is the best situation to test the NATUREs theory; perhaps the new Nez Perce tribal hatchery, under construction, will be a more appropriate facility.

ProjectID: 21009

Assess current and potential salmonid production in Rattlesnake Creek associated with restoration efforts
Sponsor: UCD, YN, USGS
Short Description:
Address a unique opportunity to document habitat conditions and fish population status within the Rattlesnake Creek watershed prior to major habitat restoration activities and before Condit Dam removal and the reintroduction of anadromous salmonids.
Subbasin: White Salmon
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. This appears to be a good opportunity for proposers to take full advantage of the opportunity to study the anadromous – resident fish interactions with the removal of the dam. This is a very well written proposal that presents good justification for the documentation of pre-restoration work and the benefit of that work in guiding the direction of restoration. The proposal is comprehensive, including a wide range of tasks. The discussion of limiting factors was, however, weak and generic and did not demonstrate a strong understanding of the system.

Potential information transfer needs to be better described. Costs for assessment and prescription appear very high, compared to other areas, and need fuller justification. The proposed cutthroat trout survey work seemed redundant with that proposed by proposal #21012.

Also, what are the risks to the cutthroat trout population and other resident salmonids following dam removal, and how will those risks be dealt with?

ProjectID: 21033

White Salmon River Watershed Enhancement Project
Sponsor: UCD
Short Description:
A comprehensive, five year plan aimed to improve fish habitat, riparian and upslope watershed conditions, and land stewardship through direct restorative actions, cooperative work with stakeholders, and promoting education and citizen involvement.
Subbasin: White Salmon
Comments:
Fundable. Further ISRP response review is not needed. They addressed the ISRP concerns from the FY2000 proposal review. This proposal presents a convincing case for the benefits of restoring habitat in the White Salmon watershed, and for the long-term benefits of the education and outreach accomplished through the formation of a watershed council and technical committee. The proposal describes good community involvement with a range of activities – watershed council meetings, trash cleanup, symposium.

Proposers should carefully plan evaluate their M&E (and be prepared to defend its value in future reviews). Specifically, they should improve their monitoring, especially of water quality, so that it will not continue to be done "automatically" but will be designed to be problem-oriented.

Reviewer Comments on the Klickitat Subbasin and the Klickitat Production Project (KFP)

The Klickitat River is one of the longest undammed rivers (95mile long) remaining in the Pacific northwest and is the largest drainage basin (1,350 square miles) within the Gorge Province. The mainstem Klickitat contains two passage impediments for salmon and steelhead. One in the lower river at Lyle Falls (river mile RM 2.2) and the second up-river at Castile Falls (RM 64), but neither of these are blockages to fish passage. Using Mitchell Act funds, the Klickitat Hatchery (RM 42.5) and fishways at Lyle Falls (RM 2.2) were constructed in 1952. The lower couple of miles in the mainstem pass through a narrow rock cut and provide one of the few remaining dipnet fishing opportunties for Tribal fishers in the Columbia Basin. “It holds special significance as the one remaining site where Yakama fishers have the opportunity to fish year around using traditional dipnet and jumpnet gears.”

The watershed supports a diversity of fish and wildlife. Spring chinook, summer and winter steelhead are endemic to the system. Summer chinook have been detected via electrophoretic surveys (Marshall 2000, in review) but status uncertain. Fall chinook were not know in the basin but lower Columbia River “Tule” stock were introduced in 1946. Fall chinook production was switched to upper river Brights in 1986. Similarly, coho salmon were not present until the early 1950s when lower Columbia River hatchery fish were released. Resident trouts in the Basin include rainbow, resident and adfluvial bull trout in upper basin, brook trout and resident and coastal cutthroat. However,

resident cutthroat may not exist in the Basin and the present status of the coastal cutthroat is unknown. Brook trout were introduced in the late 1970s and now naturally reproduce in the upper river tributaries. Pacific lamprey are known to utilize the river up to RM57.

The Subbasin summary identified several threatened or endangered wildlife species within the Klickitat watershed, including Sandhill crane, Western Pond turtle, Oregon spotted frog, Western Grey squirrel, Bald eagle, Northern spotted owl, Canada Lynx, Peregrine falcon, Mardon skipper (small butterfly).

Hatchery production in the Klickitat only involves the one hatchery, but production of fall chinook and coho salmon are brought in from outside facilities. Hatchery HGMPs were provided for spring chinook, fall chinook, and coho salmon but not for steelhead. These plans were incomplete and the steelhead plan needs to be provided given the importance the proponents placed on supplementing production of this endemic species. Levels of production identified in the plans were:
1) spring chinook release targest 500,000 to 600,000 yearlings from an endemic stock to be used to supplement natural production,
2) "Bright" fall chinook releases of about 4 million smolts intended for mitigation of Tribal and non-tribal harvest; no escapement goal was stated for the return of these fish to natural spawning areas,
3) coho salmon release of 1.35 million smolts from Lewis R hatchery and to be acclimated in ponds along the Klickitat systems, production is intend for harvest mitigation and no escapement goal was provided.

Although no HGMP was provided, our understanding is that hatchery production of summer steelhead will be intended to supplement natural production of these fish. Further, although comments were made about the value placed on summer chinook, no reference was made about enhancement of this race.

While the subbasin summary was important as background material for this review, the review committee did identify several topics that would have strengthened the presentation. For example, the season hydrograph, run timing of the races, basic data for stock assessments (catch, escapements, age structure), the basis of management goals, and a basis for prioritizing habitat issues. In the absence of quantitative stock assessments, the proposals fail to justify technically the need for the projects presented. For example, what is the basis for the numbers of hatchery fish to be released?

There was not evidence of a Watershed Council presence in the subbasin and a watershed assessment plan was not incorporated in the summary. As a comparison, we note that the Hood River basin had a strong and capable watershed council presence.

In reviewing these proposals and during interviews, the review committee was concerned about the use of the term "supplementation" which was important in justifying several proposals. The understanding by the Yakama Nation of "supplementation" seems at variance with the orthodox definition, i.e. 'jump starting natural reproduction of a native stock by temporary hatchery reproduction.' Our understanding of 'supplementation' in

the Klickatat proposals seems to be the use hatchery production to support harvests while encouraging natural spawning in an aggregate population of hatchery- and wild-spawners. Again this interpretation is strengthened due to a lack of management goals for the natural population. This leads to the paradoxical tactic of increasing spring chinook smolt releases — the apparent rationale being that 'in order to maintain present harvest and have natural spawning too we'll have to increase smolt releases and rely on a predictable SAR consistent with those of recent history". Such a tactic fails to consider density dependence between salmonid smolts (in the river, Bonneville pool, or lower Columbia River) as a limiting factor on the productivity of natural populations. The review panel would encourage the proponents to establish their management goals, phase in hatchery production, and evaluate how to achieve their apparent goals of sustaining catch in the river (established at a sustainable terminal harvest rate), and to develop the monitoring programs necessary to learn from their efforts.

One specific point of confusion during our discussions was the genetic relatedness of hatchery and natural populations of spring chinook and steelhead presently in the Klickitat. Following review of material from A. Marshall and C. Busack (WDFW, Olympia, WA) our understanding of these relationships are:

1) Klickitat spring chinook are genetically different from summer chinook and fall chinook sampled from the Klickitat river;
2) Klickitat spring chinook sampled from the hatchery are different from those sampled from the natural spawners. As a comparison, hatchery springs versus natural springs were as different as summer chinook versus fall chinook;
3) Naturally spawning Klickitat summer steelhead consistently differed from Skamania Hatchery steelhead sampled. Klickitat summer steelhead originally contributed to the development of the Skamania steelhead broodstock, but differences exist between them; and
4) Sampling of Klickitat winter steelhead has been inadequate for conclusions.

Point (2) differs from a statement in the subbasin summary (page 7) but that statement was based on a 1990 report.

Recommendation on the four YKFP Artificial Production projects:
ProjectID: 198811525
ProjectID: 199701725
ProjectID: 198812025
ProjectID: 199506325

Recommendation: Fundable only if response adequately address the ISRP's concerns. Resubmit proposals on KFP see comments.

The review panel is fully aware that the KFP is being isolated from the YKFP to accommodate the provincial review process and that the proposal organization used is consistent with the four budgetary items included in the proposal template (Part 1). However, from the perspective of a scientific review, it would more informative if the

Klickitat Fisheries Program was structured by major program activity rather than budget item. In the present structure, the four interrelated proposals don't allow for assessment of individual project activities and progress, since aspects of major technical programs or activities are included in more than one proposal and can not be reviewed as one comprehensive activity. For example, the M&E proposal includes activities for fish production or habitat programs, but the association of M&E costs associated with one technical activity may not be evident.

As examples of core scientific programs, the KFP may be grouped into Stock Assessment and Production, Habitat Assessment and Restoration, and a core administrative program that included administrative support, data management and GIS staff, watershed assessments, and policy development. Within each of the programs, the costs for each budget component in Part 1 could be specified and objectives, hypotheses, methods, results, and future proposal requests combined for a comprehensive and informative proposal.

Sub-programs within each major program may facilitate administration but the activities within any sub-program would have to be consistent with the objectives of the parent program. For example, the Klickitat Hatchery could be included under a Salmon Assessment and Production program but the production goals of the hatchery program and data for monitoring would be consistent with an overall goal of sustained natural production, achieving spawning goals, and meeting catch objectives established by the managers. Frequently in the present proposals, the rationale for activities was that some other planning document, etc required them. The scientific interest, however, is how a proponent proposes to meet an obligation in a technically sound manner, how to monitor and assess, and what progress has been evident.

In the absence of a set of technically coherent proposals, the review panel is required to interpret the intention or value of major program cost. This is obviously not a desirable situation or basis for allocation of funding over three years. Consequently, this panel recommends that the YFP restructure these proposals and clarify actual project activities are associated with funds requested.

It is notable that in the ISRP's June 15, 1999 report, they recommended that the entire set of proposals included in the umbrella program (20510) should be reorganized so that the *scientific approach to achieving the stated objectives* could be evaluated. This recommendation applied to all proposals in the Umbrella (including projects 8811525, 8812025, 9506325, and 9701325, which are in this response review). In addition, the ISRP listed specific questions or concerns for each project. The funding recommendation at that time was to fund at an appropriate base level until a programmatic review can be completed.

ProjectID: 198811525

Yakima/Klickitat Fisheries Project Design and Construction
Sponsor: YN
Short Description:
Design/Construction:
1. Klickitat: O & M facility and Lyle Trap
Subbasin: Klickitat
Comments:
Recommendation for the set of KFP proposals: Fundable only if the response adequately addresses the ISRP's concerns. Resubmit proposals on KFP see comments.

The decision has apparently been made earlier on the Lyle Falls fishway construction, this proposal completes the planning stage towards construction, but also includes construction cost. The possible long-term benefits appear to justify the high cost, but further investigation on feasibility is justified (see project 21004). From a scientific perspective, it is necessary to conduct the research on fish passage (as in #21004) before investing these funds in construction. If you build it, they may not come.

ProjectID: 198812025

Yakima/Klickitat Fisheries Project (YKFP) Management, Data and Habitat (Klickitat Only)
Sponsor: YN
Short Description:
This proposal provides support for Yakama Nation policy, management and administrative activities related to all YKFP operations in the Klickitat River Basin, including all M & E, O & M and Design and Construction activities.
Subbasin: Klickitat
Comments:
Recommendation for the set of KFP proposals: Fundable only if the response adequately addresses the ISRP's concerns. Resubmit proposals on KFP see comments.

This proposal is basically for program management and facilitation and costs were estimated as 30% of past funds in the YKFP. This proposal contains some very strong statements about program objectives. For example, the technical background states that

"The YKFP is a supplementation project designed to use artificial propagation in an attempt to maintain or increase natural production while maintaining long-term fitness of the target population and keeping ecological and genetic impacts to non-target species within specified limits." The paper then cites RASP (1991).

Under Management Philosophy, it states:

"The YN employs an adaptive management policy in order to achieve YKFP goals and to protect the basin's fishery resources from unforeseen, adverse impacts. Adaptive

management is the conscious decision in favour of action designed to increase understanding as opposed to inaction in the face of uncertainty."

Technically, we fully support such statements but how are they implemented in the proposals presented? This situation may exemplify the base for the panels above recommendation to re-structure the program along lines of activities.

In general, however, this proposal is not amenable to scientific review.

ProjectID: 199506325

Yakima/Klickitat Fisheries Project Monitoring And Evaluation (Klickitat Only)
Sponsor: YN
Short Description:
Collect and integrate baseline information on habitat, demographics and life history to design comprehensive enhancement plans. Monitor production, harvest, gentic and ecological impacts of Klickitat programs to guide adaptive management.
Subbasin: Klickitat
Comments:
Recommendation for the set of KFP proposals: Fundable only if the response adequately addresses the ISRP's concerns. Resubmit proposals on KFP see comments.

Among the four projects within the YFP this proposal provided the best description of the project need and technical background. Task and objective descriptions were good, but it was not clear whether the assumptions were assumptions that were being tested by the project or assumptions that will not be tested but are necessary to infer from the project's results. The proposal encompasses a large number of objectives, but it is not always clear how they fit together, or were chosen. The proposal lists but does not develop an overarching strategy to explain why these particular activities were chosen or how all of these results are to be integrated to make an assessment of overall success/failure. The Panel again suggests that these limitations reflect the structure of the four proposals.

There is, however, greater need to consider uncertainties and risks associated with current low survivals (are populations viable?). The monitoring costs are very high, for a long period, and do not include a control/treatment experimental approach. How is this consistent with the commitment to adaptive management?

ProjectID: 199701725

Yakima Klickitat Fisheries Project Operation and Maintenance (Klickitat Only)
Sponsor: YN
Short Description:
Operation and maintenance of YKFP facilities in the Klickitat subbasin.
Subbasin: Klickitat
Comments:
Recommendation for the set of KFP proposals: Fundable only if the response adequately addresses the ISRP's concerns. Resubmit proposals on KFP see comments.

The need for O & M funds is clearly an essential part of the overall program but this proposal provided only minimal background or technical detail. Substantial increases in program cost can be expected if the Lyle Falls facility proceeds, the Castile Falls passage is undertaken, and KFP assumes management of the Klickitat hatchery. We noted that out-year costs for operation do not yet include additional cost for FTE's.

This proposal is again not amenable to scientific review. The budget can not be assessed by activity since costs were not attributed to objectives in section 6/10. Note that costs for this proposal begin in 2002.

ProjectID: 199705600

Lower Klickitat Riparian and In-Channel Habitat Enhancement Project
Sponsor: YN
Short Description:
Subbasin: Klickitat
Comments:
Fundable only if response adequately address the ISRP's concerns; e.g. activities and costs are specified and expected benefits associated with these actions are projected. The panel recognizes that a lower level of funding may be necessary to conduct this initial work.

This proposal provided useful background information about the general problems affecting fish in the Klickitat watershed and a good general description of the need for the different project elements. But while it provides the technical background, rationale, and past history of activities, it provides little information on what will be done with the requested funds (for example, the major cost is for sub-contracts, but for what?). The objectives stated are very general and there was not indication about how priority activities would be determined. Beyond the general descriptions, the proposal does not offer a rationale for how the particular restoration activities were identified. At present, this proposal appears to be a placeholder (for $$) for projects that were not justified in the proposal. What is the budget based on and how do these M&E costs relate to those in project #199506325?

The absence of a Watershed Assessment Plan, as identified in our general comments, may have contributed to this very general presentation. Further, there is no information presented on the current stage of progression of existing programs.

It is difficult to reconcile support for ongoing restoration work (for which no rationale is given) in the absence of a comprehensive watershed assessment. If watershed assessment still needs to be completed then how can specific restoration measures be identified and a budget developed? If results of prior assessment work are available, then they should be presented to provide a rationale for the ongoing habitat work. It is not clear what level of watershed assessment has been done in the basin and how the results have been incorporated in proposal. Watershed inventory and monitoring are referred to in the objectives but a completed assessment was not identified.

The monitoring design and performance measures are not clear. How will success be determined? The adequacy of the budget cannot be evaluated because the limiting factors and priority restoration needs (and therefore reasonable costs) are not defined. The use of land acquisition is potentially very important but was not described in any detail.

ProjectID: 199405400

Bull trout population assessment in the Columbia River Gorge, WA.
Sponsor: WDFW
Short Description:
Determining the status of bull trout populations and developing and implementing protection and recovery plans will be critical for their continued survival. This porposal provides the basic data to develop these plans.
Subbasin: Klickitat
Comments:
Fundable. No further ISRP response review is needed. This project applies an agreed sampling protocol and is an integral part of a broader inventory of Bull trout. Given the listing of this species and the difficulty in assessing their status, this project must be considered a high priority.

Contrary to the project number, this is a new program begun with BPA funds in March 2000. Columbia River populations of Bull trout were listed as “threatened” under the ESA in 1998, and bull trout in the White Salmon and Klickitat as distinct sub-populations within the Columbia population segment. Obviously there is an understandable requirement to conduct surveys such as these and this proposal is part of a larger inventory, the data from which is all be collated via the Rocky Mountain Research Station. Sampling methods apply an agreed AFS protocol developed to assess Bull trout due to their fragmented and small populations. Objectives of the program were portrayed in a logical clear sequence and each has a stated task and method. Within the Basin, the proposal provides good evidence of interaction with agencies.

While we support this investigation and the application of a sampling protocol, the nature of bull trout populations and the apparent difficulties in locating populations lead us to

discuss two additional suggestions. If the population are fragmented and small, encountering them during a snorkel survey (protocol method) is likely to be a rare event. However, the investigators could experiment with low-light videography at fixed locations/habitats were bull trout were known to exist or are suspected. Such a fixed station could greatly increase the numbers of hours sampled as opposed to the distance covered during a snorkel survey. Secondly, the review panel heard of two bull trout recoveries in cool water refugees along the north shore of the Bonneville Pool. These observations were from sport fishermen who by chance encountered these fish. If these investigators need to locate spawning and rearing populations of bull trout, could a targeted program to net or sport fish for adfluvial bull trout in these cool refugees provide a means to capture pre-adults for radio-tagging? Shore-based fixed monitors could detect entrance of the tagged fish and portable monitors could subsequently be used to monitor distribution within rivers. Given the difficulty in detecting this species, we recommend that the investigators examine several means to assess their status.

A significant concern identified by the review panel was the presence of brook trout in the Klickitat River and the possible competition and/or introgression with bull trout. We strongly recommend this aspect of investigation be incorporated in the genetic analyses and habitat surveys.

ProjectID: 21004

Determination of difficult passage areas by examining swimming activity of upriver migrating salmon implanted with EMG transmitters
Sponsor: PNNL
Short Description:
Examine the swimming activity and energy use of salmon and steelhead as they ascend areas of poor fish passage (Lyle and Castile Falls) to identify areas which provide special difficulty.
Subbasin: Klickitat
Comments:
Fundable only if the response adequately addresses the ISRP's concerns. The reviewers strongly support a 1 to 3 year program. This project is innovative. The proposal would be appropriate for submittal in the innovative process, as is, because of the proposed sequencing of actions it is not well integrated with the subbasin effort.

While this is a very brief proposal, it is innovative and provides an opportunity to critically examine the fish passage problems identified in the Klickitat River. The stated objectives are actually tasks, rather than target achievements for the work; and are very limited relative to the potential information to be gained from these tagged salmon (probably because the proposal is submitted for only one year). The review panel supports the one-year examination, but would strongly recommend re-submission of the proposal to include funds for tracking the fish up-river. Such a program would identify rate of movement, holding areas, and ultimately spawning locations.

In a logical progression of project development, however, there is an obvious concern about the submission of this project and the KFP request for $3.2 million to build a fishway. If there is concern about the degree of fish passage problems in the Klickitat, then this work should be undertaken before KFP proceeds with major expenditures on fish passage, etc. However, if at Lyle Falls, the decision has been made to proceed with construction of the fishway and broodstock capture site, then this investigation could be moved up-river to Castile Falls. From our discussions, we concluded that there was a definite need for this project to be more integrated with the KFP projects. For example, if the results of this study show that passage is not a problem at this site, will the construction projects at the falls be altered?

ProjectID: 21026

Inventory and Restore Beaver and Beaver Habitats
Sponsor: YN
Short Description:
Inventory and restore beaver populations and habitats to the upper portion of the subbasin to restore the array of functions that beaver provide for the watershed.
Subbasin: Klickitat
Comments:
Fundable only if the response adequately addresses the ISRP concerns. This proposal should not be funded as an individual project. This should be one of the tools among the suite of tools used for watershed rehabilitation in the subbasin. Consider integrating this proposal with #199705600 Riparian and In-Channel Habitat Enhancement Project.

From the perspective of ecosystem function and as a means to restore riparian wetland function along streams, this is an interesting proposal. This proposal does a reasonable job outlining why the restoration of beaver habitat would be beneficial to watershed function, but its approach is less clear. The primary uncertainty is how it builds on previous beaver restoration work (earlier projects listed), what it will do to complement existing work, and why beaver have not re-colonized naturally. The objectives and methods need to be presented in more detail. For example, how will the historical database be used, and what are the limits on the relevance of historical data under current conditions? How will the prioritization of habitat restoration be done? How will the results of these introductions be assessed and against what comparative basis?

The review panel questioned the reason for introduction since the salmonid most likely to benefit from these habitats are coho salmon … which do not use the upper Klickitat drainage. Further, it is very possible that beaver ponds and the associated habitat would encourage brook trout expansion which is likely not desirable.

Finally, why is beaver restoration related to “fully mitigating for wildlife losses from hydropower”? The loss of beaver is not likely to be closely associated with the hydrosystem, is this proposal then appropriate to this funding source? If the re-introduction is proposed as an ecosystem restoration study or technique, then we can accept that argument. However, if beavers are a means to restore riparian wetlands and store water, then the cost of such programs are appropriately included in the KFP habitat

restoration projects. The two proposals will be linked already since mapping and habitat assessment are needed to determine sites for introduction.

ProjectID: 21027

Inventory and Assess Amphibian Populations in the Klickitat Subbasin
Sponsor: YN
Short Description:
Conduct an initial assessment of amphibian populations primarily within the previously unsurveyed Yakama Reservation. Use data to identify critical habitat areas and establish baseline for effectiveness monitoring of restoration efforts.
Subbasin: Klickitat
Comments:
Fundable for 3 years, instead of the five years proposed, but only if the response adequately addresses the ISRP's concerns. They need to define the sampling procedure in more detail and use established protocols.

This is an innovative proposal that outlines a logical sequence of tasks to achieve the population assessments and develop ecological (riparian) indicator species. Objectives are presented in a logical sequence and involve the establishment of sampling protocols to establish repeatable surveys. Some reviewers felt these protocols were established but during the stated consultations with "experts" these sampling processes will be resolved. There is a laudable amount of scientific consultation and review throughout. The plan to send annual reports out for scientific review is excellent but we also suggest a definite plan to present results at meetings and through journal articles, rather than "may be."

To develop amphibians as ecological indicators, consideration must also be given as to what "ecosystem" they are indicative of? If the interest is in indicators of quality riparian wetlands, then what are the amphibians being measured against and how will standards for the indicators be developed? If amphibians are to be used as indicators of some higher order ecosystem, for example, spring chinook in the upper Klickitat, then the investigator must establish that the amphibian species are truly indicators of the environment important to spring chinook. We can not simply presume that a species is an indicator for the habitat needs or status of another species, demonstrating these linkages are essential in establishing the use of indicator species.

ProjectID: 21028

Klickitat Watershed and Habitat Enhancement Project
Sponsor: YN
Short Description:
This project will compliment ongoing habitat enhancement projects throughout the Klickitat basin by protecting parcels of high-quality habitat and restoring degraded upland and riparian habitat via acquisition, conservation easements and long-term lease.
Subbasin: Klickitat
Comments:
No decision, this project is not amenable to scientific review. This could have significant fish and wildlife benefits but without knowing the potential purchases it is impossible to know if the potential will be realized. Further, the presenter noted that the project was not integrated with the watershed assessment and habitat rehabilitation efforts in the basin. Support for this type of proposal for land acquisition is more a policy decision than science, but given that:
a) the proposal has not been integrated with other Klickitat proposals (as noted above),
b) it lacks specific actions to evaluate, and
c) if this panel needs to be consistent in providing recommendations across proposals; we would advise NOT to fund this proposal on the basis of this ISRP review process.

The proponents need to reference a watershed assessment and described a fully developed plan with subbasin level goals and objectives that justify the purchases.

If this trust fund principle was applied across all the basins it would use up all the BPA funds. A notable benefit to this process appears to be that in the Yakima this approach has drawn in cost-sharing contributions. This is not science but land management; nevertheless, likely an important aspect of the rehabilitation work required. There is clearly merit in having funds available to opportunistically purchase land when it becomes available, but should this advantage be provided to only one watershed?

Attachment 1 - ISRP Review Criteria

1. Technical and Scientific Background
Is there an identified problem related to fish and wildlife in the Basin? Does the proposal adequately explain (with references) the technical background and logical need to address the problem to benefit fish or wildlife? (0=no explanation; 1=poorly defined problem; 5= adequately defined problem; 10=highly persuasive, clearly defined problem) **SCORE (0-10)_____**

2. Rationale and Significance to Subbasin Summary and Regional Programs
Does the proposal demonstrate a clear relationship to specific objectives of the subbasin summary and specific parts of the Fish and Wildlife Program, NMFS Biological Opinions or other plans? (0=no explanation; 1=poorly defined problem, not associated with Programs, 5= significance to subbasin summary and regional plan; 10=well associated with a high priority in a subbasin summary and regional plan.) **SCORE (0-10)_____**

3. Relationships to Other Projects
Does the proposal put the work into the context of other work funded in the FWP and described in the subbasin summary? Does this proposal include collaborative efforts with similar projects, even if not part of an overall joint plan? If this proposal is intended as an integrated component of a set of studies, is the rationale for that set and any time sequencing explained and documented? (0=no effort to document or collaborate, 5=minimal linkage or rationale, 10=strong collaborative effort with logical allocation of effort and linkages described, or full rationale why linkages are not appropriate).
SCORE (0-10)_____

4. Project History (for ongoing projects)
Is the history of the project adequately described, including the original need for the project? Does the proposal demonstrate that past actions have resulted in achieving project objectives? Has there been adequate monitoring of project effectiveness? Are these results described in biologically measurable terms and if not does the proposal describe why not and provide other results (e.g. peer reviewed articles)? Does the project describe the adaptive management implications from past results whether successes or failures? Is the continued need for the work justified? Are methods and procedures for collection of past monitoring data (i.e., meta-data) adequately described? Are past results (data, analysis, etc.) adequately communicated or distributed for benefit of the region? (0=no effort to document results; 1=minimal effort to document what appear to be poor results with no description of management implications; 5=some effort to document results, management implications, and some potential for benefits; 10=strong reporting and evaluation of results which have guided project direction with demonstrated or a strong potential for benefits to fish and wildlife.)
NEW PROJECT (SECTION NOT APPLICABLE)____ **SCORE (0-10)_____**

5. Proposal Objectives, Tasks, and Methods
A. Objectives
Does the proposal have clearly defined and measurable objectives (whenever possible in terms of measurable benefits to fish and wildlife) with specific timelines? Are the objectives tied to those in the subbasin summary and FWP? (0=no explanation; 1=poorly explained with poor match to subbasin objectives, explained as tasks where could be in biologically measurable terms; 5=adequately explained in terms of measurable benefits to fish and wildlife with match to subbasin objectives and with timelines; 10=clearly explained with close match to subbasin objectives and when possible stated in biologically measurable terms with specific timelines.)
SCORE (0-10)_____

B. Methods
Are the methods adequately described and appropriate, i.e., based on sound scientific principles? Does the project employ the best available scientific information and techniques? Is the project or experimental design reasonable and defensible in techniques and resources? (0=no explanation or scientifically unsound;

1=poorly explained or poor techniques; 5=adequately explained, sound techniques; 10=clearly explained with best available, or even innovative, scientific information and techniques)

SCORE (0-10)_____

C. Monitoring and Evaluation

Does the proposal include provisions for monitoring and evaluation of results (in the context of the objectives) that apply at the project level (whether the M&E is provided in this proposal or a directly related project)? (0=no explanation; 1=poorly explained, will not allow for determination if the project met its objectives; 5=adequately explained and will allow for determination if project met its objectives; 10=clearly explained, will allow for determination of success or failure of the project, inform adaptive management decisions, and be applicable to other efforts) **SCORE (0-10)_____**

6. Facilities, Equipment, and Personnel

Are the facilities and personnel appropriate to achieve the objectives and timeframe milestones? (0=no explanation; 1=poorly described or inadequate; 3=reasonable; 5=exceptionally unique personnel and facilities for the work) **SCORE (0-5)_____**

7. Information Transfer (see Part I. Section 1 and methods section)

Does the proposal include explicit plans for how the information, technology, etc. from this project will be disseminated and used? Are methods and procedures for collection of monitoring data (i.e., meta-data) adequately described? Are plans for release and long-term storage of data and meta-data adequate? (0=no explanation; 1=poorly explained and inadequate dissemination given the importance of the information generated; 3=adequate plan for the information generated; 5=excellent plan for the information generated, e.g. included in usable format on regional website, peer review journal)

SCORE (0-5)_____

Benefit to Fish and Wildlife (Proposal as a whole)

Will the proposed project benefit target species/indicator populations, as an individual project or as a critical link in a set of projects? Will the benefits persist over the long-term and not be compromised by other activities in the basin? (0=no benefit; 5=likely benefits but short-term; 10=some benefits that will persist; 15=demonstrated significant benefits that will persist over the long-term)

SCORE (0-15) _____

Will the project effect other non-target species? Does the project demonstrate that all "reasonable" precautions have been taken, based on the best available science, to not adversely affect habitat/populations of native biota? (-10=adverse effect and precautions not taken; 0= no adverse effect; or potential adverse effects and adequate precautions proposed; 5=demonstrated benefits to non-target species, habitat, populations.) **SCORE (-10 to 5) _____**

TOTAL SCORE: Existing Project _____ of 100 New Project ____ of 90

Consistency with Power Act Amendment Criteria:

1) SOUND SCIENCE PRINCIPLES (all proposal)	**(YES/NO) _____**
2) CONSISTENT WITH PROGRAM (criterion 2)	**(YES/NO) _____**
3) BENEFIT TO FISH AND WILDLIFE (all proposal)	**(YES/NO) _____**
4) CLEARLY DEFINED OBJECTIVES AND OUTCOME (criterion 5a)	**(YES/NO) _____**
5) PROVISION FOR M&E OF RESULTS (criterion 5c)	**(YES/NO) _____**

Table of Proposals with ISRP Preliminary Recommendations, Indication if Response Is Needed, and Score Level. Sorted by Province, then Project Number. Includes Page Index.

ProjectID	Title	Sponsor	Subbasin	Preliminary ISRP Rec.	Response Needed	Score Level	Page
The Inter-Mountain Province							
21002	Early life history and survival of adfluvial rainbow trout in the San Poil River Basin	PNNL	San Poil	Fundable	No	1	44
21003	Upper Columbia Subbasin Native Rainbow Population Study	WT	Inter-Mountain	Do not fund	No	3	11
21006	Characterize and Assess Wildlife-Habitat Types and Stuctural Conditions for Sub-Basins within the Inter Mountain Ecoprovince	NHI	Inter-Mountain	Fundable only if response is adequate.	Yes	2	12
21008	Evaluation of the Banks Lake Fishery	WDFW	Lake Roosevelt	Fundable	No	1	35
21017	Implement Wildlife Habitat Protection and Restoration on the Coeur d'Alene Indian Reservation: Hangman Watershed.	Cd'A	Spokane	Fundable only if response is adequate.	Yes	1	39
21018	Implement Fisheries Enhancement on the Coeur d'Alene Indian Reservation: Hangman Creek	Cd'A	Spokane	Fundable only if response is adequate.	Yes	1	40
21020	Monitor and Enhance the Lakes and Streams of the Spokane Indian Reservation	STOI	Lake Roosevelt	Fundable only if response is adequate.	Yes	2	36
21021	Ford Hatchery Improvement, Operation And Maintenance	WDFW	Lake Roosevelt	Fundable	No	1	32
21022	Evaluate Fish Habitat on the Middle Spokane / Little Spokane Rivers	Spokane County Public Works	Spokane	Do not fund	No	3	38
21023	Determine causes of mule deer population declines in the IM Columbia Basin: a test of the "apparent competition " hypothesis	WSU	Inter-Mountain	Fundable only if response is adequate.	Yes	2	14
21025	Intermountain Province Resident Fish Symposium	LRF	Inter-Mountain	Fundable	No	1	16

Table of Proposals - see page 4 for background on recommendations and score level (1 = high score; 2 = medium; 3 = low).

ProjectID	Title	Sponsor	Subbasin	Preliminary ISRP Rec.	Response Needed	Score Level	Page
21029	A cooperative approach to identifying the role of forage quality in affecting physical condition….of mule deer in north central Washington.	WDFW	Inter-Mountain	Fundable only if response is adequate.	Yes	2	15
21030	Forest Carnivore Surveys for Spokane Subbasin	WDFW	Spokane	Do not fund	No	3	41
21031	Land Use Analyses of Spokane County	WDFW	Spokane	Do not fund	No	3	41
21032	Eastern Washington Survey for Townsend's big-eared bat	WDFW	Inter-Mountain	Do not fund	No	3	13
21034	Colville Tribes Restore Habitat for Sharp-tailed Grouse	CCT-FWD	Lake Roosevelt, Lake Rufus Woods, San Poil	Fundable only if response is adequate.	Yes	1	17
21035	Phalon Lake Native Redband Rainbow trout Trap Construction and O & M	WDFW	Lake Roosevelt	Do not fund	No	3	18
198503800	Colville Tribal Fish Hatchery	CCT	Lake Roosevelt, Lake Rufus Woods	Fundable	No	1	24
199001800	Evaluate Rainbow Trout/Habitat Improvements Of Tributaries To Lake Roosevelt	CCT	San Poil	Fundable only if response is adequate.	Yes	1	42
199104600	Spokane Tribal Hatchery (Galbraith Springs) Operation and Maintenance	STOI	Lake Roosevelt	Fundable	No	1	25
199104700	Sherman Creek Hatchery Operations and Maintenance	WDFW	Lake Roosevelt	Fundable	No	1	29
199106200	Spokane Tribe of Indians Wildlife Mitigation Project	STOI	Lake Roosevelt	Fundable only if response is adequate.	Yes	1	32
199204800	Hellsgate Big Game Winter Range Operation And Maintenance Project	CCT-FWD	Lake Roosevelt, Lake Rufus Woods	Fundable	No	1	33

ProjectID	Title	Sponsor	Subbasin	Preliminary ISRP Rec.	Response Needed	Score Level	Page
199404300	Lake Roosevelt Fisheries Evaluation Program	STOI	Lake Roosevelt, Lake Rufus Woods	Fundable only if response is adequate.	Yes	3	27
199500900	Rainbow Trout Net Pen Rearing Project	LRDA	Lake Roosevelt	Fundable	No	1	29
199501100	Chief Joseph Kokanee Enhancement Project	CCT	San Poil, Lake Rufus Woods	Fundable	No	1	42
199502700	Develop and Implement Recovery Plan for Depressed Lake Roosevelt White Sturgeon Populations.	STOI	Lake Roosevelt	Fundable only if response is adequate.	Yes	2	22
199502800	Restore Moses Lake Recreational Fishery	WDFW	Lake Roosevelt	Fundable only if response is adequate.	Yes	3	30
199506700	Colville Tribes Performance Contract for Continuing Acquisition	CCT-FWD	Lake Roosevelt	Fundable	No	1	33
199800300	Spokane Tribe of Indians Wildlife Operations and Maintenance	STOI	Lake Roosevelt	Fundable only if response is adequate.	Yes	1	34
The Columbia River Gorge Province							
21001	Fifteenmile Creek Riparian Fencing / Phsyical stream Survey Project	ODFW	Fifteenmile	Fundable only if response is adequate.	Yes	2	56
21004	Determination of difficult passage areas by examining swimming activity of upriver migrating salmon implanted with EMG transmitters	PNNL	Klickitat	Fundable only if response is adequate.	Yes	2	71
21005	Characterize and Assess Wildlife-Habitat Types and Stuctural Conditions for Sub-Basins within the Columbia Gorge Ecoprovince	NHI	Columbia Gorge	Fundable only if response is adequate.	Yes	2	45

Table of Proposals - see page 4 for background on recommendations and score level (1 = high score; 2 = medium; 3 = low).

ProjectID	Title	Sponsor	Subbasin	Preliminary ISRP Rec.	Response Needed	Score Level	Page
21009	Assess current and potential salmonid production in Rattlesnake Creek associated with restoration efforts	UCD, YN, USGS	White Salmon	Fundable only if response is adequate.	Yes	1	62
21010	Feeding, growth, and smoltification of juvenile steelhead infested with the ciliated protozoan, Heteropolaria lwoffi	USGS-CRRL, USFWS	Wind	Do not fund	No	3	60
21011	Assess the Current Status and Biotic Integrity of the Resident Fish Assemblage in Bonneville Reservoir	USGS/CRRL	Bonneville Reservoir	Do not fund	No	3	47
21012	Evaluate Status of Coastal Cutthroat Trout in the Columbia River Basin above Bonneville Dam	USGS-CRRL	Columbia Gorge	Do not fund	No	3	44
21013	Western Pond Turtle Recovery - Columbia River Gorge	WDFW	Columbia Gorge	Fundable only if response is adequate.	Yes	2	47
21014	Mitigate Streambank Sediment Sources in Fifteenmile Watershed using Bioengineering Techniques	Wasco SWCD	Fifteenmile	Fundable	No	1	57
21015	Riparian Buffers	Wasco SWCD	Fifteenmile	Fundable	No	2	58
21016	Accelerate the Application of Integrated Fruit Management to Reduce the Risk of Pesticide Pollution in Fifteenmile Sub-basin Orchards	Wy'East RC&D	Fifteenmile	Fundable only if response is adequate.	Yes	2	58
21019	Fifteenmile Subbasin Water Right Acquisition Program	OWT	Fifteenmile	Fundable only if response is adequate.	Yes	1	59
21024	Evaluate Hatchery Reform Principles	NMFS	Wind	Fundable only if response is adequate.	Yes	2	61
21026	Inventory and Restore Beaver and Beaver Habitats	YN	Klickitat	Fundable only if response is adequate.	Yes	2	72
21027	Inventory and Assess Amphibian Populations in the Klickitat Subbasin	YN	Klickitat	Fundable only if response is adequate.	Yes	2	73

Table of Proposals - see page 4 for background on recommendations and score level (1 = high score; 2 = medium; 3 = low).

ProjectID	Title	Sponsor	Subbasin	Preliminary ISRP Rec.	Response Needed	Score Level	Page
21028	Klickitat Watershed and Habitat Enhancement Project	YN	Klickitat	No decision. Not amenable to scientific review.	NA	NA	74
21033	White Salmon River Watershed Enhancement Project	UCD	White Salmon	Fundable	No	1	63
198805303	Hood River Production Program - CTWSRO M&E	CTWSRO	Hood	Fundable only if response is adequate.	Yes	2	48 and 53
198805304	Hood River Production Program - ODFW M&E	ODFW	Hood	Fundable only if response is adequate.	Yes	2	48 and 51
198805307	Hood River Production Program: Powerdale, Parkdale, Oak Springs O&M (88-053-07 & 88-053-08)	CTWS and ODFW	Hood	Fundable only if response is adequate.	Yes	2	48 and 50
198811525	Yakima/Klickitat Fisheries Project Design and Construction	YN	Klickitat	Fundable only if response is adequate.	Yes	2	63 and 67
198812025	Yakima/Klickitat Fisheries Project (YKFP) Management, Data and Habitat (Klickitat Only)	YN	Klickitat	Fundable only if response is adequate.	Yes	2	64 and 67
198902900	Hood River Production Program - Pelton Ladder - Hatchery	ODFW	Hood	Fundable only if response is adequate.	Yes	2	48 and 52
199304000	Fifteenmile Creek Habitat Restoration Project (Request For Multi-Year Funding)	ODFW	Fifteenmile	Fundable only if response is adequate.	Yes	2	55
199304001	15-Mile Creek Steelhead Smolt Production	ODFW	Fifteenmile	Fundable only if response is adequate.	Yes	2	56
199405400	Bull trout population assessment in the Columbia River Gorge, WA.	WDFW	Klickitat	Fundable	No	2	70
199500700	Hood River Production - PGE: O&M	PGE	Hood	Fundable only if response is adequate.	Yes	2	48 and 53
199506325	Yakima/Klickitat Fisheries Project Monitoring And Evaluation (Klickitat Only)	YN	Klickitat	Fundable only if response is adequate.	Yes	2	63 and 68
199701725	Yakima Klickitat Fisheries Project Operation and Maintenance (Klickitat)	YN	Klickitat	Fundable only if response is adequate.	Yes	2	63 and 69

ISRP 2000-8 Preliminary Gorge and Inter-Mountain Proposal Review
Table of Proposals - see page 4 for background on recommendations and score level (1 = high score; 2 = medium; 3 = low).

ProjectID	Title	Sponsor	Subbasin	Preliminary ISRP Rec.	Response Needed	Score Level	Page
199705600	Lower Klickitat Riparian and In-Channel Habitat Enhancement Project	YN	Klickitat	Fundable only if response is adequate.	Yes	2	69
199801900	Wind River Watershed Restoration	UCD,USFS,USGS-CRRL,WDFW	Wind	Fundable only if response is adequate.	Yes	2	59
199802100	Hood River Fish Habitat Project	CTWSRO	Hood	Fundable	No	1	54