

INDEPENDENT SCIENTIFIC REVIEW PANEL

Geographic Review Final Report

Evaluation of Anadromous Fish
Habitat Restoration Projects



ISRP 2013-11 | August 15, 2013

Cover design by Melissa Shavlik, Northwest Power and Conservation Council
Photos of frog and Tucannon River by Erik Merrill



Independent Scientific Review Panel

for the Northwest Power & Conservation Council

851 SW 6th Avenue, Suite 1100

Portland, Oregon 97204

www.nwcouncil.org/fw/isrp

ISRP Members

J. Richard Alldredge, Ph.D., Emeritus Professor of Statistics at Washington State University

Robert Bilby, Ph.D., Ecologist at Weyerhaeuser Company

David Heller, M.S., Aquatic Habitat Management and Restoration Consultant, formerly Fisheries Program Leader for the Pacific Northwest Region, USDA Forest Service

Colin Levings, Ph.D., Emeritus Research Scientist and Past Section Head Marine Environment and Habitat Science Division, Department of Fisheries and Oceans, Canada

R. Scott Lutz, Ph.D., Associate Professor of Wildlife Ecology, University of Wisconsin

Robert J. Naiman, Ph.D., Emeritus Professor of Aquatic and Fishery Sciences at University of Washington

Greg Ruggerone, Ph.D., Fisheries Scientist for Natural Resources Consultants

Dennis Scarnecchia, Ph.D., Professor of Fish and Wildlife Resources, University of Idaho

Steve Schroder, Ph.D., Fisheries Consultant and former Fisheries Research Scientist at the Washington Department of Fish and Wildlife

Carl Schwarz, Ph.D., Professor of Statistics and Actuarial Science at Simon Fraser University, Canada

Chris C. Wood, Ph.D., Emeritus Scientist at the Pacific Biological Station, Department of Fisheries and Oceans, Nanaimo, British Columbia, Canada

Scientific Peer Review Group Members

Peter A. Bisson, Ph.D., Emeritus Scientist at the Olympia (Washington) Forestry Sciences Laboratory of the U.S. Forest Service's Pacific Northwest Research Station

Jack Griffith, Ph. D., Consulting Fisheries Scientist, formerly Professor at Idaho State University

William Liss, Ph.D., Emeritus Professor of Fisheries at Oregon State University

Eric J. Loudenslager, Ph.D., Consulting Fisheries Scientist and Adjunct Professor of Fisheries Biology, Humboldt State University, California

Thomas P. Poe, M.S., Consulting Fisheries Scientist, formerly with the U.S. Geological Survey

Staff

Erik Merrill, J.D., Manager, Independent Scientific Review Program, Northwest Power and Conservation Council

ISRP Final Report for the Geographic Review

Contents

Table of Proposals and Recommendations	iii
I. Introduction	1
II. The ISRP Review Process.....	2
A. Review Criteria.....	2
B. Review Steps.....	2
C. Recommendation Categories	3
III. Programmatic Comments	6
A. Introduction: A Retrospective Evaluation of Results.....	6
B. Implement Research, Monitoring, and Evaluation at a Regional Scale.....	10
C. Develop a Strategic Framework for Restoration	15
D. Refine Future Review Process	17
E. Evaluate and Improve Umbrella Projects	18
F. Learn from Productive Coordination/Partnerships	19
G. Improve Workforce Support and Development	21
H. Expand the Conservation Reserve Enhancement Program (CREP).....	21
I. Provide Long-term Maintenance of Fish Screens and Livestock Fences	23
J. Explore M&E Opportunities at Diversion Fish Screen Installations	23
K. Streamline NEPA Compliance	24
L. Consider Forest Health.....	24
M. Efficiently Use Large Wood.....	25
N. Evaluate and Control Pesticides and Toxic Chemicals	25
O. Improve Noxious Weed Management and Control	26
P. Evaluate and Improve Winter Habitat	28
Q. References.....	29
IV. ISRP Recommendations and Comments on each Proposal	32
A. Estuary Programmatic Comments.....	32
1. Improving Strategic Planning for Estuary Restoration	32
2. Improved Monitoring Strategy for Estuary Restoration Projects.....	33
3. ISRP Review Role in the CEERP Program	34
4. Public Outreach, Education, and Involvement	35

5. Comments on Restoration Methods	35
6. References	37
B. Estuary and Lower Columbia River Proposal Comments	38
C. Willamette River	58
D. Wind River	61
E. Fifteenmile Creek	64
F. Hood River	74
G. Klickitat River	78
H. Rock Creek	81
I. Northeast Oregon Multi-basin Projects - Deschutes, John Day, Umatilla, Walla Walla (OR), and Grande Ronde	85
J. Deschutes River	107
K. John Day River	121
L. Umatilla River	156
M. Walla Walla River	175
N. Tucannon River	190
O. Yakima River	204
P. Upper Columbia: Wenatchee, Entiat, Methow, and Okanogan	220
Q. Grande Ronde River	260
R. Asotin Creek and Other Small Tributaries to the Lower Snake River	278
S. Clearwater River Programmatic Comments	291
T. Clearwater River Proposal Review Comments	292
U. Salmon River	352
Index of Proposals and Page Numbers	398

Table of Proposals and Recommendations

Click page numbers to jump to proposal reviews

ID	Title	Sponsor	Meets scientific criteria?	Page
Estuary and Lower Columbia				
200301100	Columbia River Estuary Habitat Restoration	Lower Columbia Estuary Partnership	Yes (Qualified)	38
201000400	CREST Estuary Habitat Restoration	Columbia River Estuary Study Taskforce (CREST)	Yes (Qualified)	45
201007300	Columbia Land Trust Estuarine Restoration	Columbia Land Trust	Yes (Qualified)	49
201007000	WA Estuary MOA Project Scoping & Implementation	Washington Department of Fish and Wildlife (WDFW)	Yes (Qualified)	52
201201500	Cowlitz Indian Tribe Estuary Restoration Program	Cowlitz Indian Tribe	Yes (Qualified)	55
Willamette River				
200901200	Willamette Bi-Op Habitat Restoration	Oregon Watershed Enhancement Board	Yes	58
Wind River				
199801900	Wind River Watershed	Underwood Conservation District (UCD), US Forest Service, US Geological Survey, WDFW	Yes	61
Fifteenmile Creek				
199304000	Fifteenmile Creek Habitat Improvement	Oregon Department Of Fish and Wildlife (ODFW)	Yes	64
200102100	15 Mile Creek Riparian Buffers	Wasco County Soil and Water Conservation District (SWCD)	Yes (Qualified)	70
Hood River				
199802100	Hood River Fish Habitat	Confederated Tribes Of Warm Springs	Yes (Qualified)	74
Klickitat River and Rock Creek				
199705600	Klickitat Watershed Enhancement	Yakama Confederated Tribes	Yes (Qualified)	78
200715600	Rock Creek Fish and Habitat Assessment	Yakama Confederated Tribes	In Part (Qualified)	81
Northeast Oregon Multi-basin Projects - Deschutes, John Day, Umatilla, Walla Walla (OR), and Grande Ronde				
200820700	Umatilla Tribe Ceded Area Stream Corridor Conservation & Protection	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	85
200820600	Instream Flow Restoration	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	90
199306600	Oregon Fish Screens Project	Oregon Department Of Fish and Wildlife (ODFW)	Yes (Qualified)	96
200201500	Coordination and Technical Assistance to Watershed Councils and Individuals in Sherman County, Oregon	Sherman Soil and Water Conservation District (SWCD)	No	99
200201900	Develop Riparian Buffer Systems in Lower Wasco County	Wasco County SWCD	Yes (Qualified)	102

ID	Title	Sponsor	Meets scientific criteria?	Page
Deschutes River				
200830100	Habitat Restoration Planning/Design/Implementation within boundaries of Warm Springs Reservation, lower Deschutes River, Oregon	Confederated Tribes Of Warm Springs	Yes (Qualified)	107
199802800	Trout Creek Watershed Restoration	Jefferson County Soil and Water Conservation District (SWCD)	Yes (Qualified)	112
199404200	Trout Creek Operations and Maintenance (O&M)	Oregon Department Of Fish and Wildlife (ODFW)	Yes (Qualified)	116
John Day River				
200001500	Oxbow Conservation Area	Confederated Tribes Of Warm Springs	Yes	121
200104101	Forrest Ranch Conservation Area	Confederated Tribes Of Warm Springs	Yes (Qualified)	128
200739700	John Day Passage, Flow and Habitat Enhancement	Confederated Tribes Of Warm Springs	Yes (Qualified)	134
200203500	Riparian Buffers in Gilliam County	Gilliam County Soil and Water Conservation District (SWCD)	Yes (Qualified)	138
198402100	John Day Habitat Enhancement	Oregon Department Of Fish and Wildlife (ODFW)	Yes (Qualified)	142
200003100	Enhance Habitat in the North Fork John Day River	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	147
200203400	Riparian Buffers in Wheeler County	Wheeler County SWCD	Yes (Qualified)	152
Umatilla River				
198710002	Umatilla Anadromous Fish Habitat-Oregon Department of Fish and Wildlife (ODFW)	Oregon Department Of Fish and Wildlife (ODFW)	Yes	156
198710001	Umatilla Anadromous Fish Habitat-Umatilla Tribe	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	160
198802200	Umatilla Fish Passage Operations	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	168
198902700	Umatilla Basin Power Repay	Umatilla Confederated Tribes (CTUIR)	Not Applicable	171
198343600	Umatilla Passage Operations and Maintenance (O&M)	Westland Irrigation District	Yes (Qualified)	172
Walla Walla River				
200721700	Walla Walla River Passage Operations and Maintenance	Gardena Farms Irrigation District #13	Yes	175
199604601	Walla Walla River Basin Fish Habitat Enhancement	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	178
200902600	Walla Walla Juvenile and Adult Passage Improvements	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	182
200739600	Walla Walla Basinwide Tributary Passage and Flow	Walla Walla Basin Watershed Council	Yes	186
Tucannon River				
199401806	Tucannon Stream and Riparian Restoration	Columbia Conservation District (SWCD)	Yes	190
199401807	Garfield County Fall Chinook and Steelhead Habitat Improvement	Pomeroy Conservation District	No	192
201007700	Tucannon River Programmatic Habitat Project	Snake River Salmon Recovery Board	Yes (Qualified)	198
200820200	Protect and Restore Tucannon Watershed	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	201

ID	Title	Sponsor	Meets scientific criteria?	Page
Yakima River				
200739800	Yakima Basinwide Tributary Passage and Flow	South Central Washington Resource Conservation and Development	Yes	204
199200900	Yakima Phase II Fish Screens Operations and Maintenance (O&M) with Washington Department of Fish and Wildlife (WDFW)	Washington Department of Fish and Wildlife (WDFW)	In Part	206
198812025	Yakima River Management, Data and Habitat-Yakima/Klickitat Fisheries Project (YKFP)	Yakama Confederated Tribes	Not Applicable	208
199206200	Lower Yakima Valley Riparian Wetlands Restoration	Yakama Confederated Tribes	Yes	210
199603501	Yakama Reservation Watershed Project	Yakama Confederated Tribes	Yes	213
199705100	Yakima Basin Side Channels Land Acquisition	Yakama Confederated Tribes	Yes	217
Upper Columbia: Wenatchee, Entiat, Methow, and Okanogan				
201000100	Upper Columbia Programmatic Habitat	Upper Columbia Salmon Recovery Board	Yes (Qualified)	220
200900300	Upper Columbia Habitat Restoration	Yakama Confederated Tribes	Yes (Qualified)	231
199604200	Restore Salmon Creek Anadromous Fish	Colville Confederated Tribes	Yes (Qualified)	238
200000100	Omak Creek Anadromous Fish Habitat and Passage	Colville Confederated Tribes	No	248
200722400	Okanogan Subbasin Habitat Implementation Program (OSHIP)	Colville Confederated Tribes	Yes (Qualified)	254
Grande Ronde River				
199202601	Grande Ronde Model Watershed	Grande Ronde Model Watershed Foundation	Yes (Qualified)	260
200739300	Protect and Restore Northeast Oregon	Nez Perce Tribe	No	265
198402500	Blue Mountain Fish Habitat Improvement	Oregon Department Of Fish and Wildlife (ODFW)	Yes (Qualified)	269
199608300	Grande Ronde Watershed Restoration	Umatilla Confederated Tribes (CTUIR)	Yes (Qualified)	273
Asotin Creek and Other Small Tributaries to the Lower Snake River				
199401805	Asotin Creek Enhancement and Restoration	Asotin County Conservation District	Yes (Qualified)	278
200205000	Riparian Buffers on Couse and Tenmile Creeks in Asotin County	Asotin County Conservation District	Yes (Qualified)	282
Clearwater River				
199608600	Clearwater Focus Program	Idaho Soil Conservation Commission	Not Applicable	292
199706000	Clearwater Focus Watershed Restoration Coordination	Nez Perce Tribe	Not Applicable	294
200860400	Lower Clearwater and Potlatch Watersheds Habitat Improvements	Idaho Office of Species Conservation	Yes (Qualified)	298
200206100	Potlatch River Watershed Restoration	Latah Soil and Water Conservation District (SWCD)	Yes (Qualified)	304
200207000	Lapwai Creek Anadromous Habitat	Nez Perce Soil and Water Conservation District	Yes (Qualified)	311

ID	Title	Sponsor	Meets scientific criteria?	Page
199901700	Protect and Restore Lapwai Creek Watershed	Nez Perce Tribe	Yes (Qualified)	313
199607702	Lolo Creek Watershed Restoration	Nez Perce Tribe	Yes (Qualified)	318
200709200	Restore Selway River Watershed	Nez Perce Tribe	Yes (Qualified)	322
200739500	Protect and Restore Lochsa Watershed	Nez Perce Tribe	Yes (Qualified)	325
201000300	Lower South Fork Clearwater River Watershed Restoration	Nez Perce Tribe	Yes (Qualified)	330
200003500	Newsome Creek Watershed Restoration	Nez Perce Tribe	Yes (Qualified)	336
200207200	Red River Watershed Restoration	Nez Perce Tribe	Yes (Qualified)	340
201008600	Protect and Restore the Crooked and American River Watersheds	Nez Perce Tribe	Yes (Qualified)	344
Salmon River				
200726800	Idaho Watershed Habitat Restoration-Custer District	Custer Soil and Water Conservation District (SWCD)	Yes (Qualified)	352
199401500	Idaho Fish Screening Improvement	Idaho Department of Fish and Game (IDFG)	Yes	356
200739900	Upper Salmon Screen Tributary Passage	Idaho Department of Fish and Game (IDFG)	Yes	358
200860800	Idaho MOA/Fish Accord Water Transactions	Idaho Department of Water Resources (IDWR), Idaho Office of Species Conservation	Yes (Qualified)	361
200739400	Idaho Watershed Habitat Restoration-Lemhi	Idaho Office of Species Conservation	Yes	364
201007200	Lemhi River Restoration	Idaho Office of Species Conservation	Yes	367
201008800	Upper and Lower Lemhi Acquisition/Easements	Idaho Office of Species Conservation	Yes	369
200860300	Pahsimeroi River Habitat	Idaho Office of Species Conservation	Yes (Qualified)	372
200706400	Slate Creek Watershed Restoration	Nez Perce Tribe	Yes	376
200712700	East Fork of South Fork Salmon River Passage Restoration	Nez Perce Tribe	Yes	378
199405000	Salmon River Habitat Enhancement	Shoshone-Bannock Tribes	Yes (Qualified)	380
200205900	Yankee Fork Salmon River Restoration	Shoshone-Bannock Tribes	Yes	384
200890300	ESA Habitat Restoration	Shoshone-Bannock Tribes	Yes (Qualified)	390

ISRP Final Report for the Geographic Review

I. Introduction

This report provides the Independent Scientific Review Panel's (ISRP¹) final recommendations on 83 proposals submitted for the Northwest Power and Conservation Council and the Bonneville Power Administration's Geographic Review of ongoing habitat projects in the anadromous areas of the Columbia Basin for the Council's Fish and Wildlife Program (Program). In this final review, the ISRP recommends that 20 proposals meet scientific review criteria (24%), 55 proposals meet criteria with some qualifications (66%), 4 proposals did not meet criteria (5%), and 4 proposals were not amenable to scientific review (5%).

In addition to individual project reviews, this report contains comments on issues that cut across projects and apply to the Program in general. Topics covered include evaluation of results, regional research, monitoring and evaluation (RM&E), strategic restoration frameworks, future project reviews, umbrella proposals, productive partnerships, workforce support, and restoration methods and assessments.

This review covers currently funded projects and a few new Columbia River Fish Accord projects. This was not an open solicitation. Only projects specifically identified by the Council and Bonneville Power Administration (BPA) were allowed to submit proposals.

The full review process involves proposal development and results reporting by project sponsors, ISRP review, and feedback from the public. The reviews culminate in recommendations from the Council to the BPA. The Council must fully consider the ISRP's recommendations and explain in writing reasons for not accepting ISRP recommendations.

This is the last set of projects to be reviewed in the Category Review process. The ISRP, Council, BPA, and project sponsors have completed the Wildlife; Research, Monitoring, and Evaluation (RM&E) and Artificial Production; and Resident Fish, Data Management, and Regional Coordination reviews. These Category Reviews have enabled the Council, the ISRP, and BPA to review and compare sets of similar projects and highlight issues common to these projects such as coordination, duplication, and consistency with the broad basinwide objectives and provisions in the Fish and Wildlife Program. The ISRP is supportive of many features of this review approach and looks forward to helping shape the next review process based on lessons learned.

¹ "ISRP" refers to both ISRP members and Scientific Peer Review Group members.

II. The ISRP Review Process

A. Review Criteria

ISRP reviews are based on criteria provided in the 1996 amendment to the Northwest Power Act. The amended Act directs the ISRP to review projects for consistency with the Council's Fish and Wildlife Program and whether they:

1. are based on sound science principles
2. benefit fish and wildlife
3. have clearly defined objectives and outcomes, and
4. contain provisions for monitoring and evaluation of results.

Pursuant to the 1996 amendment, the Council must fully consider ISRP recommendations when making its recommendations regarding funding and provide an explanation in writing where its recommendations diverge from those of the ISRP.

B. Review Steps

In general, ISRP reports provide written recommendations and comments on each proposal that is amenable to scientific review. These recommendations reflect the ISRP's consensus. To develop final recommendations, the ISRP used a multi-step process:

1. ISRP individual reviews. Three reviewers were assigned to independently review each proposal and provide written evaluations. The ISRP assigned review teams based on expertise and whether members reviewed the project in the past or participated in site visits. Individual reviewer's comments and records of discussions are confidential and not available outside the ISRP review teams.

2. Site visits. In March through May 2013, ISRP review teams made multi-day tours of projects in the areas of the basin accessible to anadromous fish. These tours demonstrated that the projects are led by dedicated and knowledgeable staff and progress is being made. The tours provided numerous opportunities for wide ranging, nuanced discussions between ISRP review team members and project staff. Specifically, greater understanding and appreciation of the Council's Fish and Wildlife Program goals for ecosystem restoration are evident in the projects the ISRP visited.

3. Project presentations. As part of the site visits, the project sponsors had an opportunity to present their proposals to the ISRP, Council staff, and BPA staff. Time was reserved for questions. These discussions greatly aided the ISRP in clarifying specific concerns and better understanding the projects in general.

4. ISRP group evaluation meeting. Individual reviewer comments were compiled, and following the presentations, review teams met to discuss individual reviews, develop a consensus recommendation for each proposal, and ensure consistency across reviews.

5. Preliminary report completion. After the evaluation meeting, individual and meeting comments were synthesized into a consensus statement on each proposal. The full group of ISRP and Peer Review Group reviewers evaluated and edited these draft consensus statements to produce the preliminary report ([ISRP 2013-4](#)). In the preliminary review, the ISRP recommended that 13 proposals met scientific review criteria, 33 proposals met criteria with some qualifications, 1 proposal did not meet criteria, and 3 proposals were not amenable to scientific review – these ISRP recommendations were final. In addition, the ISRP requested responses on 33 proposals. Project sponsors for these 33 projects were given an opportunity to respond to ISRP concerns by July 9, 2013.

6. Response review and completion of the final report. On July 9, 2013, the ISRP received responses for the proposals for which a response was requested. The ISRP again followed steps 2 and 4 above. Individual reviewers evaluated responses; those evaluations were compiled; review teams met by teleconference to discuss the evaluations and develop programmatic comments; and a final draft was circulated to confirm ISRP consensus. Of the 33 proposals providing a response, the ISRP found that 7 proposals met scientific review criteria (21%), 22 proposals met criteria with some qualifications (67%), 3 proposals did not meet criteria (9%), and 1 proposal was not amenable to scientific review (3%).

Next Review Steps

At the Council's September 2013 meeting, the ISRP will present its findings. At the October Council meeting, Council staff anticipates presenting recommendations for Council discussion. At the Council's November meeting, the Council is tentatively scheduled to make recommendations.

C. Recommendation Categories

The ISRP uses the following terms for final recommendations:

- Meets Scientific Review Criteria
- Meets Scientific Review Criteria (Qualified)
- Meets Scientific Review Criteria - In Part
- Meets Scientific Review Criteria - In Part (Qualified)
- Does Not Meet Scientific Review Criteria
- Not Applicable

For preliminary reviews, the ISRP also uses: Response Requested

The full definitions for our recommendation categories are:

1. Meets Scientific Review Criteria is assigned to a proposal that substantially meets each of the ISRP criteria. Each proposal does not have to contain tasks that independently meet each of the criteria but can be an integral part of a program that provides the necessary elements. For example, a habitat restoration project may use data from a separate monitoring and evaluation project to measure results as long as such proposals clearly demonstrate this integration.

Unless otherwise indicated, a “Meets Scientific Criteria” recommendation is not an indication of the ISRP’s view on the priority of the proposal, nor an endorsement to fund the proposal, but rather reflects its scientific merit and compatibility with Program goals.

2. Meets Scientific Review Criteria - In Part is assigned to a proposal that includes some work that substantially meets each of the ISRP criteria and some work that does not. The ISRP specifies which elements do not meet the review criteria. In general, the proposal element that does not meet criteria is adequately described, but that element is not sound, is redundant, or would not benefit fish and wildlife. Required changes to a proposal will be determined by the Council and BPA in consultation with the project sponsors in the final project selection process.

(Qualified) is assigned to recommendations in the two categories above for which additional clarifications and adjustments to methods and objectives by the sponsor are needed to fully justify the entire proposal. The ISRP also uses “Qualified” in two other situations:

- for proposals that are technically sound but appear to offer marginal or very uncertain benefits to fish and wildlife and
- when further ISRP review of a project’s final implementation plan or analysis of results is needed before the project moves to full implementation. An example is a proposal for both background assessment work and concurrent on-the-ground implementation that cannot be justified before results of the assessment are known. Another example is a proof of concept research project for which methods need to be tested at a pilot scale before full implementation. Please note, in past reviews, some ISRP recommendations to sequence assessment or test phases and full implementation were designated as “In Part” rather than “Qualified.”

The ISRP expects that needed changes to a proposal will be determined by the Council and BPA in consultation with the project sponsor in the final project selection process. Regardless of the Council’s or BPA’s recommendations, the ISRP expects that, if a proposal is funded, subsequent proposals for continued funding will address the ISRP’s comments.

3. Does Not Meet Scientific Review Criteria is assigned to a proposal that is significantly deficient in one or more of the ISRP review criteria. One example is a proposal for an ongoing project that might offer benefits to fish and wildlife but does not include provisions for monitoring and evaluation or reporting of past results. Another example is a research proposal that is technically sound but does not offer benefits to fish and wildlife because it substantially duplicates past efforts or is not sufficiently linked to management actions. In most cases, proposals that receive this recommendation lack detailed methods or adequate provisions for monitoring and evaluation, and some propose actions that have the potential for significant deleterious effects to non-target fish or wildlife. The ISRP notes that proposals in this category may address needed actions or are an integral part of a planned watershed effort, but the proposed methods or approaches are not scientifically sound. In some cases, a targeted request for proposals may be warranted to address the needed action.

4. Not Applicable is assigned to proposals with objectives that are not amenable to scientific review.

5. Response Requested is assigned to a proposal in a preliminary review that requires a response on specific issues before the ISRP can make its final recommendation. This does not mean that the proposal has failed the review. In general, the ISRP requests responses on a majority of proposals and a majority of proposals provide sufficient information in the response loop to meet the ISRP's scientific review criteria.

III. Programmatic Comments

A. Introduction: A Retrospective Evaluation of Results

The 1996 amendment directs the ISRP to review annually the results of prior-year expenditures based upon the project review criteria and submit its findings to the Council.² A major element of the ISRP's reviews of ongoing projects is an examination of each project's reporting of past results consistent with the retrospective review charge. The proposal form specifically asks for a concise summary of biological results, a discussion of the adaptive management implications of those results, and recognition that the ISRP will use the information submitted for its retrospective review. In this Geographic Review, the ISRP's comments on individual projects include an evaluation of the project's results under the subsection "Evaluation of Results." Reviewing the results reported in individual projects is critical to determining whether a project meets scientific review criteria and in many cases developing qualifications and suggestions for improved objective setting, monitoring, evaluation, and results reporting. The ISRP has reviewed and considered the reporting of results for most of the projects in the Geographic Review multiple times over the past 16 years.

In addition to specific comments on each project, the ISRP provides programmatic comments related to the proposals and project reporting. Programmatic comments are described in the sections below. An important conclusion by the ISRP is the need for the projects and the program to set clear and measurable objectives at several levels and to match these objectives with the monitoring and evaluation necessary to track the success of the projects and program toward meeting those objectives, ultimately, as the ISRP review criteria implies, in terms of fish and wildlife benefits.

The ISRP notes that, in addition to its evaluations, concurrent efforts are being implemented to track results of the Fish and Wildlife Program. Specifically, BPA has made progress on project tracking through Pisces and [Taurus](#). The Council uses data from these and other regional databases to develop [High Level Indicators](#) that track the regional fish and wildlife effort in the Columbia Basin. The Action Agencies for the Federal Columbia River Power System (FCRPS) produce comprehensive evaluation reports describing progress on meeting Biological Opinion requirements. These efforts and the ISRP's retrospective review share a target of not only reviewing the results that are currently reported but establishing a systematic and meaningful reporting of project results as a central feature of the Fish and Wildlife Program.

The ISRP highlights a few examples from the Action Agencies' [Draft 2013 Comprehensive Evaluation](#), which summarizes some of the accomplishments of the projects covered in the Geographic Review. For example, from 2007-2012, habitat actions have increased the complexity of approximately 206 stream miles in select areas of the Columbia Basin (Fig. 1).

² For a detailed description of the three primary ways the ISRP meets the retrospective charge see the ISRP's Retrospective Report 2011 ([ISRP 2011-25](#); pages 9-11).

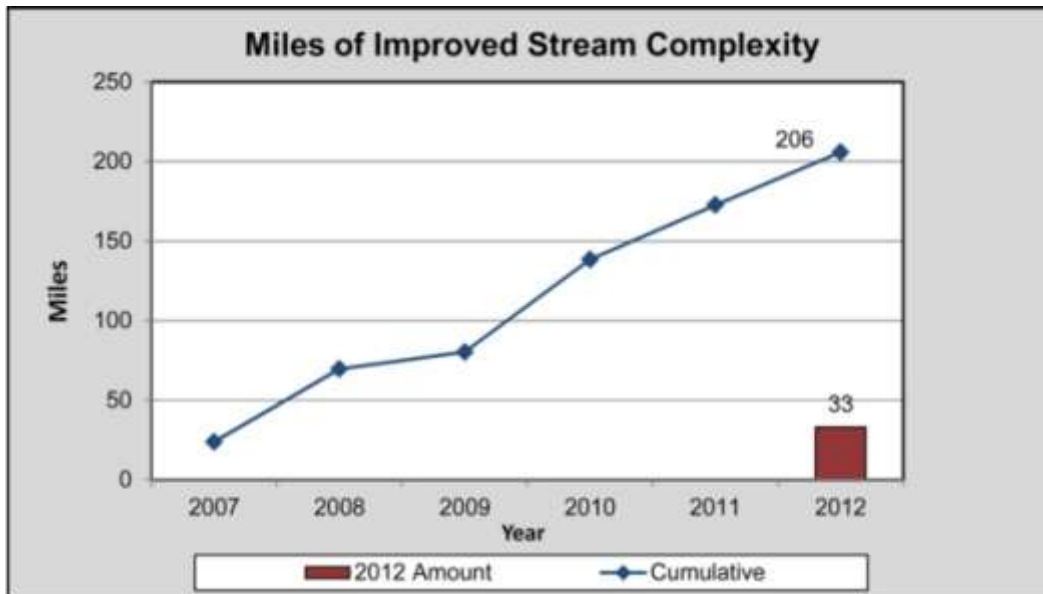


Figure 1. Miles of stream habitat rehabilitated for stream complexity in the Columbia River Basin, 2007-2012 (see Fig. 2 for examples). See [Draft 2013 Comprehensive Evaluation](#).

Actions to increase stream complexity include side channel rehabilitation and addition of large wood, which provide rearing habitat for juvenile salmonids and potentially enhance juvenile growth and survival (Fig. 2). In addition, approximately 2,053 miles of stream habitat have been made available since 2007 by removing passage barriers created by humans (Fig. 3). These examples show improvements in tributary habitats, but the analyses typically do not provide needed context such as the amount of stream complexity previously lost to habitat degradation, the miles of stream blocked by anthropogenic actions, or the response of salmonids to the habitat actions.





Figure 2. Import of large wood in the South Fork Clearwater basin (previous page) and reconnection of side channel habitat in the Deschutes basin (above) as a means to increase stream complexity and improve quality and quantity of rearing habitat for juvenile salmonids.

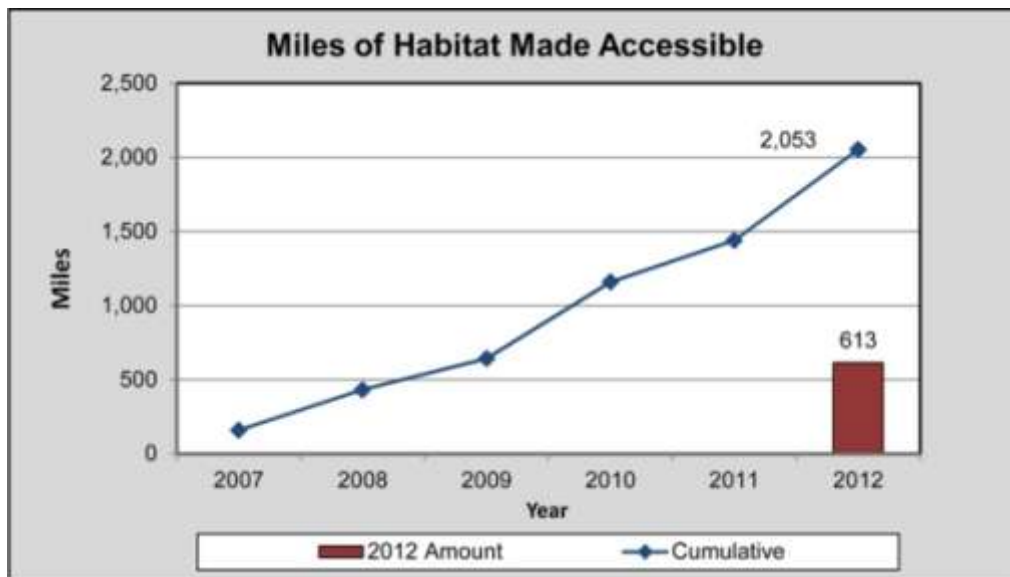


Figure 3. Miles of stream habitat made available to salmonids through fish passage improvements in the Columbia River Basin, 2007-2012. See [Draft 2013 Comprehensive Evaluation](#).

The Action Agencies used an “Expert Panel” process to provide expert opinions about the percentage improvements in habitat quality for listed steelhead and Chinook salmon based on habitat actions through 2011 (Fig. 4). These assessments were compared with percent habitat quality improvements required by the FCRPS Biological Opinion for each watershed. Although most populations appear to be on-target to meet the targets in the Biological Opinion for habitat improvement by 2018, it is important to recognize that these assessments stem from opinion and limited monitoring and evaluation to date. The opinion-based “Expert Panel”

process highlights the need for monitoring and evaluation of habitat quality and quantity and the response of salmonids to changes in habitat. Furthermore, when reviewing tributary habitat accomplishments relative to the targets in the Biological Opinion, it is important to recognize that the goal of the Biological Opinion is to avoid jeopardizing the continued existence of the listed species and, as part of the jeopardy analysis, assure that the actions to be implemented do not reduce appreciably the likelihood of species recovery. Thus, the habitat quality and survival targets in the Biological Opinion reflect habitat conditions that are lower, possibly much lower, than what may be needed to restore salmonid habitat to produce robust populations.

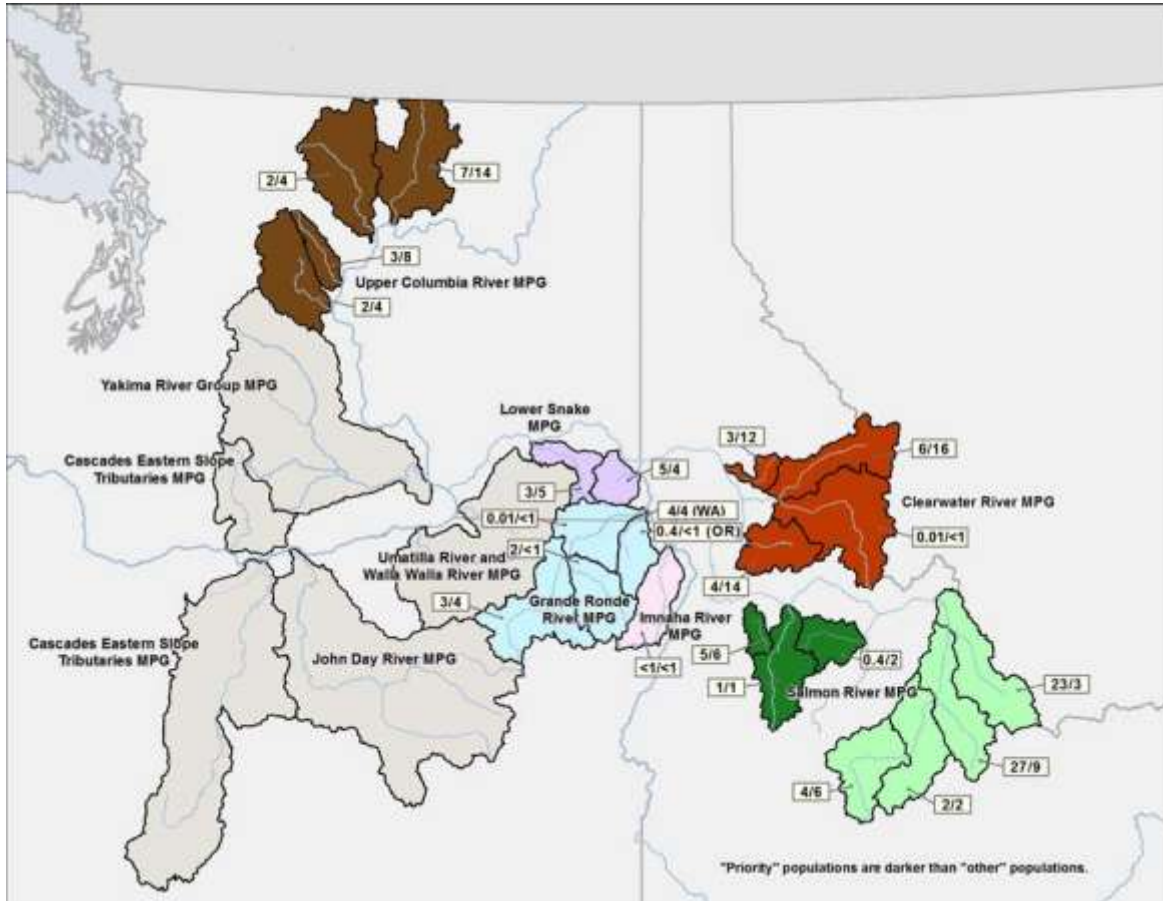


Figure 4. Tributary habitat quality improvements through 2011 for steelhead. This map of the Columbia River Basin in Oregon, Washington, and Idaho, depicts (in color) the tributary basins where habitat is being improved by the Action Agencies and partners. Darkest shades depict areas with priority populations. Progress as of 2011, based on completed habitat improvement projects evaluated by the “Expert Panel” process, is shown in the white boxes near each basin. The number to the left of the slash represents the percent habitat quality improvement through 2011; the number to the right of the slash represents the percent habitat quality improvement to be achieved by 2018 for steelhead in order to satisfy terms of the Biological Opinion (RPA Action 35, Table 5). Habitat quality improvements in the light brown shaded watersheds (e.g., Yakima River, John Day River) were estimated to be 1-4%, based on a different methodology, and have achieved the 2018 goal. See [Draft 2013 Comprehensive Evaluation](#).

B. Implement Research, Monitoring, and Evaluation at a Regional Scale

The Fish and Wildlife Program is making significant progress on developing regional RM&E for habitat restoration. The ISRP recently reviewed documents describing three related programs intended to provide a basinwide approach to habitat monitoring and evaluation ([ISRP 2013-2](#)). The programs include:

- 1. Integrated Status and Effectiveness Monitoring Program (ISEMP; Project #2003-017-00).** ISEMP is a “research and development project to test and develop fish and habitat monitoring methods, data management tools, and data analysis methods for general use by Fish and Wildlife monitoring projects across the interior Columbia River Basin.”
- 2. Columbia Habitat Monitoring Program’s (CHaMP; Project #2011-006-00).** CHaMP’s purpose is to “implement a habitat monitoring protocol for fish habitat status and trends throughout the portion of the Columbia Basin that is accessible to anadromous salmonids using a programmatic approach to standardized data collection and management that will allow effective data summarization at various spatial scales important for the management of fish and habitat.”
- 3. The Action Effectiveness Monitoring (AEM) of Tributary Habitat Improvement: a Programmatic Approach for the Columbia Basin Fish and Wildlife Program (January 2013).** This document was developed to respond to ISRP and Council recommendations to move toward a standardized, programmatic approach to evaluate the effectiveness of habitat restoration actions. This paper provides many of the details of how BPA proposes to move to implement a standardized program in phases beginning as early as 2013.

In the review of these programs, the ISRP found that together ISEMP and CHaMP have achieved major gains in the collection of habitat data, the elucidation of relationships between fishes and their habitats, and the effectiveness of tributary habitat restoration actions. The ISRP found that the AEM plan provides a useful general framework for stratifying action effectiveness monitoring, but more details are needed, especially with regard to the integration of the AEM approach into ISEMP and CHaMP objectives. The ISRP concluded that “*assuming* AEM will collect data compatible with the CHaMP/ISEMP programs, these three efforts should provide valuable information on the productivity gains that can be achieved through habitat actions. This understanding has been lacking for the Columbia Basin, and elsewhere in the Pacific Northwest, and has likely severely hampered the effectiveness of restoration efforts over the last thirty years.”



Figure 5. ISEMP study areas at Bridge Creek, John Day River basin (left) and Entiat River (right).

The Geographic Review proposals and site visits indicated reliance on these programs as currently implemented (ISEMP and CHaMP) and as proposed for the future. Some projects are actively engaged with ISEMP in areas where specific studies are conducted: portions of the Salmon, Entiat, and John Day subbasins (Fig. 5). CHaMP also has a wide reach and is referenced in the proposals throughout the Basin. The AEM is also referenced. However, the full scope and reach of ISEMP or other Intensively Monitored Watersheds (IMWs), CHaMP, and especially AEM are not adequately described in relation to most projects in the Geographic Review. Most proposals simply mentioned that the effectiveness of their project would be addressed by one or more of these regional monitoring programs and did not describe specific monitoring efforts or explain how their project fit into the overall monitoring effort. Fish population data, or reference to how fish response to proposed habitat restoration actions was to be evaluated, were rarely presented in the proposals.

This raised concern within the ISRP that some projects were not fully communicating with monitoring partners and not fully integrated with monitoring efforts. In some regions, such as the upper Salmon River basin, the lack of monitoring details in proposals was addressed by ISEMP personnel who were present on the site visit and who could explain the monitoring effort. Monitoring personnel were not present in most other regions, such as the upper Columbia, leading to concern that the habitat restoration efforts and the monitoring programs were not tightly linked. Some project sponsors noted that BPA's decision to fund RM&E at 5%, which is mostly for implementation and compliance rather than effectiveness monitoring, prevented them from studying the effects of their restoration activities on riparian and aquatic habitat and/or focal species. Nevertheless, habitat restoration efforts and effectiveness monitoring efforts must be carefully coordinated and integrated, and key personnel of both programs should be well aware of the overall strategy and ongoing effort in the watershed.

The ISRP review process demands that all projects include provisions for monitoring and evaluation. Even projects that are not part of the ISEMP network or using CHaMP protocols have a responsibility to follow the results of these important effectiveness monitoring efforts to learn how findings could be incorporated into their own work. Monitoring project effectiveness is a key tool for implementing adaptive management and to ensure that habitat restoration and salmonid recovery can be efficient and cost-effective. The ISRP believes a regional monitoring approach makes sense because many individual habitat projects cannot be efficiently monitored for habitat and/or fish and wildlife population responses at a meaningful scale. In many cases specific projects should be able to conduct some informative monitoring at very low cost, e.g., observations of fish before and after project implementation. This can provide local information which can supplement broader monitoring efforts. Active participation by the habitat restoration sponsors in the broader, regional monitoring efforts can also serve to better inform the regional monitoring team. Regular, structured, effective communication between project and regional monitoring staff is vital to a successful program (Fig. 6).



Figure 6. Oregon Department of Fish and Wildlife monitoring of smolt traps in the John Day River basin provides an opportunity to share fish data with the habitat restoration staff.

Given the evolving state of RM&E, the ISRP is looking for evidence that projects are clearly linked to the hierarchical RM&E needs. The ISRP has the following recommendations:

- **Identify Monitoring Efforts Associated with Habitat Projects across the Landscape**

In our preliminary review (June 6, 2013), the ISRP recommended that the Council and BPA should facilitate development of tables showing how the projects in the Geographic Review are covered by ISEMP, CHaMP, AEM, and fish monitoring by life stage. The ISRP understands that regional habitat RM&E teams and BPA are currently developing such tables. A draft table that BPA shared with the ISRP showed the various monitoring methods used by the

AEM program to evaluate specific restoration techniques and projects. BPA informed the ISRP that these tables would be completed in the next few months (fall 2013) and would be working tables with adjustments on sample size made based on the strengths and weakness of their evaluations. Continuing efforts are needed to crosswalk between CHaMP and Pacfish/Infish Biological Opinion (PIBO) on U.S. Forest Service lands.

In the preliminary review, the ISRP noted that this coordinated RM&E effort, including fish population status, should be continually evaluated to determine if it is sufficient to evaluate program success and inform adaptive management. The Council's June 17, 2013 letter to BPA on these projects specified an ongoing oversight and review role for the Council, BPA, and the ISRP in these three regional RM&E efforts. By March 2014, the Council requested that these projects submit a progress report for ISRP and Council review addressing comments from the ISRP's recent review ([ISRP 2013-2](#)).

- **Demonstrate Coordination and Integration of Habitat Projects and Monitoring Efforts**

The sponsors should be required to describe 1) how they are contributing to the regional RM&E effort and 2) how the regional RM&E is contributing, communicating, and coordinating with them. A critical component of the adaptive management loop is for habitat project staff to communicate their actions and for RM&E project results to inform ongoing and subsequent habitat restoration projects. The ISAB recently reviewed ([ISRP 2013-2](#)) BPA's document, "A Framework for the Fish and Wildlife Program Data Management: Issues and Policy Direction for Development of a Data Management Strategy and Action Plan." This document describes data coordination and sharing of project data, but additional coordination and integration of restoration projects and RM&E efforts are needed.

Clear and open communication is needed among all parties involved in the Fish and Wildlife Program to identify the best level of monitoring needed at the project level. For example, a tributary habitat restoration project may involve tree planting. Is it sufficient to verify that a specified number of trees have been planted, or should stem survival be monitored, or should amount of stream cover provided by trees be monitored, or should change in water temperature due to tree shading be monitored, or should fish response to water temperature change be monitored? In any given situation, there will be differences of opinion about the level of monitoring needed. Clear communication and justification of the monitoring effort selected, and how project level monitoring relates to monitoring at the regional scale, is essential. Ultimately, both project implementation and the response by fish and wildlife need to be monitored and evaluated.

To facilitate coordination and integration, individual projects should include quantitative measurable objectives and a time frame for expected accomplishment. This will help focus RM&E and aid in evaluating success of treatments. Some projects are so large and distinct that they call for IMW level monitoring; for example, the Oxbow Ranch restoration work in the John Day basin and Meacham Creek dike removal in the Umatilla basin. Projects receiving this high level of RM&E should be noted in an overall coordinated RM&E plan.

Some projects are tackling unusual problems, for example the Mill Creek urban channel work in the Walla Walla basin, and should have pilot level RM&E to estimate effectiveness of further implementation. Such pilot level RM&E may be similar to case studies, as identified in the BPA Framework mentioned above. In watersheds with fish screens, sponsors should consider use of irrigation screen bypass systems for fish monitoring to augment the use of smolt traps.

- **Focus Fish RM&E on Key Viable Salmonid Population (VSP) Parameters of Wild Salmonids**

RM&E efforts should focus more attention on limiting factors that may be hindering VSP parameters: productivity, abundance, diversity, and spatial structure of natural salmonid populations. In areas where hatchery supplementation is used, RM&E should use tools to identify hatchery versus wild salmonids as a means to evaluate the viability of the natural salmonid population. Evaluation of density dependent growth and survival can be used to inform habitat restoration efforts. For example, if both length-at-age of smolts and smolts per spawner decline with increasing parent spawner abundance, then food availability is probably limiting growth and increases in habitat quality and quantity may be beneficial, especially if spawner abundances are still below viability goals. These important relationships have been identified in watersheds where sponsors have collected appropriate data, but such data may be lacking or not fully utilized in many watersheds. Additionally, RM&E should be developed to encompass all seasons including winter, effects of toxins, and impacts of invasive species on food webs. It is not clear to the ISRP whether the Expert Panel process is adequately considering each of these issues.

Measures of juvenile salmonid survival and growth relative to fish density, and juvenile distribution in rearing habitat are the best indicators of stream habitat quality and quantity, including how it has been altered or protected by a project sponsor. However, when documenting improvements in habitat quality and quantity, it is important to acknowledge that stream habitat is only one part of the fish universe affecting changes in fish population status, and that habitat quality and quantity may not be the best indicator of limiting factors to guide future actions. Furthermore, recognition of physical and biological processes that affect habitat quality is critical. These processes often occur at scales larger than individual restoration projects but play a dominant role in defining conditions at the stream or stream reach scale. Understanding watershed-scale condition and trend is an important element in providing for long-term, sustainable restoration of aquatic and riparian habitats. Ultimately, RM&E should be developed to consider fully functioning ecosystems as suggested in the ISAB Landscape report ([ISAB 2011-4](#)).

- **Develop Quantitative Objectives for Guiding RM&E and Adaptive Management**

ISAB (2013-1) recommended that the Fish and Wildlife Program develop quantitative objectives for fish and wildlife populations so that regional monitoring efforts could be designed to evaluate whether progress is being made to achieve the objectives, or if not to implement change through structured decision making and adaptive management. The ISRP

concur with this recommendation. Quantitative objectives for fish have been developed in response to ESA listings in some areas, but these could be expanded to identify and prioritize actions needed to achieve the Program goals throughout the Columbia Basin. Importantly, a landscape approach is needed for strategic prioritization of habitat actions, so that the greatest benefit can be achieved from the investment of time and money ([ISAB 2011-4](#)).

Some proposals provided quantitative deliverables for their specific habitat actions, for example, fencing X miles of riparian area to achieve the objective of protecting the riparian zone from cattle and large animals. But many proposals did not. Additionally, quantitative objectives for the watershed or subbasin should be identified by the sponsor, and these should reflect the anticipated outcome for the target species in response to all actions in the watershed. Reach-specific habitat proposals, which may encompass a small part of a watershed, should describe how their actions will help achieve objectives for the watershed. Quantitative objectives provide a valuable means to evaluate outcomes of restoration and to determine how much additional effort and/or change in restoration treatment design is needed if objectives are not being achieved. Ultimately, objectives phrased as quantitative hypotheses will accelerate learning in the adaptive management cycle and enhance cost-efficiency of the program.

C. Develop a Strategic Framework for Restoration

The ISRP believes that a unified, strategic framework for habitat restoration – one that considers all dimensions of the aquatic environment – is needed to guide future actions throughout the basin, and that development of a strategic framework should receive high priority. A strategic framework for restoration should provide a coherent synthesis of multiple elements in the plans that currently address fish and habitat restoration. The framework should include quantitative objectives; identify limiting factors and frame priority areas and actions at a subbasin scale; and incorporate landscape-scale/whole watershed restoration principles. These principles are often mentioned but not always reflected in proposed actions. The framework should clearly link efforts to restore wildlife habitat with efforts to restore fish habitat at a landscape scale. The framework should integrate upslope processes and issues, particularly erosion and sediment delivery, toxic chemicals, water temperature changes, forest health, and public outreach and involvement at a scale beyond that of individual projects.

The ISRP suggests that the BiOp actions in many subbasins could be improved by increasing the focus on watershed processes at larger spatial scales and on land use activities over longer time frames. Habitat restoration projects need to address the processes likely responsible for habitat degradation, not just symptoms that are observed at stream or reach scales. The transition to planning restoration at larger scales and over longer time frames could be facilitated through the prudent use of pilot projects that can be ramped up to the full landscape scale once they are found to be feasible at the demonstration site scale. The strategic framework should include an inventory of demonstration-scale versus landscape-scale projects and provide policy guidance for shifting the balance from demonstration to landscape scales.

Conversations with project sponsors suggest that many members of the Action Agencies' expert panel groups are also sponsors for projects and members of local technical advisory committees. The professional integrity of these individuals is not in question, and independence with regard to restoration project ranking and selection might not be a problem at this time. However, although the ISRP is not aware of the makeup of each individual expert panel, the ISRP believes that options for restoring fish and wildlife populations are best identified by assuring a wide range of disciplines and expertise on the panels covering this complex interdisciplinary field.

In our preliminary review, we stated that an independent scientific review of the Expert Panel Process might be warranted and, at a minimum, we wanted to learn more about the details of the various procedures. In the response loop, BPA and the U.S. Bureau of Reclamation briefed us on the Expert Panel Process and provided documents and links describing the process. Based on what we learned, the current procedures, as we understand them, appear to help achieve consensus among participants and provide consistency in choices among alternative projects.

However, we believe that improvements can be made regarding the conceptual and empirical foundations for estimating improvement in habitat quality and then converting estimates of improvement in habitat into estimates of improvement in salmon survival. Specifically, the detailed chain of calculations seems overly complicated given the subjectivity of the rankings and the lack of empirical support for the functional relationships being assumed. It seems that one could *define* maximum habitat quality as maximum salmon survival and avoid conversion steps. Because density effects are not explicitly considered, changes in habitat quality (productivity) are necessarily conflated with changes in habitat quantity (carrying capacity). For example, barrier removal must be scored as an increase in habitat "quality" even though any benefits to the salmon population would arise from access to more habitat (greater carrying capacity) or improvement in salmon survival due to reduced competition for resources (compensatory survival) in the annexed habitat, which might have the same (or lower) productivity than habitat already accessible below the barrier. These conceptual issues are examined more explicitly in NOAA's draft report "Life-cycle models of salmonid populations in the interior Columbia River Basin" currently being reviewed by the ISAB. As noted at BPA's briefing to the ISRP, the Expert Panel Process will be updated based on results from NOAA's Life Cycle modeling effort. Accordingly, any recommendation to review or modify the Expert Panel Process should be considered in light of the ISAB's recommendations from that review.

The ISRP emphasizes that findings from Expert Panel Processes should be viewed as hypotheses and that data should be collected to test these hypotheses. Conclusions developed from the Expert Panel Process should include a clear summary of key assumptions and limitations of the information and data used in the process.

D. Refine Future Review Process

To implement the Council's Fish and Wildlife Program, BPA and the Council regularly solicit and review projects that propose to benefit fish and wildlife populations affected by the Federal Columbia River Power System. Review processes have taken many forms including program-wide solicitations, rolling provincial reviews, targeted solicitations, and most recently Category and Geographic reviews.

This review marks the completion of the ISRP's Category and Geographic reviews. These reviews began in 2008 and 2009 with the Wildlife Category Review encompassing a set of 36 ongoing, wildlife-related projects (see [ISRP 2009-17](#)). In 2010, the ISRP completed a review of 99 ongoing projects for the Research, Monitoring and Evaluation and Artificial Production Category ([ISRP 2010-44](#)). In 2011 and 2012, the ISRP completed a review of 71 proposals submitted for the Resident Fish, Data Management, and Regional Coordination Category Review ([ISRP 2012-6](#)).

Over the next few months, the Council, BPA, and the ISRP, with feedback from the project sponsors, will develop the next review process. To aid in the discussion, the ISRP will produce a memo with suggestions to frame and guide the next review process, and to define the ISRP's role. This memo will be similar to the memo produced by the ISRP following the review of 540 proposals for the Fiscal Years 2007-2009 solicitation in 2006 ([ISRP 2006-7](#)) that helped frame the Category and Geographic Reviews.

In the upcoming memo, the ISRP will describe, from its perspective, the lessons learned from the Category and Geographic reviews and other past reviews:

- The ISRP will compare the various review processes, examining effort levels and recommendation outcomes. The ISRP plans to look at "qualifications" to see what themes emerge. Are there particular aspects of projects that would benefit from a focused or different review approach?
- The ISRP will look at the various purposes of the review, which range from program accountability to project improvement to results reporting and information sharing. To meet these purposes, what review steps and aspects should be highlighted and maintained in future reviews? For example, ISRP reviewers uniformly found that site visits and direct interaction with project personnel were invaluable to the review process and served numerous purposes, including clarifying missing or confusing project elements and facilitating collegial and direct information sharing (Fig. 7). Site visits and presentations were most useful when they included people involved in planning/design, implementation and monitoring.
- The ISRP's suggestions will take into account that projects have different review histories and that the Fish and Wildlife Program continues to evolve. Some projects have now undergone five complete project reviews. Are there projects or types of

projects that have consistently met scientific review criteria, and the converse? Should future reviews focus on areas where the perceived need is greatest?

- The ISRP will look at alternative review approaches that best inform a landscape-scale, adaptive management approach. For example, numerous new hatcheries for a wide variety of species are proposed through distinct Step Reviews. How will all of these proposed and recently implemented programs be combined to change the overall artificial production/wild fish landscape of the Basin? In past reviews, the ISRP focused on individual proposals, which were often implemented at a relatively small scale or narrowly focused. In the future, it may be worthwhile to review all projects (proposals) in a subbasin and evaluate whether the aggregate of projects meets the needs and goals of the subbasin. This review would require project sponsors to synthesize information and evaluate their projects in the context of the 2004 subbasin plans.

In the section below, we discuss umbrella habitat restoration projects, including one potential approach for future reviews. The ISRP plans to consider the issue of umbrella project review in more depth in an upcoming memo.



Figure 7. The ISRP finds site visits and presentations are an invaluable part of the review process, regardless of the weather (Clearwater basin site visit, right).

E. Evaluate and Improve Umbrella Projects

During the Geographic Review the ISRP reviewed a number of umbrella projects, including some that were previously characterized as umbrella-types and some that are *de facto* umbrella-types. Among other attributes the ISRP examined umbrella project proposals to determine if the proposal:

- 1) contained a request for individual projects
- 2) identified project locations and types
- 3) linked restoration actions to an assessment or recovery plan
- 4) contained biological objectives for Viable Salmonid Population parameters

- 5) specified quantitative environmental or biological objectives
- 6) quantified restoration tasks such as miles of fence or number of culverts
- 7) summarized the project selection process
- 8) stated if project selection and prioritization criteria have been reviewed.

The ISRP observed much variation among umbrella projects in the level of detail provided on prioritization of restoration areas, project review, and selection processes. Many of the more established umbrella projects have refined and adjusted how they select, prioritize, and monitor habitat restoration projects over time. In the past the Grande Ronde Model Watershed project has done a good job of identifying the request for individual projects, identifying locations and types of projects, and providing links between actions and recovery plans. The project has also quantified some restoration tasks and provided a reasonable summary of the project selection process. Umbrella project activities in the estuary are making meaningful contributions to facilitating and coordinating projects, but some questions remain about scoring systems and selection of the level of monitoring by site. The Upper Columbia Programmatic Habitat project appears to be poised to make contributions in the region as an umbrella project. The ISRP suggests that umbrella projects use decision charts to help clarify the processes for sponsors and reviewers. Including questionnaires, tables, weighting systems, and example prioritization calculations in proposals, or via links, would help the review process. Furthermore, the ISRP encourages umbrella project sponsors to look at examples of successful umbrella efforts in the region, nation, and world (e.g., South East Queensland Healthy Waterways Partnership [SEQHWP]: Moreton Bay, Australia, which supports 270 bird species, 740 fish species, 40 tropical corals, and several endangered sea turtles [www.healthywaterways.org/]).

The ISRP could be involved in a less direct review role as umbrella projects develop and can demonstrate 1) thoughtful and comprehensive coordination, 2) a willingness to learn from existing monitoring programs, and 3) the ability to address the most important restoration priorities in the right place and in the right order by adopting a landscape approach. Perhaps the ISRP could conduct a check-in review every five years or so to review project prioritization criteria, RM&E plans, and synthesis reports of project results and RM&E findings.

F. Learn from Productive Coordination/Partnerships

Many projects involved partnerships among landowners, agencies, and local communities including schools. This is a very positive development for achieving effective habitat conservation and restoration. Additionally, project sponsors are encouraged to maximize their learning from the experiences of other programs.

A number of good examples were found during the review. For example, in the Lemhi and Pahsimeroi river watershed (Salmon Basin, Idaho), multiple sponsor entities (Idaho Office of Species Conservation, IDFG, Lemhi Regional Land Trust, Nature Conservancy, Idaho Department of Water Resources, Custer Soil and Water Conservation District) and private landowners are coordinating/partnering to achieve the common goal of conserving salmon and their habitat

while also preserving the ranching and agricultural operations of private land owners (Fig. 8). The project sponsors have developed positive relationships with key private land owners, leading to successful conservation easements that protect/restore key habitats and conserve water for aquatic resources. The positive relationships and outcomes with private landowners seem to be instilling social change in the region, which could lead to additional cooperation of landowners for the benefit of salmon conservation.



Figure 8. ISRP site visits with land owners, fish and wildlife managers, and conservation groups in the Lemhi River basin.

In the Yakima River basin a variety of groups, including private land owners, are working together to improve fish passage conditions and to increase flow in streams (see: 200739800 – Yakima Basinwide Tributary Passage and Flow). Also, in the Yakima Basin, a high school and its students are restoring tributary habitat adjacent to the school and monitoring change in conjunction with the Yakama Nation and other fish conservation programs. Involvement of students in habitat restoration projects provides the means for expanding conservation ethics to the community.

The ISRP recommends that this fundamentally important aspect of the Fish and Wildlife Program be expanded to include a larger number and wider range of other projects (where appropriate) and be supported by Program funds. Learning from productive coordination and partnerships requires sustained and directed efforts to build adaptive capacity in the workforce and to develop local acceptance and, in some cases, responsibility for eventual project success. The specific activities to be supported could take several forms and may include formal workshops for cross-project coordination and learning, instituting citizen-science programs, and encouraging community education using easy to read reports, signage and even local festivals to celebrate project work and the watershed services being restored, among others. A regional program manager should be charged with seeing that public and project-to-project learning activities are effectively implemented.

G. Improve Workforce Support and Development

The levels of experience and education among the staffs and individuals conducting the actions in the field are quite varied. Yet the programs they implement are ecologically, scientifically, and administratively complex and often include multi-million dollar budgets. Project sponsors with limited technical staff, expertise, or experience should partner with individuals or groups with expertise in both fish ecology and habitat restoration techniques. This expertise is needed to successfully prioritize and implement restoration projects. The ISRP also recommends that an organized mentoring program be established to provide support for personnel with limited experience. Dedicated budgets and support should be provided for professional development opportunities including regional workshops, national meetings on habitat restoration, online courses, science policy exchange conferences, and journal publications. Annual habitat restoration workshops involving the entire Columbia Basin are needed to facilitate the exchange of ideas; habitat restoration experts should be invited to speak to the group. Use of Extension Services should be encouraged as well as available statistical advice, such as that provided by BPA-supported projects. Collaboration between habitat restoration efforts and fish monitoring efforts should be tightly integrated as a means to achieve maximum restoration effectiveness. These are vital activities for developing and maintaining a productive workforce in the region.

Project personnel should describe key lessons learned from their restoration efforts so that others may learn from this experience, for example, road decommissioning lessons from the Clearwater Nez Perce Tribe and U.S. Forest Service and successful approaches to engage private landowners. Reporting of lessons learned could be in the form of a project report, journal publication, newsletter, conference and workshop presentations, video, or other professional outlets. For example, the Asotin County Conservation District developed a brief video documentary that describes their efforts to engage private landowners in habitat conservation while also providing benefits to the landowners (www.asotin.cd.net/accd_videos.htm). Reporting of past and present project accomplishments and lessons learned in response to objectives should be a specific deliverable in each proposal. Further, actively encouraging professional publications on a regular basis along with presentations builds critical thinking and adaptive capacity, as well as demonstrates leadership in the rapidly evolving field of habitat restoration.

H. Expand the Conservation Reserve Enhancement Program (CREP)

The ISRP was impressed with the level of private landowners' enrollment in the U.S. Department of Agriculture's [Conservation Reserve Enhancement Program \(CREP\)](#). This program is facilitated by cost sharing between the Fish and Wildlife Program and a variety of other funding sources used by soil and water conservation districts. The CREP program, administered through the Farm Service Agency, targets high-priority conservation issues identified at the local, state, or regional level, including the establishment of riparian buffers on private lands. Some watersheds in the John Day River subbasin had almost full enrollment in CREP or other conservation programs. Stream banks that, a decade ago, were bare and incised from grazing

and other agricultural practices now are supporting riparian vegetation that provides shade and stabilizes stream banks. However, habitat restoration is a slow process and additional years of protection are needed to produce robust riparian vegetation in many areas. In Wasco County, Oregon, and surrounding counties, the ISRP saw evidence of recent gains in fish and wildlife habitat as a result of soil and water conservation district staff enrolling landowners in CREP on key streams like Fifteenmile Creek. Additional effort is needed to enroll more landowners and protect additional riparian habitat.

The future of the CREP has, so far, not been affected by the reauthorization of the Farm Bill. They are enrolling acres at this time. Project sponsors throughout the Columbia Basin should investigate this program in areas where agricultural practices are impacting riparian habitat and the program has yet to be utilized. CREP enrollment numbers currently vary greatly among soil and water conservation districts. Factors contributing to this variability should be examined to determine the best approach for encouraging land owner participation and for protecting additional key habitat. For instance, the programs in Oregon started rather slowly because the USDA had no direct economic incentives for recruiting landowners to the program. However, the program greatly improved when the soil and water conservation districts were able to hire technicians designated to recruit for the programs.

A key aspect of success of the county programs is the communication and marketing skills of the on-the-ground program personnel (Fig. 9). They need good recruiters, that is, people with knowledge of the ecosystem and human psychology. Recruiters must work well with landowners and convince them to value the ecosystem and recognize quality of life benefits associated with CREP, in addition to the short term monetary values. The ISRP believes it is important for CREP personnel to have workshops where recruitment successes and failures are discussed as a means to develop a strong protocol for recruiting landowners.



Figure 9. Conservation district staff describing their work on site visits to the John Day (left) and Asotin basins (right).

In terms of ecological effectiveness, some riparian plantings in more arid regions were not well-conceived and not well grounded in ecological reality. Many areas over-planted species that were not well adapted to the area. In other areas, undesirable species (blackberries, reed canary grass) caused problems, as did wildlife depredations. It is important for CREP personnel to know the ecological limitations of regions and specific sites, and to work through an adaptive management process, finding out what works and what does not, and why, and passing on knowledge gained to other soil and water conservation districts. Learning at the regional and local scales is critical to success of the program, and this requires monitoring, assessment and communication. It is important to note that an initial assessment of stream invertebrate responses to protected riparian buffers showed a positive response, but riparian conditions did not. It may be that the riparian conditions require more time to fully express themselves, probably at least a decade. Tighter assessment methods and more patience may be required.

The ISRP recommends (1) direct support be provided for building the workforce's skills and capacity to enroll new landowners, (2) close coordination of the CREP Program with other habitat programs to prioritize project locations and to enhance effectiveness, and (3) an ecological assessment of the program be conducted at an appropriate time (perhaps 2016-17).

I. Provide Long-term Maintenance of Fish Screens and Livestock Fences

During ISRP site visits of fish screens, the need for stable and predictable funding for long-term maintenance was apparent. Although funding appears to be available to build new fish screens, BPA funding for maintenance and replacement is problematic. Fish screen infrastructure must be maintained or fish survival and past habitat investments are at risk. Additionally, fences constructed to keep livestock out of riparian areas also require regular maintenance. Livestock that enter a riparian area can quickly damage or destroy years of restoration effort.

J. Explore M&E Opportunities at Diversion Fish Screen Installations

The ISRP also saw some high-quality fish screen installations at diversions and some of these had fish trapping capability in bypass channels. Fish screen bypass channels could be used to help monitor juvenile salmonids in some situations. The ISRP suggests an assessment of how existing and planned fish screens can be utilized beyond merely screening fish from diversions. Some diversion screen structures have potential as a cost-effective tool to assist in monitoring and evaluation and in answering some fundamental questions regarding fish ecology, population estimation, and fish movements in relation to river and stream conditions. A substantial number of the fish screens have fish sampling capabilities in place, and others may be adaptable to sampling fish at comparatively low cost (Fig. 10). An assessment of their potential should include not only types of sampling that might be planned, but how to incorporate them into existing projects for monitoring and evaluation in a statistically valid way. These screens appear to be an underutilized resource.



Figure 10. Fish collection at an irrigation diversion in the John Day River basin and a fish screen facility in the Lemhi River basin.

K. Streamline NEPA Compliance

A number of habitat projects must complete Environmental Assessments prior to implementing the project. Some project sponsors indicated this effort can be costly and require considerable time prior to implementation. Project sponsors should consider whether a programmatic Environmental Assessment or Impact Statement (EIS) could be developed for specific types of habitat restoration projects on, for example, U.S. Forest Service land. This approach might reduce overall costs and speed implementation.

L. Consider Forest Health

Many of the projects reviewed included some consideration of how climate change impacts on water temperature and system hydrology could influence the long-term effectiveness of their restoration projects. However, very few projects (if any) considered how forest health, particularly as influenced by climate change, could impact restoration efforts. In many areas changes in climate are expected to amplify natural disturbance events and play a larger role in defining the long term success of restoration efforts. Less soil moisture can reduce tree health, making trees more vulnerable to insects and disease, which can result in tree mortality on a large scale. Additionally, increased tree mortality can increase fuel loading levels and ultimately contribute to larger, more frequent, and more intense wildfires with major impacts to riparian plant communities. Increased tree mortality can also contribute to higher susceptibility to windthrow during major storms.

These changes in forest health can have major effects on water quality. Decreased stream shading can increase stream temperatures. Reduced ground cover due to intense fires or ground disturbance due to blow down events can increase soil erosion and sediment inputs. Ultimately, these disturbances are also likely to significantly increase the recruitment of large wood to streams. This can be beneficial for fish by increasing channel and habitat complexity.

But it can also increase the risk of damage to instream restoration work and/or human infrastructure, particularly roads at road-stream crossings, including bridges and culverts, and road drainage systems due to elevated volumes of wood and sediment being transported during high flow events. In many areas of the Columbia Basin, these changes are already evident. The selection, design, and long-term sustainability of many restoration treatments could benefit from increased consideration of the potential effects of expected changes in forest health.

M. Efficiently Use Large Wood

If habitat project goals include increasing aquatic habitat complexity, restoring floodplains, and augmenting summer base flows, sponsors might wish to consider adding larger quantities and size classes of large wood to streams. A valuable project to demonstrate this tactic, using whole, untethered logs cheaply obtained on land adjacent to the project, is the Taneum Large Wood project on Taneum Creek near Yakima, Washington. Concern was raised by downstream landowners regarding movement of large logs during flood events, but in this project most large wood remained in place and no damage to the downstream channel and adjacent property occurred during a major flood event.

A separate but related issue, reported by staff of several projects, is difficulty in acquiring large wood from the U.S. Forest Service in some areas. This appears to be a common problem throughout the Columbia Basin that is in need of administrative attention. Selective harvests of trees near the riparian area can be a cost effective way to add wood to the channel, as demonstrated by the Taneum Large Wood project.

N. Evaluate and Control Pesticides and Toxic Chemicals

In the review of the 2009 Fish and Wildlife Program, the ISAB stated that anthropogenic chemical proliferation in the Basin is a priority for resolution ([ISAB 2013-1](#)).³ After visiting a large portion of the Basin's area accessible to anadromous fish over the past few months, the ISRP reiterates and emphasizes the ISAB recommendation. Chemical inputs into the watershed are ubiquitous with treated agriculture fields abutting streams, mine tailing being removed, mines operating and new mines proposed, roads immediately adjacent to rivers, and sewage treatment plants and chemically intensive industries operating in urban areas. In addition, chemical treatment is a primary tool for weed management by the Fish and Wildlife Program habitat projects; this issue is described separately in more detail in the section below.

As recommended by the ISAB, there is an urgent need to quantify and map the spatial patterns of these chemicals; assess their transfer, accumulation, and persistence; and document their impact on Columbia River ecosystems. Monitoring can include fish tissue sampling, studies on sub-lethal effects, and evaluation of chemical bioaccumulation in fish and invertebrates.

³ This recommendation follows from the ISAB's Food Web Report (2011-1) and PNAS article (Naiman et al. 2012).

Monitoring is a key step in determining how to minimize impacts of chemicals on aquatic resources. The ISAB noted that the Council has an opportunity to take an active role, through cooperation with regional partners, to ensure that monitoring of toxic contaminants and evaluation of their effects on fish and wildlife are addressed. In a recent paper, the National Research Council found that the federal government needs a coordinated, common approach when determining the potential effects of pesticides on endangered or threatened species. The responsible federal agencies include the U.S. Environmental Protection Agency, National Marine Fisheries Service, and Fish and Wildlife Service ([NRC 2013](#)).

The habitat projects reviewed in this process employ some remedial strategies to reduce the potential impact of artificial chemicals posing potential threats to aquatic resources in many subbasins in the Columbia River system. Projects that reduce sediment inputs into streams, such as road decommissioning and drainage improvement, moving cattle out of streams, using no-till agriculture, and preventing pivot irrigators from crossing streams, also likely reduce chemical inputs. Projects that involve mine tailing removal also monitor for presence of some chemicals such as mercury used in the mining process. In the Hood River, project sponsors disconnect ditches from streams and create spray buffers with riparian plantings to limit direct pesticide input into streams. Spray buffers essentially catch the pesticides in foliage to keep it from directly reaching the stream. These are useful first steps. However, the ISRP is concerned that the spray buffer approach may kill riparian insects and other organisms that depend on that foliage. These riparian insects often drop into or interact with streams and are an important part of the aquatic food web, especially for juvenile salmonids, which are highly dependent on riparian insects for food, growth, and survival.

O. Improve Noxious Weed Management and Control

Noxious weed management is a common issue among fish and wildlife habitat restoration, protection, and maintenance projects. The ISRP and the Council identified this as a programmatic issue in the Wildlife Category Review ([ISRP 2009-17](#); [NWPPCC 2009](#)). This was a recurring discussion topic during Geographic Review site visits.

It is clear that noxious weed species, and invasive species in general, are widely established, and eradication will be difficult, if not impossible. Identifying which species may disrupt or perhaps support important processes is essential for restoration of important ecological purposes. Rather than focus on eradication it may be prudent to identify and maintain the old and new biotic elements that can retain ecological function, productivity and resilience. As noted by ISAB (2011-1, 2011-4), it may be prudent to develop approaches and management practices that embrace hybrid communities. Further, improved public education is needed to prevent additional introductions of invasive species, including noxious weeds.

In the Wildlife Category Review, borrowing from past reviews, the ISRP commented that projects and the Fish and Wildlife Program should coordinate with land managers and local governments for a landscape level approach to invasive species management. For example develop weed control strategies that cover a landscape unit, one that may be larger than the

project site. This would foster cooperation with neighbors, target problem areas, and help anticipate new infestations. Other suggestions from the Wildlife Category Review that are relevant to the Geographic Review include:

- Use a mapping or GIS program like the Nature Conservancy's Weed Management Information System (<http://tncinvasives.ucdavis.edu/>) to quantify trends in spatial patterns and to prioritize target areas for treatment.
- Pursue comprehensive training through land grant universities and extension programs, and survey the extensive literature on vegetation management to keep abreast of new approaches. This will assist in establishing and employing state-of-the-art integrated pest management (IPM) approaches.
- Consider invasive control strategies including targeted grazing, fire, use of bio-controls, and establishing more desirable species that can out-compete invasives in targeted habitats. If these approaches are not effective then perhaps consider the use of herbicides. Avoid strategies that have been shown to be ineffective.
- Coordinate with other agriculture grant programs, and potentially design a targeted solicitation to develop methods to address species that are difficult to control.
- Develop an incentive system to reduce weed control costs and recognize projects that are successfully managing invasive species, perhaps "weed warriors" awards.
- Monitor treated sites to ensure weed control effectiveness and to verify that other invasive plants are not replacing treated species.

On the site visits, the ISRP heard about a wide range of weed management approaches which are generally consistent with the comments above. For example, some projects worked within Cooperative Weed Management Areas which provides an opportunity for staff to pursue training on best practices for weed management. Road decommissioning projects avoided unintentional transfer of weeds by cleaning of equipment and attempted to control the spread of weeds immediately following project completion. Riparian projects selected and even cultivated native plants that would shade and/or out-compete weeds. However, herbicide spraying remains an unacceptably large part of weed management. Interestingly, one project sponsor noted that their weed control program improved their relationship with local landowners who were then more open to conservation practices.

When properly managed, livestock grazing can be used to manipulate vegetation, for example to control weeds such as cheatgrass and reed canarygrass, reduce fine fuels and/or to stimulate late season regrowth of vegetation for use by wildlife on winter ranges. There may be cases where grazing as part of a coordinated resource management (CRM) plan enhances cooperation with neighbors to accomplish fish and wildlife goals on a larger scale. In some circumstances, properly managed livestock grazing could generate income to support land management activities. In many areas, Tribes value grazing with cattle or horses and ranching is a strong cultural tradition and economic mainstay.

Some conservation projects include timber harvest and planting of agricultural feed crops rather than native plants. Like livestock grazing, these practices can be detrimental to noxious

weed management, but they can also be beneficial according to the sponsors. Because of a potential conflict with conservation purposes, these practices should be well explained in management plans and be justified with scientific findings in proposals.

P. Evaluate and Improve Winter Habitat

The ISRP's recent review of CHaMP noted that sampling focuses on summer habitat. There were no protocols for winter habitat, including key biological, physical, and chemical factors that are important to salmonids. The ISRP believes there is increasing evidence that the quality of winter habitat plays a critical role for juvenile anadromous and resident salmonids, especially during their first winter. The ISRP urges users of CHaMP results to recognize the basic limitations of seasonally limited CHaMP information. Winter habitat should be monitored and evaluated because it is critically important to survival. Additional or alternative monitoring protocols may be needed to properly assess winter conditions.

Many proposals mentioned the intent to improve winter habitat, but the proposals provided little information about actual winter conditions in project sites. It is not clear that monitoring associated with projects included an assessment of winter habitat use by salmonids, including habitats occupied by juveniles that emigrated downstream from initial rearing areas.

It is important to distinguish between coastal and interior stream conditions. For coastal streams, winter water temperatures seldom drop below 3°C and the greatest risk for juvenile salmonids may be winter flooding, although floods can have both beneficial and detrimental effects. Much has been learned from these systems, especially with coho salmon whose most valuable winter habitat is off-channel ponds and alcoves, especially those influenced by groundwater. Dense wood cover along the banks in channels has also been identified as valuable winter habitat (Beechie et al. 2005, Ebersole et al. 2009). Concealment behavior, as described below, has also been described in coastal areas. For interior streams, physical conditions (Brown et al. 2011) are different and fish respond accordingly. As water cools in autumn, juveniles cluster in loose aggregations and begin to enter concealment cover during the day, reducing their vulnerability to mammalian and avian predators (Van Dyke et al. 2009, 2010). They emerge at night to feed on the invertebrate drift they need. Larger fish, adult resident trout for example, may also adopt concealment behavior (Meyer and Gregory 2000), but it appears important that first winter fish find quality habitat at the onset of winter and that if that habitat deteriorates during winter, for example interstitial spaces fill with sediment, their ability to survive is very limited (Hillman et al. 1987). High quality habitat consists of interstitial spaces provided by larger angular rock clusters and dense wood, in or immediately adjacent to water of moderate velocity, and not in pools. Pools with dense submerged habitat provide good winter habitat for larger juveniles (Van Dyke et al. 2009).

As yet, it is not feasible to directly measure interstitial space, but fish can be extracted from concealment by electrofishing when streams cool below 9°C, often in October, but before streams become inaccessible or iced over. Fish pulled from concealment will be completely black as their melanophores will have expanded in the absence of light. Such electrofishing will

enable observers to identify what habitat is being utilized and what is not (but the anode of a fish shocker can sometimes cause a black “burn” mark). Night snorkeling has also been used to observe juveniles during winter (Allen 2000), but such information appears secondary to assessment of the day habitat requirements that likely determine carrying capacity through the initial winter (Harwood et al. 2002).

The installation of complex wood instream structures has been used to provide additional habitat (Nagayama et al. 2012). Habitat restoration can also reduce the formation of frazil and anchor ice formation (Brown et al. 2011) by decreasing the width to depth ratio, increasing woody riparian vegetation, and reconnecting side-channels. However, habitat created by single-log plunge pools and diagonal-boulder weirs in Wyoming was often not usable for fish because of the forming, dissipation, and reforming of ice features (Barrineau et al. 2005).

The ISRP encourages project staff to become more knowledgeable about winter habitat for juvenile salmonids, especially if they are working in interior streams. A comprehensive summary of winter ecology research from North America and Europe is provided by Huusko (2007). Many knowledge gaps remain. For fall Chinook (Connor et al. 2005; Hegg et al. 2013) and to some extent spring Chinook in the Salmon River, a typical pattern is to begin gradual downstream movement early in life and spend the first winter in a lower mainstem or hydrosystem pools. Other fishes may spend their first winter in headwater habitat. An important and testable hypothesis is that salmonids that migrate downstream have lower survival than members of their cohort that winter in headwater habitats. New tagging technology is capable of providing answers, and this information could be used to further guide restoration efforts.

Q. References

Allen, M. A. (2000). Seasonal Microhabitat Use by Juvenile Spring Chinook Salmon in the Yakima River Basin, Washington. *Rivers; Studies in the Science, Environmental Policy and Law of Instream Flow* 7(4): 314.

Barrineau, C. E., W. A. Hubert and P. D. D. T. C. Annear (2005). Winter ice processes and pool habitat associated with two types of constructed instream structures. *North American Journal of Fisheries Management* 25(3): 1022-1033.

Beechie, T. J., M. Liermann, E. M. Beamer and R. Henderson (2005). A classification of habitat types in a large river and their use by juvenile salmonids. *Transactions of the American Fisheries Society* 134(3): 717-729.

Brown, R. S., W. A. Hubert and S. F. Daly (2011). A primer on winter, ice, and fish: what fisheries biologists should know about winter ice processes and stream-dwelling fish. *Fisheries* 36(1): 8-26.

- Connor, W., J. Sneva, K. Tiffan, R. Steinhorst, and D. Ross (2005). Two alternative juvenile life history types for fall Chinook salmon in the Snake River basin. *Transactions of the American Fisheries Society* 134: 291-304.
- Ebersole, J. L., M. E. Colvin, P. J. Vigington, S. G. Leibowitz, J. P. Baker, M. R. Church, J. E. Compton, B. A. Miller, M. A. Cairns, B. P. Hansen and H. R. Lavigne (2009). Modeling stream network-scale variation in coho salmon overwinter survival and smolt size. *Transactions of the American Fisheries Society* 138(3): 564-580.
- Harwood, A. J., N. B. Metcalfe, S. W. Griffiths and J. C. Armstrong (2002). Intra- and inter-specific competition for winter concealment habitat in juvenile salmonids. *Canadian Journal of Fisheries and Aquatic Sciences* 59(9): 1515-1523.
- Hegg, J. C., B.P. Kennedy, P.M. Chittaro and R.W. Zabel (2013). Spatial structuring of an evolving life-history strategy under altered environmental conditions. *Oecologia* DOI 10.1007/s00442-012-2564-9.
- Hillman, T.W., J. S. Griffith, and W. S. Platts (1987). Summer and winter habitat selection by juvenile Chinook salmon in a highly sedimented Idaho stream. *Transactions of the American Fisheries Society* 116: 185-195.
- Huusko, A., L. Greenberg, M. Stickler, T. Linnansaari, M. Nykanen, T. Vehanen, S. Koljonen, P. Louhi and K. Alfredson (2007). Life in the ice lane: the winter ecology of stream salmonids. *River Research and Applications* 23: 469-491.
- ISAB (Independent Scientific Advisory Board) (2011-1). Columbia River Food-Webs: Developing a Broader Scientific Foundation for Fish and Wildlife Restoration. Northwest Power and Conservation Council, Portland, Oregon. Report no. ISAB 2011-1. (20 July 2011; www.nwcouncil.org/fw/isab/isab2011-1).
- ISAB (Independent Scientific Advisory Board) (2011-4). Using a Comprehensive Landscape Approach for More Effective Conservation and Restoration. Northwest Power and Conservation Council, Portland, Oregon. Report no. ISAB 2011-4. (30 September 2011; www.nwcouncil.org/fw/isab/isab2011-4).
- ISAB (Independent Scientific Advisory Board). (2013-1). Review of the 2009 Fish and Wildlife Program. Northwest Power and Conservation Council, Portland, Report no. ISAB 2013-1. (7 March 2013; www.nwcouncil.org/fw/isab/isab2013-1/).
- ISRP (Independent Scientific Review Panel). (2006-7). A Framework for ISRP Review of New and Ongoing Projects for the Columbia River Basin Fish and Wildlife Program. Northwest Power and Conservation Council, Portland, Oregon. Document [ISRP 2006-7](http://www.nwcouncil.org/fw/isrp/isrp2006-7). (11 December 2006; www.nwcouncil.org/fw/isrp/isrp2006-7).

- ISRP (Independent Scientific Review Panel) (2009-17). Wildlife Category Review: Final Review of 2009 Proposals. Northwest Power and Conservation Council, Portland, Oregon. Document ISRP 2009-17. (19 May 2009; www.nwcouncil.org/media/32959/isrp2009_17.pdf).
- ISRP (Independent Scientific Review Panel). (2010-44). Final RME and Artificial Production Categorical Review Report. Northwest Power and Conservation Council, Portland, Oregon. Document [ISRP 2010-44](http://www.nwcouncil.org/fw/isrp/isrp2010-44). (17 December 2010; www.nwcouncil.org/fw/isrp/isrp2010-44).
- ISRP (Independent Scientific Review Panel) (2012-6). Final Review of Proposals for the Resident Fish, Data Management, and Regional Coordination Category. Northwest Power and Conservation Council, Portland, Oregon. Document [ISRP 2012-6](http://www.nwcouncil.org/fw/reviews/2013/isrp2012-6). (3 April 2012; www.nwcouncil.org/fw/reviews/2013/isrp2012-6).
- ISRP (Independent Scientific Review Panel) (2013-2). Habitat RME Review: ISEMP, CHAMP, and Action Effectiveness Monitoring. Northwest Power and Conservation Council, Portland, Oregon. Document [ISRP 2013-2](http://www.nwcouncil.org/fw/isrp/isrp2013-2). (12 March 2013; www.nwcouncil.org/fw/isrp/isrp2013-2).
- Meyer, K. A. and J. S. Gregory (2000). Evidence of concealment behavior by adult rainbow trout and brook trout in winter. *Ecology of Freshwater Fish* 9(3): 138-144.
- Nagayama, S., F. Nakamura, Y. Kawaguchi and D. Nakano (2012). Effects of configuration of instream wood on autumn and winter habitat use by fish in a large meandering reach. *Hydrobiologia* 680: 159-170.
- Naiman RJ, Alldredge JR, Beauchamp D, Bisson PA, Congleton J, Henny CJ, Huntly N, Lamberson R, Levings C, Merrill EN, Percy W, Rieman B, Ruggerone G, Scarnecchia D, Smouse P, Wood CC. 2012. Developing a broader scientific foundation for river restoration: Columbia River food webs. *Proceedings of the National Academy of Sciences (USA)* 109 (52):21201-21207 www.pnas.org/cgi/doi/10.1073/pnas.1213408109.
- NRC (National Research Council). Assessing Risks to Endangered and Threatened Species from Pesticides (prepublication copy). 2013. The National Academies Press, Washington DC. http://www.nap.edu/catalog.php?record_id=18344.
- NWPCC (Northwest Power and Conservation Council). 2009. Decision Memorandum: Funding Recommendations for project in the Wildlife Category Review. Northwest Power and Conservation Council, Portland, Oregon. (15 June 2009; www.nwcouncil.org/media/32962/isrp2009_17memo.pdf).
- Van Dyke, E. S., D. L. Scarnecchia, B. C. Jonasson and R. W. Carmichael (2009). Relationship of winter concealment habitat quality on pool use by juvenile spring Chinook salmon (*Oncorhynchus tshawytscha*) in the Grande Ronde River Basin, Oregon USA. *Hydrobiologia* 625: 27-42.

IV. ISRP Recommendations and Comments on each Proposal

The sequence of ISRP proposal comments below is organized geographically by subbasin starting at the estuary moving upriver covering the mainstem tributaries through the upper Columbia (Wenatchee, Entiat, Methow, and Okanogan), and then covering proposals for actions in Snake River tributaries. Within each subbasin, proposal comments are arranged by project sponsor, location in the subbasin, and proposal number (oldest first). The proposal titles, sponsor names, and short descriptions were generated from Taurus and authored by the project sponsors.

A. Estuary Programmatic Comments

1. Improving Strategic Planning for Estuary Restoration

The estuary effort benefits from numerous plans including the Action Agencies' Columbia Estuary Ecosystem Restoration Program (CEERP); the BiOp and Estuary Module; the Lower Columbia Recovery Plan; and the Subbasin Plan. However, the estuary effort would benefit further by a strategy that builds on CEERP and also considers issues such as upslope/upstream disturbances, sediment, toxics, water temperature, and public outreach and involvement at more than the individual project scale. This strategic plan should extend beyond a one-year or project review time frame and cover a decade.

As noted in the original proposal, synthesis of the many current plans was to be provided by *"...a proposed ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon and Lower Columbia River Steelhead (NMFS 2012). This plan is the culmination of all the recovery plans for the lower Columbia basin and synthesizes the salmonid recovery plans in Oregon, Washington, White Salmon as well as the Estuary Recovery Plan Module. NMFS anticipates its completion in early 2013. This plan lists limiting factors, threats and identified actions from these plans. This proposal will address those categories of actions that pertain to habitat protection and restoration."*

This plan has recently been released, but it is unclear as to how it will be used given the discussion of ongoing development of an Ecosystem Restoration Plan for the Lower Columbia mentioned in the sponsor's response. It is stated, "The expanded strategy is compatible with CEERP, broader than Pacific salmon recovery, and is focused on multiple focal species from the Subbasin Plan (NPCC 2004), including avian using Pacific flyway habitats and Columbia White-tailed deer." Having spatially explicit target areas for Pacific salmonids as well as other focal species will allow the region to compare priorities for different species across the lower river and better understand the tradeoffs of restoring individual areas focusing on a subset of species over others. The current prioritizations are useful but are very broad. A finer scale prioritization is needed. It remains unclear as to when a unified, strategic plan will be in place to guide this very complex restoration effort.

The strategic plan could describe a division of duties among the various estuary projects that is scientifically credible, maintains autonomy but coordinates and makes efficient use of the particular strengths and skills of each entity, fosters cooperation, and promotes healthy competition. Delegation and cooperation is especially important in terms of land protection and acquisition. The estuary program is being conducted by a number of entities (Columbia Land Trust [CLT], Columbia River Estuary Study Taskforce [CREST], Cowlitz Indian Tribe Estuary Restoration Program, Washington Department of Fish and Wildlife Estuary Memorandum of Agreement [WA MOA], and Lower Columbia River Estuary Partnership [LCREP]). Thus the program certainly needs to avoid the hypothetical situation where different groups might compete for the purchase of a property using BPA funds and potentially drive up the cost and confuse landowners. A strategic plan could help avoid such a situation. A strategic plan could also broaden the approaches used to restore salmon habitat by linking to and using approaches in well-developed tributary plans such as the Willamette River program. One restoration strategy in the Willamette River program (2009-012-00), for example, is to protect critical areas of aquatic habitat for native fish species that are referred to as anchor areas. Such an approach might provide a useful template when a strategic plan is developed. Abernathy Creek might be serving this purpose to some extent in the Estuary and lower Columbia. Another example of planning are management plans developed for the Fish and Wildlife Program's wildlife projects, which also acquire, restore, and maintain habitat conservation properties. It is not clear if the estuary projects develop similar documents that describe ongoing O&M, M&E, restoration, and invasive species treatments.

2. Improved Monitoring Strategy for Estuary Restoration Projects

Johnson et al. (2013) described a draft programmatic plan for restoration Action Effectiveness Monitoring and Research (AEMR) in the Lower Columbia River estuary. This document should receive a separate scientific review as it includes a number of important conceptual and statistical issues that are highly relevant to estuary monitoring.

While a preliminary review revealed the document was helpful and forward looking, the ISRP noted there are several key items that need to be resolved before the plan is implemented. It was also noted that the specific examples of monitoring projects were preliminary in nature. Thus several important questions remain concerning AEMR in the estuary:

- The ISRP understands that the sponsors will be working with BPA to provide coordination with freshwater monitoring schemes (ISEMP/CHAMP). It would be helpful to include an update on progress in the 2014 CEERP Strategy Report and Action Plan.
- It would be helpful to clarify the statistical aspects and weighting criteria for moving between estuary monitoring levels of standard, core, and intensive.
- Metrics for AEMR should be tied to objectives. This linkage was acknowledged by Johnson et al. (2013), but it would be useful to give some examples of the range of objectives that the various projects encompass. Some projects appear to have objectives over and above a straight-forward restoration goal and, for example, involve research to improve our understanding of ecosystems.

- More detail is required concerning the reference areas for the present set of projects. Another project aligned with LCREP is providing, “a suite of reference sites for use as endpoints and to place results of RM&E in context with the larger ecosystem (via 2003-007-00)” (page 1 of proposal 2003-011-00). Fifty-one reference sites have been chosen in the estuary. But, as pointed out by Johnson et al (2013), a rigorous statistical analysis is required to decide which of them should be used and how long they should be monitored to document natural variation. As mentioned in the response, a more thorough presentation of the use of reference and control sites will be included in the next version of the AEMR Strategy. The ISRP looks forward to reviewing that document.

3. ISRP Review Role in the CEERP Program

The ISRP’s review role in the estuary and Lower Columbia has evolved into a review of the scientific soundness of a project prioritization process, RM&E planning, and the results of projects, when reported. The ISRP review does not look at the justification for individual restoration or acquisition actions or the site specific restoration designs. The Estuary Partnership, mainly through LCREP, has developed science review criteria for their Scientific Work Group (SWG) to review each of the projects for preliminary selection. The Expert Regional Technical Group (ERTG) then seems to be a key science group that has an important role in final project selection by estimating Survival Benefit Units (SBUs) for proposed projects and in making recommendations regarding RM&E. The Action Agencies and Bonneville mainly then appear to make funding decisions based on ERTG recommendations on estimated Survival Benefit Units for the proposed restoration actions.

Over the years this program, through efforts of the umbrella projects (LCREP, CREST, CLT), has done a thorough job in developing a comprehensive program to attempt major improvements in restoring important habitat functions for aquatic organisms of the Columbia River Estuary and lower Columbia River. They have helped to assemble a strong team of federal, state, and local agencies and organizations to work together on these habitat improvement projects. As these projects have proceeded over the past several years, the ISRP has not been closely involved in their development or review. However, there seems to be strong evidence that reasonable science review and expertise, from the ERTG, has been well-applied during the projects’ development and implementation.

At this point it appears that the ISRP role in review of the program could be achieved doing a check-in review once every five years or so. The ISRP could continue to review project prioritization criteria, RM&E plans, and synthesis reports of results, especially evidence that Survival Benefits are actually being realized. It would be preferable to review the Corps’ Anadromous Fish Evaluation Program projects concurrently with the Fish and Wildlife Program projects. Te ISRP looks forward to discussing this review model as the next review process is developed.

4. Public Outreach, Education, and Involvement

The estuary projects should include objectives for community/public outreach and engagement. These objectives would help foster a true landscape approach to estuary management ([ISAB 2011-4](#)). It is not clear if current LCREP prioritization criteria for choosing restoration sites involve socio-economics. The present strategy uses a “multiple-lines-of-evidence” approach which is also known as a “multi-criteria decision analysis” from Malczewski (1999) to identify priority areas for habitat protection and restoration. This approach appears to emphasize the physical or geographic landscape.

Most proposals discussed getting community and landowner approval for implementation of specific projects. For restoration to be sustainable, a change in attitude and actions by a large number of people that live in/adjacent to the estuary will need to occur ([ISAB 2011-4](#)). At present, most of the projects are staffed by people with good technical talents, but fostering public involvement may require an expanded viewpoint of program goals and tasks, and staff with different skills including public involvement and communications. The project sponsors have demonstrated some work in this area including attending community meetings; the Cowlitz Tribe envisioned a cultural meeting place and access at the Walluski Confluence project; and LCREP performs education outreach with canoe trips and restoration opportunities for volunteers. Some simple outreach efforts, however, such as signage at ongoing and completed projects would enhance the visibility of projects, and if done correctly, increase public acceptance and interest in these and future habitat restoration efforts.

5. Comments on Restoration Methods

Methods for assessing restoration opportunities

The overall reliance on LIDAR and historical surveys was reasonable in assessing restoration opportunities at the technical level.

Dike Breaching and Large Woody Debris

Restoration methods that relied on dike breaching and floodplain reconnection seemed sound (Fig. 11). In some cases dikes were not totally removed, and the recruitment of large woody debris (LWD) is likely going to be limited. It would be interesting to compare restoration sites with LWD added as a treatment, to those that will rely on natural recruitment of LWD, or that will likely not get LWD recruitment because dikes were only partially breached. Many projects used or propose a notch and flow approach. Therefore, it will be important to monitor whether desired flows are achieved or if the re-opened areas become settling basins for sediment, which has happened at other estuaries where flow through has been restricted or not accounted for, for example Puyallup River estuary in Puget Sound (Simenstad and Thom 1996).

Barriers to Fish and Aquatic Organism Passage

It is unclear whether there has been a comprehensive assessment of fish and aquatic organism passage problems due to blocked culverts for the lower portions of streams in the estuary. Are there road culverts that can be replaced with more fish friendly structures? This is a daunting task, but a comprehensive assessment of passage issues on estuary tributaries seems central to development of a strategic approach for reconnection of habitat and meeting objectives for broad-scale restoration of the estuary. The LCREP proposal referenced a database for barriers, but other proposals did not mention a comprehensive assessment. It would be useful to assess the barriers and determine which additional streams and floodplains could be reconnected without requiring land acquisition.

Revegetation

Revegetation is a critical element of many of the estuary restoration projects (Fig. 11). Developing a resource for native plants can be a great opportunity for public interaction and cooperation. It was encouraging to see that increased attention is being paid to invasive plant control in the estuary. There are numerous approaches to reed canary grass treatment, and it would be useful to summarize data and describe the most successful approach. The Council's Fish and Wildlife Program's wildlife projects confront many similar issues regarding invasive species. A forum for sharing would be useful.



Figure 11. Columbia River estuary project moved back dikes, added large woody debris, and revegetated the tidal floodplain.

6. References

- ISAB (Independent Scientific Advisory Board) (2011-4). Using a Comprehensive Landscape Approach for More Effective Conservation and Restoration. Northwest Power and Conservation Council, Portland, Oregon. Report No. ISAB 2011-4. (www.nwcouncil.org/fw/isab/isab2011-4).
- Johnson, G., Corbett, C., Doumbia, J., Schwartz, M., Scranton, R., and C. Studebaker (2013). Draft programmatic plan for restoration action effectiveness monitoring and research in the Lower Columbia River estuary. AEMR Plan version January 29, 2013. 31 p. (circulated by LCREP representative Catherine Corbett to review members on March 20, 2013).
- Malczewski, J. (1999). GIS and Multicriteria Decision Analysis, John Wiley and Sons, April 5, 1999.
- Simenstad, Charles A., and Ronald M. Thom (1996). Functional equivalency trajectories of the restored Gog-Le-Hi-Te estuarine wetland. *Ecological Applications* 6: 38-56.

B. Estuary and Lower Columbia River Proposal Comments

200301100 - Columbia River Estuary Habitat Restoration

Sponsor: Lower Columbia Estuary Partnership

Short Description: This project builds on our regional ecosystem restoration program focused on restoring ecosystem structure and function, specifically on improving the survival of juvenile salmonids through the lower Columbia River. It continues work to strategically identify, prioritize, implement and monitor sound habitat restoration actions, emphasizing increasing the quantity and quality of salmon habitats and to adaptively manage it by incorporating results of action effectiveness and emerging research.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

1) In response to ISRP's concern about AEMR monitoring (Question 1), the sponsors stated the Johnson et al. (2013) plan is in a pilot phase of implementation. This document answered a number of important questions regarding the design and rationale for monitoring the effectiveness of the estuary restoration projects. However, because it was a draft, the ISRP or ISAB would like to review the final plan when it is available. An estimated date for completion of the pilot project is also requested.

2) Please provide details of how the 51 reference monitoring sites were selected and justified (including statistical or rating scores) and any explanatory material that will help to understand how these sites were selected (Question 2). This should be included in the finalized AEMR monitoring plan per Johnson et al. (2013).

Comment:

General observations

The Lower Columbia River Estuary Partnership provided a comprehensive and thoughtful response to our questions. The Partnership indicated that they are currently focusing on activities that restore fish access and improve habitat that has been cut-off from the mainstem Columbia. In addition, they and their partners are working to combine multiple actions to create larger projects. The roles of the various partners were clearly presented and are coordinated to avoid conflicts over project management and actions. The partners include the Columbia Land Trust, the Washington Department of Fish and Wildlife, the Cowlitz Indian Tribe, the Partnership, and the Columbia River Estuary Study Taskforce. The Partnership is currently developing a broader ecosystem approach for its restoration activities. A description of this method was provided, and it will be used in the future to prioritize areas in the lower Columbia that should be protected or restored.

The Partnership indicated that the AEMR approach it is using (Johnson et al. 2013) to evaluate its projects is a work in progress and they would be receptive to a review of the document by the ISRP if needed. An AEMR leadership team has been created. Since BPA staff members are on the leadership team the sponsors state that the results of their monitoring work will be coordinated with ISEMP, CHaMP, and BPA's AEM methods so that project data can be used in basinwide analyses. The methods used to determine the level of monitoring each project will receive were described in adequate detail. Some additional discussion about how the Partnership's 51 reference areas will be used was not addressed. Use of these sites should be indicated in future AEMR designs for the Partnership's projects.

The Partnership is seeking funding to include socio-economics in its project selection process. Currently it receives no funding for outreach and signage. We recommend that the sponsors work with their partners to include signage as a project endpoint to educate the public on what restoration work was done and the biological benefits it is designed to create. This will be a valuable addition to the significant amount of public education that the Partnership does through its school and volunteer programs.

Comment on specific responses

Question 1: In response to ISRP's concern about monitoring, the sponsors stated the Johnson et al. (2013) plan for AEMR monitoring in the estuary is in a pilot phase of implementation. A qualification is to provide the results of this pilot project as soon as they are available.

Question 2: The integration of the 50+ reference sites into the monitoring program is impressive. In general this appears to be a well thought out RM&E program. In response to the ISRP question about the criteria for determining the level of monitoring needed by a project, the description provided of the scoring method used for selection was adequate but should be qualified. A qualification is to provide some examples of how monitoring sites were justified (including statistical or rating scores) to help understand how these sites were selected.

In response to the question asking for an elaboration of the methods used to select monitoring sites, the sponsor responded that "the proposal format for the ISRP Geographic Review was problematic in that it did not allow for a description of our technical approach." This seems a programmatic issue that should be addressed, perhaps by enabling appendices to proposals.

Note, a reference is to Roni et al. 2002, but this is probably a typo that should be Roni 2005.

Question 3: This question concerned the scientific basis for the numerical goal of acres to be restored. The sponsors stated that the numerical goal for restoration is based on opportunism and the anticipated pace of restoration. What the ISRP was asking for was the biological rationale behind their restoration actions—what are the anticipated biological benefits associated with restoring 25,000 acres and is more protection and restoration needed? The answer was only partially adequate, and the ISRP suggests the sponsor survey the scientific literature for possible methods (e.g. modeling) to improve the scientific basis for establishing

targets for restoration and employing more suitable metrics. A good description of the rate of restoration in the estuary was provided.

Question 4: The flow chart was very useful to understand the procedures for restoration site selection. A final metric is an economic/ecological mixture (\$/SBU), which puts considerable weight on the veracity of SBU determination. The ISRP should be kept informed as results of restoration are developed and expressed as SBUs.

The ISRP also requested information on how or if a landscape approach was included in site selection, but the response was only partially adequate. The physical landscape is clearly considered in the procedure. However, while numerous partners are consulted, the socio-economic aspects of a true landscape approach (ISAB 2011-4) do not appear to be addressed or incorporated in the current process.

Question 5: More details were requested on the annual goal of starting and managing four to eight new habitat restoration projects. The response was adequate.

Question 6: Information was requested on chemical analysis of adult Chinook otoliths, a sub-project proposed to resolve a critical uncertainty. The question was not answered directly. The ISRP was referred to a draft publication by Roegner et al. 2013, but no link was provided to this document. A short explanation for how barium and strontium deposition in otoliths are being used to estimate body size at estuary entry and residence times would have been useful.

Question 7: This question related to a proposed habitat suitability index for juvenile salmonids in the estuary and on how its use can be justified in an Ecosystem Management approach. The response was partially adequate. The index was explained and shows promise to be useful. However, its role in an ecosystem management approach was not fully explained and justified.

Question 8: The ISRP asked what is the working definition that LCREP uses for resilience?

The response was adequate although the definition offered by Holling (1973) is rather more restricted than the contemporary meaning described in the ISAB report, *Using a Comprehensive Landscape Approach for More Effective Conservation and Restoration* (ISAB 2011-4, 179 pages).

Preliminary ISRP comment requesting a response:

The ISRP requests a response on following issues:

1) Does the sponsor plan to use the AEM methods recently produced by Roni et al. (2013) in their Action Effectiveness Monitoring of Tributary Habitat Improvement: a Programmatic Approach for the Columbia Basin Fish and Wildlife Program? If so how will they use them and how does the Roni et al. (2013) report relate to the Johnson et al. (2013) report on estuary monitoring? What is the status of the Johnson et al. (2013) plan and how close is it to being implemented?

Johnson, G., Corbett, C., Doumbia, J., Schwartz, M., Scranton, R., and C. Studebaker (2013) Draft programmatic plan for restoration action effectiveness monitoring and research in the Lower Columbia River estuary. AEMR Plan version January 29, 2013. 31 p. (circulated by LCREP representative Catherine Corbett to review members on March 20, 2013)

Roni, P., R. Scranton, J. O'Neal. 2013. Action Effectiveness Monitoring of Tributary Habitat Improvement: a Programmatic Approach for the Columbia Basin Fish and Wildlife Program. Watershed Program, Fisheries Ecology Division Northwest Fisheries Science Center, NOAA Fisheries. Seattle, WA.

2) What are the criteria for determining the level of monitoring needed by a project?

3) The project has a measurable goal to restore 25,000 acres by 2025 which is commendable. What is the scientific basis for this goal?

4) A flow chart to help understand the procedures for choosing sites to be restored is requested. Details of community involvement in keeping with a true landscape approach would be particularly useful.

5) More details are requested on the annual goal of starting and managing four to eight new habitat restoration projects. It appears that the Partnership performs some of its own habitat restoration work, mainly in the area that lies upstream from Portland to the Bonneville Dam. How many of the new projects will be directly undertaken by the Partnership, and where will they take place?

6) "Chemical analysis of adult Chinook otoliths from Grays, Coweeman, Lewis, Willamette, Sandy, Priest Rapids, Wenatchee, and Methow; Water chemistry of tidal tributary and main-stem sites to evaluate whether otolith barium can be used to reconstruct salmon entry into tidal-fresh environments; consider strontium marking pending results from 2011 analysis" is a very key objective under "critical uncertainties" and more information is required. What is the design of this work?

7) The Habitat Suitability Index (HSI) may be incompatible with the ecosystem approach advocated by the sponsor and often thought to be problematic in its application to the real world (Petts 2009). Further details are requested on how it can be justified in an Ecosystem Management approach.

8) The sponsors advocate the incorporation of difficult ecological variables in their Ecosystem Management approach but offer few definitions or ways to measure them. For example resilience which is used 7 times in the proposal either as a deliverable or a scoring attribute. What is the working definition that LCREP uses for resilience?

Also see the ISRP's programmatic comments for the estuary projects.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The project is key to Columbia River estuary restorations programs as it is, as the sponsors state, "the umbrella of the "umbrella projects." Therefore it is very significant to regional programs and is clearly connected to CREST, Columbia Land Trust, Watershed Councils and other related estuarine projects.

The objectives are well stated. The technical background is comprehensive, but the narrative could be improved by clearly stating the uncertainties that are based in lack of scientific knowledge.

Ecosystem management is stated to be a backbone of the project, but some aspects of ecosystem management are poorly known and no definitions of them in the context of the Columbia River Estuary are given. An example is resilience which is used seven times in the proposal either as a deliverable or a scoring attribute. Another is biological integrity.

Objective 3 under Critical Uncertainties Research is given as "Juvenile salmon rearing to adult return: Evaluate juvenile salmon life history strategies and their contributions to adult returns in selected tributaries (2014-2018). *Methods:* Chemical analysis of adult Chinook otoliths from Grays, Coweeman, Lewis, Willamette, Sandy, Priest Rapids, Wenatchee, and Methow; Water chemistry of tidal tributary and main-stem sites to evaluate whether otolith barium can be used to reconstruct salmon entry into tidal-fresh environments; consider strontium marking – pending results from 2011 analysis."

This is a very key objective, and more information is required. What is the design of this work? It is likely this objective is more important than several of the others in the areas of critical uncertainties.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The history of the project is thoroughly documented. The program has made excellent accomplishment toward estuary restoration. Unfortunately information on how survival of salmonids will be improved is still lacking and is not really focused on as a critical uncertainty (see ISAB 2012-6 review of CEERP). The draft report by Cooney and Holzer (2011) (cited in the proposal) dealing with efforts to establish juvenile survival rates in restored areas at the mouths of tributaries including Coweeman River, Grays River, Germany Creek, Mill Creek and Abernathy Creek is a step in the right direction.

The Partnership appears to be constantly refining its activities over time, and adaptive management is well thought out. The addition of the landscape databases, tools to help prioritize restoration site selection, and the creation of a three level AEMR protocol are just a few examples. There is still the lingering issue of how adaptive management will be practiced to cope with some emerging factors, especially invasive species, but presentations indicated some good progress is being made to control invasive plants. Management modifications are made as

a result of evaluation of past actions and results but do not seem to include active experimental manipulation to test and revise hypotheses as a formal adaptive management implementation.

It would be useful to have a listing of reports and papers that have specifically resulted from the efforts of project members, split out by projects under the umbrella and the umbrella project itself. An indication of good coordination and cooperation might be a list of papers co-authored by people in both categories.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

As described in the proposal, the Estuary Partnership works with many partners. Major funding sources include BPA, USACE, NOAA, and USEPA. Partners performing restoration or other contractual work under the Partnership include CREST, CLT, PNNL, Cowlitz Indian Tribe, WDFW, ODFW, watershed councils, soil and water conservation districts, and other entities. The Partnership has established itself as the focal institution for habitat restoration and protection in the region by its relationships with the above groups and local private and public landowners. It serves as the region's main means of dispersing habitat restoration monies from federal agencies to local entities. Solicitation, review, and selection criteria are clearly documented. A conflict of interest policy is clearly detailed.

The tailored questions were answered. It was noted that the partners, not LCREP, deal with data management and protocol development.

The integration of the 55 reference sites into the monitoring program is an impressive aspect of the monitoring program. In general this appears to be a well thought out RM&E program.

A number of emerging limiting factors were identified in the proposal but it should be noted the problems are not really emerging. They are here now. Foremost among those was climate change. Changing weather patterns are expected to create warming trends in water temperature, shift the Columbia River plume and raise sea levels causing inundation of floodplain areas. Additionally, increasing storm intensities and wave heights are expected to exacerbate flooding and coastal erosion. Sustained periods of coastal upwelling caused by climate change will reduce dissolved oxygen in coastal waters and also increase acidification of ocean waters which will likely impact the food web and decrease salmonid survival in near coastal waters. The restoration actions carried out by the Partnership cannot address these large issues. However, the sponsors point out that habitat actions in the lower river can improve water temperatures and food web integrity at landscape scales. The occurrence of contaminants or toxics is another acknowledged emerging limiting factor. Contaminants can clearly influence salmonid survival by inducing sub-lethal effects and by reducing the prey base. Lack of funding to address this issue is a major problem. The Partnership is working with a number of partners including the Yakama Nation to identify high priority contaminant sites in the lower river for potential cleanup actions.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables are clearly identified and related to work elements. Objectives are clearly related to deliverables. Metrics and methods are linked to cited documentation.

One specific concern was identified in the Large Habitat Program:

1. Holistic Vision and Plan - It is stated that the Restoration Prioritization Strategy will use a Habitat Suitability Index (HSI) Model for juvenile Chinook salmon, which uses model outputs from an Oregon Health and Science University (OHSU) hydrodynamic model to predict times and locations that meet suitable water temperature, depth and velocity criteria (Bottom et al. 2005a) for juvenile salmon. However, HSI can be difficult to interpret ecologically (Petts 2009) and is somewhat incompatible with the ecosystem approach advocated by the sponsor. It would be helpful to find out how HSI results will be used in the various restoration projects.

Reference

Petts, Geoffrey E., 2009. Instream Flow Science for Sustainable River Management. Journal of the American Water Resources Association (JAWRA) 45(5):1071-1086.

Specific comments on protocols and methods described in MonitoringMethods.org

This group has developed most of the protocols and methods used in estuary monitoring and most of the techniques are reliable and widely adopted (Roegner et al. 2009).

One question for the Partnership would be how or if they will incorporate or use AEM methods recently produced by Roni et al. (2013) in their Action Effectiveness Monitoring of Tributary Habitat Improvement: a Programmatic Approach for the Columbia Basin Fish and Wildlife Program. If so how will they use them and how does the Roni et al (2013) report relate to the Johnson et al. (2013) report cited below on estuary monitoring? What is the status of the Johnson et al. (2013) plan and how close is it to being implemented?

[201000400](#) - CREST Estuary Habitat Restoration

Sponsor: Columbia River Estuary Study Taskforce (CREST)

Short Description: CREST proposes to continue to identify, prioritize, design, permit, and construct estuarine habitat restoration actions on public and private land. Restoration actions are specifically designed to restore estuarine processes to disconnected floodplain areas and focus on improvements to habitat opportunity, capacity, and realized function for juvenile salmonids and other estuarine species.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

See the programmatic comment for the estuary and the response request for LCREP. Continued work on justifying prioritization, coordinating RM&E, and report results at the programmatic level is recommended.

The ISRP's issues can be dealt with in contracting and future project reviews.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The project is an important part of a larger set of activities to protect and restore the ecological structure, function and biodiversity of the Columbia River estuary. There has been a significant amount of strategic planning and ecological assessment to provide a foundation for the work. There has also been substantial effort to coordinate activities with an array of agencies/organizations all working towards protection and/or restoration of the estuary.

However, a program goal, "Protect and restore the Columbia River Estuary ecosystem, focusing on habitat opportunity, capacity and realized function for aquatic organisms." is given, rather than a series of objectives. The objectives need to be better defined to focus on key questions, such as: 1) How will protection be achieved? 2) How will restoration be accomplished? Where will the projects be located? 3) What ecological functions will be restored? 4) What benchmarks and reference sites will be used? The technical background provided was very general, and only a few references are provided for problem to be addressed. The proposal does not specify how CREST will address problems, and detail is lacking.

The objective, actually the goal as noted above, of CREST is succinctly stated as to implement on-the-ground salmon restoration projects and to focus on habitat opportunity, capacity and realized function for aquatic organisms. However the objective does not mention achieving increased survival targets for salmon and steelhead which seems to be a driving element of the work. If it is assumed that survival and habitat opportunity, capacity and realized function are synonymous, it would be helpful to discuss this.

The sponsors state:

"...Proposed ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon and Lower Columbia River Steelhead (NMFS 2012). This plan is the culmination of all the recovery plans for the lower Columbia basin and synthesizes the salmonid recovery plans in Oregon, Washington, White Salmon as well as the Estuary Recovery Plan Module. NMFS anticipates its completion in early 2013. This plan lists limiting factors, threats and identified actions from these plans. This proposal will address those categories of actions that pertain to habitat protection and restoration."

This recovery plan is apparently a new development. It would be useful learn if it is now available. It is not cited in this proposal.

There is a mix of strategic direction referenced, but it is unclear if there is an overarching strategy to guide this complex effort. The questions posed for umbrella habitat projects dealing with the steps to solicit, review, prioritize, and select habitat projects were answered. A flow chart or road map of some kind would be useful to help understand the procedure.

As part of the landscape assessment process, it does not appear that there has been an assessment of fish and aquatic organism passage, particularly as related to tide gates and road-stream crossings. This information is important to ensure that the maximum connectivity is achieved when acquiring and restoring parcels. Correcting passage issues, on lands adjacent to those restored, can also serve to increase the scope of benefits beyond the immediate area of restoration

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

A good history of project achievements was provided. It appears that the program has had some impressive accomplishments, and there has been sound use of available funding.

The implementation metrics could be useful tools to describe a variety of desired outcomes, but it is not clear how these outcomes are measured. Additionally, in the summary of completed projects, these metrics were not applied. This would have been useful in better understanding and appreciating them.

The photos of each project helped get a perspective on what was done. However, the project result abstracts were lacking detail or references. For example, following the Fort Columbia photo the statement was made "Genetic analysis indicated use by multiple ESUs including up-river stocks." A reference to a CREST report or one by others should be included. The 2011 Annual Report to BPA contained some good data related to fish monitoring for the Fort Columbia site. It is unclear if this monitoring will be continued in the future for Fort Columbia and other sites. The explanations given in the field were essential to understand the significance of technical items such as the setback levees required by USACE.

There does not appear to be any formal documentation of lessons learned through the adaptive management process or their application to adjust current work activities. It appears the sponsors defer to the CEERP adaptive management process under the umbrella. It is not clear that this process is driven by designed experiments.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsor has excellent working relationships with the sponsors of other restoration projects in the estuary. There has been good progress in establishing cost share agreements with other entities. However, there is no mention of any accomplishments for community or public involvement in the project/program. Given the landownership of the area and the commitment to sustainable, long-term protection, and restoration, this seems to be a critical element that needs to have elevated importance. Development of the ONCOR data base, described in the proposal, sounds like a good step for improving information sharing with the public and local communities and landowners but is reportedly still under development.

It is difficult to determine from the proposal what procedures are in place to determine when success has been reached and how long monitoring is required. There does not seem to be a long term monitoring program in place. This may be because of irregular funding schedules, but it would be helpful to find out if the sponsor has plans or procedures such as performance bonds or other procedures to ensure funds are available for long term monitoring and adjustment to projects going forward.

The sponsors state the following concerning limiting factors:

"Action effectiveness monitoring will be incorporated in to adaptive management for site maintenance and restoration design moving forward. CREST does address climate change, non-native species, predation and toxics through our project designs and implementation. For example the restoration of natural processes addresses resilience of specific sites to factors like climate change. CREST has also built in topographic diversity within our restoration sites to allow for multiple water elevations and vegetation types within a treated area. Much effort is put in to eradicating non-native plant species as well as improvements of water quality to address non-native fish species."

However, no details are provided on how they will actually deal with these concerns or they will influence project selection and evaluation of the success criterion.

4. Deliverables, Work Elements, Metrics, and Method

DELV - 2 "The vast majority of CREST's effort under our contract with BPA is in the designing, permitting, and construction phases." And DELV-4 is mainly coordination. This work is not amenable to scientific review.

Monitor the effectiveness of restoration actions. (DELV-3) - the sponsors state "When funding agencies desire more intensive monitoring CREST biologists assess fish utilization using trap netting, seining, and PIT tag arrays." It would be helpful to clarify what criteria the sponsor uses to determine restoration success and how long they think it take to achieve success.

A strategic framework for project prioritization and selection appears to remain a work in progress (see comments in Q1 regarding needs for a comprehensive, over-arching strategy or strategic framework). Two sets of selection criteria were described, one for the Lower Columbia Restoration Enhancement Partnership and one for the BiOp Technical review group. The LCREP criteria are straight forward and seem logical, but there is no discussion on the logic or basis for how the points/weightings for each of the three major components were developed. The sub-elements under each main component, Ecological benefits, Implementation and Cost, are quite comprehensive but lack individual weights or scoring. Given this, it seems like the current arrangement would allow for a wide range of different interpretations and scoring for individual parcels. As mentioned in Johnson et al. (2013) it appears that there remains a need for additional work to refine and document this process. See programmatic comments for additional comments.

There are a number of metrics described to measure accomplishments. It is not clear when or how these are measured for each land acquisition. This list does seem to provide a good source for use in development of project specific objectives.

There is a lengthy description of the AEMR process under the CEERP program. It was not apparent what actual monitoring has been selected for individual projects being planned or for those completed under this program. It is not clear if only Level 3 standard extensive metrics will be collected for all project actions unless funding agencies desire more monitoring. It would seem that there should be an opportunity to more actively seek cooperation with other programs to allow more extensive monitoring at some sites in order to allow a more complete evaluation of restoration impact. Additionally, there is no acknowledgement or discussion on how monitoring will be transitioned into the ISEMP/CHAMP/AEM program.

Specific comments on protocols and methods described in MonitoringMethods.org

All methods are satisfactory, except they seem to be only 56% complete. Please see the comments above. The Roegner et al. (2009) document prepared under the umbrella project is the main provider of methods.

[201007300](#) - Columbia Land Trust Estuarine Restoration

Sponsor: Columbia Land Trust

Short Description: The Columbia Land Trust acquires private property in the historic Columbia River floodplain for the purpose of conserving intact habitat lands and to restore full or near full tidal influence to areas that have been historically disconnected from tidal and fluvial hydrologic processes of the Columbia River by levees, roads, dredge material, and railroad causeways.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

See the programmatic comment for the estuary and the response request for LCREP. Continued work on justifying prioritization, coordinating RM&E, and results reporting at the programmatic level is recommended.

The ISRP's concerns, questions, and comments can be dealt with in contracting and future project reviews.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The program is highly significant and is one of the key restoration programs in the estuary and relates to major regional documents as the Council's Monitoring Evaluation Research and Reporting (MERR) plan, the BiOp, and subbasin plan for the estuary. This is a generally solid proposal, and activities are well organized and explained. Justifications for estuarine restoration are well supported, but the sponsors do not specify how their program will meet these restoration needs.

The Columbia Land Trust is continuing to improve connections to other projects in the estuary and to improve effectiveness and transparency of project solicitation, review, and selection activities.

Objective statements are stated as goals. Objectives should be quantified and include a projected date or time frame for completion. Both elements are important to aid in tracking actual accomplishment of actions. There are three stated objectives (actually goals) covering re-accessing of habitats, increasing productivity and capacity of habitats and for improving realized function of the ecosystem. Deliverables for each of the objectives (goals) are included, but to see the details, the ISRP was referred to the 2012 Synthesis Memorandum which was developed by CEERP. No linkage to the document was provided.

Projects under the habitat umbrella are supposed to describe all the steps in the program's process to solicit, review, prioritize, and select habitat projects for implementation. This was

done fairly well in the proposal, but it appears the sponsor totally delegates these steps to others, especially The Lower Columbia Estuary Partnership's Project Review Committee. Therefore a flow chart or road map of some kind would be useful to understand the procedure.

The sponsor is sometimes a subcontractor to LCREP, but some projects are conducted independently. Although this seems to be a workable arrangement, it would be helpful to clarify how the sponsors determine which projects they will independently implement and if there are any criteria for the sponsor to conduct projects separately. Is this a function of the solicitation process?

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The Columbia Land Trust has permanently conserved 6,222 acres of Columbia Estuary floodplain over the last twelve years which is about 30% of the LCREP 19000 acre goal by 2014. The sponsors should be complimented for this achievement. It is encouraging to note that several applied research projects are being conducted by NOAA and others on areas purchased by the sponsor.

No results were reported specifically by this project, only those reported by others were given. The history of reporting accomplishments is not stellar.

In general, the sponsors seem well aware of the needs and benefits of adaptive management and have identified a number of lessons learned, for example weed control, but do not appear to have fully incorporated it into the current project design. One reason given is that invasive plant control could not occur due to prohibition of using necessary chemicals. It seems that the sponsors should have been aware of this prohibition before the activity was planned. Another delay was due to unresolved permitting issues which may be beyond the control of the sponsors.

It would be helpful to clarify what role the sponsor actually has in adaptive management since they do not appear to do any monitoring themselves. The CEERP adaptive management approach is used. A summary of accomplishments and recent research findings of others is provided, but there is no discussion as to how these findings are actually being applied in the current program. A number of the findings appear particularly relevant to prioritizing sites for acquisition and for the design of restoration treatments.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

It is stated that there are no RM&E protocols identified for this proposal, but elsewhere in the narrative many are given. The sponsors presumably are relying on monitoring data produced by others under the umbrella.

All current projects are assigned a Level 3 monitoring status under the CEERP Action Effectiveness program. It is stated that a subset of CLT projects are included in more intensive Level 1 and 2 monitoring. It is not clear how or when these projects are selected for more intensive monitoring.

There is no discussion of transitioning from the current CEERP action effectiveness monitoring approach to the ISEMP/CHAMP/AEP protocols.

There are a number of emerging factors that the sponsors recognize, especially sea level rise and invasive species. For the latter, the sponsors state, "Columbia Land Trust actively manages newly restored lands to ensure that these invasive species do not gain a foothold on these sites is an ongoing responsibility," but no details are given on how this is done.

The relationship of this project with other projects in the estuary is described fairly well. However, there is no discussion regarding community, landowner or public outreach engagement. This appears to be an important component for the project that needs future consideration.

A useful table showing limiting factor prioritization is provided. Two principal factors limiting the amount of habitat opportunity in the estuary are the loss of estuarine wetlands and the reduction in the spring freshets due to the hydrosystem. It is not clear if the constraints imposed by the hydrosystem operations mean that making changes to the first factor will have limited impact.

The review process for this umbrella project is outlined in the proposal but is described in greater detail in project proposal #2003-011-00. The evaluation criteria have been reviewed by the ISRP. Membership on the Project Review Committee is listed in this proposal. The proposal states that the Estuary Partnership may modify the review criteria to accommodate the objectives of particular funding sources. This flexibility seems reasonable.

4. Deliverables, Work Elements, Metrics, and Methods

The discussion of the two-level process for project prioritization was clearly stated. There is a solid review process that includes site visits and application of a two-step prioritization screening. The Estuary three-component prioritization model is used for the first stage. This scores projects on a 100 point scale. There is limited discussion of how the primary components were weighted and the sub-elements of each are qualitative and are not assigned individual weights or points. Including this in the model would be an improvement. Selection of three focus areas for acquisition and restoration is a solid foundation for a more strategic and efficient program.

Given the complexity of achieving meaningful restoration of the estuary, an overarching strategic approach is needed. There is discussion about development of an improved strategy for restoration using the Estuary Partnership Restoration Priority Strategy and Restoration

Inventory in conjunction with the BPA Landscape Planning Framework. Also, completion of an ESA Recovery Plan is mentioned. Both are to be completed in the spring of 2013. It is not clear if they will replace the current sources of guidance for prioritization or if they will ultimately be synthesized into a single unified strategy. A review of these final products by the ISRP may be worthwhile.

Metrics for gauging accomplishment appear limited to acres and miles of acquired and/or restored habitat. They do not link with the three stated objectives for the project. Doing so would provide a more complete picture of accomplishments relative to the stated objectives.

Specific comments on protocols and methods described in MonitoringMethods.org

No link to monitoring.methods.org is provided.

On a budgetary note, it is not clear why a fully equipped office is need in both Portland, Oregon and Vancouver, Washington.

201007000 - WA Estuary MOA Project Scoping & Implementation

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Short Description: WDFW Umbrella Project to scope and implement habitat restoration actions to enhance and protect anadromous salmonids under the Washington Estuary Habitat Memorandum of Agreement (MOA 2009). The intent of this work is to increase rearing habitat and survival of all ESA-listed anadromous fish stocks utilizing the Lower Columbia River, tidal reaches of tributaries, and estuarine habitats in support of the NPCC Fish and Wildlife Program, ESA Recovery Plans and NOAA Fisheries FCRPS Biological Opinion.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP's issues can be dealt with in contracting and future project reviews.

1) See the programmatic comment for the estuary and the response request for LCREP. Continued work on justifying prioritization, coordinating RM&E, and reporting of results at the programmatic level is recommended.

2) For restoration site selection criteria, WDFW uses a blend of their own criteria and those used by the Estuary Partners. Some more details describing and explaining these differences in the criteria should be included in the proposal. It would also be useful to determine if any differences arose between the results of the Expert Panel process and Washington's original benefit estimate in any of the projects in this proposal. Some "disagreements" are mentioned in Table 1 under the Results: Reporting, Accomplishments, and Impact section of the proposal, but they are not elaborated upon.

Comment:

The organization, technical background, site selection/descriptions, reporting, vision, and planning described in this umbrella proposal seem to be a model for many of the other estuary projects, if future work plans are successfully achieved. The sponsors also did a good job describing the emerging limiting factors by raising the issues and describing how they were being addressed. Their inclusion of hypotheses for adaptive management was also commendable.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Inter-Agency Coordination effort described in the proposal is noteworthy. It would be interesting to see results of an evaluation by participants. The project goals and objectives are linked to many regional programs/plans such as the Council's FWP 2004 Subbasin Plan, the NMFS Estuary Module (2011), and the 2008 BiOp.

The problem statement is well crafted and the objectives are realistic. The sponsors have provided an excellent technical background document which could almost be a template or model for the other estuary umbrella projects.

Although the proposal is lengthy, it is well organized and easy to follow. The work is supported by solid science, and the sponsors appear to have made a serious attempt to incorporate the latest scientific findings into their selection and implementation of projects. Program activities are well-coordinated with other restoration groups/programs in the Lower Columbia River Estuary.

Program objectives are similar to the other projects reviewed. For individual projects, a hierarchy of expectations is presented as vision, goals, and objectives. In most cases, the objectives tie well to the vision and goals and link to proposed treatments. The objectives are generally not quantitative and do not include an expected timeframe for results. A positive aspect is that unique success criteria are developed for each project. It appears that these are mostly qualitative statements with no time frame for expected results.

A positive feature of the proposal was a description of how the program linked to and incorporated information and direction from other sources. There was a very useful description of how elements of The Ecosystem Approach to Restoration of the LCRE by Johnson (2003) have been incorporated into the program. Similar discussions would have been useful in the other proposals that were reviewed. This section also mentioned the NPPC program and mentioned MERR but did not discuss how this linked to proposed activities.

Although it was noted that community and landowner support is critical to the long term success of the program, there are no programmatic goals, vision statements or objectives that address this critical element. It appears that this support is limited to landowner and community support for individually proposed projects. Additionally, in the discussion of

emerging limiting factors, it was acknowledged that development and resource management in upstream portions of treated watersheds were important in helping to define downstream conditions, but it was stated that influencing watershed land uses was beyond the control of the program. This seems to be a key area that could be addressed in activities designed to involve and inform the local communities and landowners and the general public.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

History of the project is documented in a well written narrative. Diagrams on funding flows and arrangements were presented which make it easy to understand what has been done. The abstracts of project reports are detailed and include photos, so it is easy to see the results of the restoration projects.

This is a fairly new project, but some initial work has been started. Nice photos showing sites are included and some good preliminary data providing fish use by species is included in tables. The accomplishments are well documented and the project's timely completion of deliverables is 90%. The program appears well organized and managed.

A good example for the incorporation of adaptive management is given for the Chinook restoration project. Additionally, examples were provided to indicate how recent research findings have been incorporated into revised designs for restoration treatments. The adaptive management framework is explained very well. Figure 1, based on Johnson et al. 2013, is very informative and provides good context for a discussion of uncertainties.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships look excellent, and it is especially gratifying to see coordination with the long-term IMW study (Kinsel et al. 2009) which is monitoring and evaluating effects of the Abernathy Tidal Restoration in the context of fish population and monitoring in the Abernathy Creek watershed. This type of work is needed to obtain data on the effects of estuary habitat restoration on salmonid survival.

Three emerging limiting factors were identified: 1) land conversion in the contributing watersheds, 2) potential changes to the hydrologic regime because of factors including climate change and FCRPS operations, and 3) invasive plant species. The sponsors have suggested buffers as possible ways to deal with 1 and 2. Control of invasive species, in particular reed canary grass, is a more difficult task, and no real plan to deal with it is offered.

Each tailored question was appropriately answered.

4. Deliverables, Work Elements, Metrics, and Methods

"Identify and scope 5-10 ecosystem restoration projects in the historical floodplain of the LCRE. (DELV-1) and Design, permit, and plan construction for 2 ecosystem restoration projects in the

historical floodplain of the LCRE; build at minimum 1 new project. (DELV-2)”: these deliverables are mainly plans to develop a plan but are appropriate for this kind of project.

“Continue AEMR and O&M for ongoing restoration projects and initiate AM for at least 1 new restoration project to ensure sustainability and resilience. (DELV-3)”: it would be useful to determine how the sponsors plan to assess “sustainability and resilience.” Metrics for these deliverables are not given in MonitoringMethods.org and presumably are being developed in the “science for critical uncertainty” component of the estuary umbrella project. This should be clarified.

Although there have been only five projects to date, an average 90% accomplishment rate is reported. Quantitative metrics are limited to acres and miles. There are a number of other metrics described, but they are in generally qualitative terms.

The summary of completed projects is well organized and informative. The reporting template that is used would serve as a good example for reporting other Lower Columbia River Estuary project accomplishments.

The methods provided in MonitoringMethods.org are partially done (41%) following Roegner et al. 2009.

Specific comments on protocols and methods described in MonitoringMethods.org

Current monitoring occurs within the CEERP framework following Roegner et al. 2009. The Abernathy Creek project is contained within an IMW being monitored by the Washington Department of Ecology. Implementation monitoring appears well done and supported by success metrics for each project. A limitation of these metrics is that they are stated qualitatively.

[201201500](#) - Cowlitz Indian Tribe Estuary Restoration Program

Sponsor: Cowlitz Indian Tribe (CIT)

Short Description: Address estuary and tidal tributary habitat limiting factors through implementation of high priority recovery plan actions in the form of protection and process-based restoration actions consistent with Tribal cultural interests. Increase quantities of diverse habitats for ESA-listed fishes by removing constraints to access and hydrology, and improve quality and complexity of key aquatic habitats in the Columbia estuary, especially juvenile salmonid habitat identified in the 2008 FCRPS BiOp.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP’s issues can be dealt with in contracting and future project reviews.

1) See the programmatic comment for the estuary and the response request for LCREP. Continued work on justifying prioritization, coordinating RM&E, and reporting results at the programmatic level is recommended.

2) The proposal needs clarifications of how this project will accomplish its objectives and interact with the Estuary Partnership. Details regarding the site selection process should also be included along with descriptions of habitat restoration actions. If this has not been completed, then the ISRP should/could review in the future after the selections have been made.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The program is very significant because extensive areas are sought for habitat restoration; 13 ESUs and several RPAs in the 2008 BiOp are addressed.

The sponsors are mainly relying on the LCREP Science Work Group for technical background, although they are also involving graduate students. In general, not a lot of specific technical background is given for the projects. Specific restoration sites are to be chosen with input from expert panels. Much of the narrative is from other planning documents dealing with the estuary (Johnson et al. 2012) which seems to be appropriate as the project is being conducted under an umbrella type project with five other lead agents. Specific detail on how the primary elements of the Johnson (2012) document were incorporated into the design of the program would have been useful.

The project objective is the same one used by other umbrella projects, "Protect and restore the lower Columbia River Ecosystem focusing on habitat opportunity, capacity, and realized function for aquatic organisms." As stated this is a goal and to refine to objectives should answer questions such as: Protect how and where? How much capacity? Which functions for which stocks or species?

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The project has been in existence for just five months, so there are no project-specific accomplishments as of yet. However, during the past ten years the CIT has helped identify, and implement eleven habitat restoration projects. Therefore, the sponsors have experience performing habitat restoration work in the lower Columbia River. Additionally, the CIT states that it is committed to using utilizing new information to inform its current and new projects using the tribe's adaptive management guidelines.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships are well-described and the sponsors have obviously reached out to a network of collaborators. Involvement of community and recognition of tribal values shows a true landscape approach is being taken.

Climate change was recognized as a future limiting factor, but the potential effects of climate change, for example, low dissolved oxygen of coastal waters due to prolonged upwelling, ocean acidification, increases in storm intensities and frequencies were not mentioned. Additionally, potential interactions between contaminants and restoration action were not considered. The sponsors state that restoration of normative processes in project areas will help to ameliorate the impacts of climate change.

4. Deliverables, Work Elements, Metrics, and Methods

The project has three deliverables: 1) Identify and prioritize habitat protection and restoration actions in the lower Columbia River and its estuary, 2) Design, permit, construct, and manage restoration actions, and 3) Monitor the success and effectiveness of its restoration actions for adaptive management. Some clarification on how these deliverables will be achieved is needed. First, it appears that CIT staff will identify project sites and these will be reviewed and prioritized by the Estuary Partnership. Selected projects will go through a cycle of analysis, design, permitting etc. that will be done by CIT staff and their consultants. Then apparently the projects go through the Estuary Partnership selection process for potential funding? Second, if funded CIT staff will be responsible for final designs, construction, permitting, and project management. However, funds from the Estuary Partnership will be used to perform the restoration work. And third, CIT staff will be responsible for AEMR after project completion. Is this the actual process that the CIT anticipates will be used?

The methods used for project prioritization, selection, and AEMR are those previously established by the Estuary Partnership and are generally adequate. Additional detail on the definition and weighting of main and sub elements of this prioritization is needed.

Specific comments on protocols and methods described in MonitoringMethods.org

Protocols and methods for estuary sampling and monitoring are appropriate for the project following Roegner et al. 2009 in MonitoringMethods.org. No metrics are described.

C. Willamette River

200901200 - Willamette Bi-Op Habitat Restoration

Sponsor: Oregon Watershed Enhancement Board

Short Description: This project links BPA funding with State and private foundation funding to implement critical mainstem habitat protection and restoration activities associated with RPA 7.1.2 and 7.1.3 of the Willamette Flood Control Program Biological Opinion. The project uses criteria to select among opportunities for restoration of floodplain function within "anchor habitats" used by native fish species.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

The ISRP commends the project sponsors for developing a well-designed program that is worthy of further support. It provides a way for non-profits, local governments, and private and public landowners to participate in the recovery of important floodplain habitats in the Willamette Basin. Its prioritization of restoration areas, project review, and selection processes appear well founded. Its actions are fulfilling the Willamette BiOp and the NPCC Fish and Wildlife Program goals and objectives.

The proposal meets scientific review criteria. However, the ISRP recommends that the sponsors consider the suggestions and recommendations made in the following sections of the proposal.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project responds closely to the priorities and action items in the Willamette Subbasin Plan and the Willamette BiOp. The BiOp identified two Reasonable and Prudent Alternatives (RPAs 7.1.2 and 7.1.3) that needed to be addressed in the Willamette River Basin. The requirements of the RPAs were to establish a program to identify habitat restoration projects and to select and implement at least two restoration projects per year from 2011-2023. The Willamette Bi-Op Habitat Restoration project meets these needs. It is good to see that the project sponsors are realistic, and they articulate the limitations of the impact that habitat restoration can have in this highly modified system.

This is an important regional program. The lower Willamette River is tidal and should be managed as part of the estuary-river continuum that was recognized in the recent ISAB review of the Fish and Wildlife Program (ISAB 2013-1). While the sponsors acknowledge this linkage they only mention it in passing under Additional Relationships Explanation. Future proposals need to provide a more detailed explanation of why this linkage has not been developed.

The four project objectives are straightforward and outcomes easily tracked. Progress on all of these objectives has been made. Protocols for identifying and prioritizing areas for restoration

and performing status and trend monitoring have been established. Additionally, methods for soliciting project proposals; creating scientific review teams; and reviewing, selecting, and funding projects have been installed. The project is serving an important role in identifying, selecting, funding, and monitoring floodplain restoration projects in the Willamette River Basin.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

When the project first began, outreach efforts were directed toward agricultural and gravel mining landowners to identify areas that would allow expanded floodplain use. At the same time properties were purchased and restoration work was begun on previously acquired land. So far approximately 2,800 acres of conserved land has been acquired and 480 acres of floodplain has been reforested.

Since its inception, the project has refined and adjusted how it selects, prioritizes, and monitors habitat restoration projects. For example, it funded the development of a map of the Willamette Basin which shows the parts of the floodplain that will be inundated with a two-year flood. This information has been coupled with the occurrence of anchor habitats, that is areas that can support cold water fishes, to help prioritize where recovery work should take place. The project has also completed a draft of a monitoring and evaluation plan which will be used to track status and trends in restored areas. Additionally, it is currently seeking a quantitative method that can be used to assess its reforestation efforts in floodplain areas. The project is accomplishing its restoration objectives and appears to be adjusting its methods as new information becomes available. This is a good initiative and is in line with ISAB recommendations for a true landscape approach to habitat restoration in the Columbia River Basin.

The sponsors describe ongoing changes and continuing reassessment of success. As such there does not seem to be adaptive management in the sense of designing experiments with the intention of using results to adaptively manage. Rather, the approach seems to focus on a series of modifications to improve the project selection process as well as restoration strategies. Future changes in projects will be based on results, for example, results of re-vegetation will guide future plantings.

Evaluation of Results

This is a fairly new project so there are not many results to report yet. The 2011 Annual report detailing the Green Island levee removal showed, with photos, that after the levee removal, a high flow event occurred in 2011 and the floodplain area was covered with up to 3.5 feet of water which had not happened since the mid-1960s. Also non-native invasive plants have been reduced by removal and new plantings of native species planted. Early data on monitoring of fish distribution and abundance indicated that there appeared to be an indication that more complex habitats contained higher species richness and abundance than less complex habitats.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsors clearly identify relationships to other projects and to limiting factors in the region. The Oregon Watershed Enhancement Board, Meyer Memorial Trust, and the Willamette Special Investment Partnership have formed a partnership to perform this project. This group collaborates with the Willamette Action Team for Ecosystem Restoration and a Habitat Technical Team. It also receives cost sharing support from the Willamette Wildlife Mitigation Program for land acquisition. The project also is closely linked to the USACE because of revetment removal actions and flow modification programs on the McKenzie and Santiam Rivers. Because of its overarching goal of restoring floodplain habitats, it is closely aligned to the Willamette subbasin plan and the NPPC Fish and Wildlife Plan.

One of the emerging limiting factors identified by the project was climate change. It is anticipated that as temperature regimes shift the availability of cold water, habitats along the mainstem will decrease. Restoration activities are expected to provide access to, or maintain such areas. Another future limiting factor is the expansion of urban areas and increasing levels of aggregate mining and agriculture. These increases will influence how much of the floodplain can be managed for conservation purposes. An incomplete understanding of how fish use this portion of the Willamette and the conditions in a floodplain that benefit fish were also recognized problems. Additionally, all the existing flood control infrastructure, dams, and revetments constrain how much of the floodplain can be restored.

Another limiting factor, although not discussed in the proposal, is the presence of agricultural and industrial contaminants. As land use in the basin increases there will likely be a rise in their occurrence. Contaminants may cause direct sub-lethal and lethal impacts and indirect effects via alterations in the food web and thus should be considered in future work.

4. Deliverables, Work Elements, Metrics, and Methods

Six deliverables appeared in the proposal. The first one was to develop an action effectiveness monitoring program for floodplain re-vegetation. When completed this AEM program would be used to monitor six re-vegetation programs in the upper Willamette. The remaining five deliverables deal with project solicitation, review, funding, and project administration. These administrative processes appear to be adequately designed and carried out.

Work elements, metrics, and methods are nicely detailed in the RM&E plan found via the website link found in the proposal.

Specific comments on protocols and methods described in MonitoringMethods.org

Nothing related to this project was found in MonitoringMethods.org. However, the protocols and methods are well detailed in the RM&E plan. The ISRP recommends that the protocols and methods from the RM&E program be entered directly in the proposal, plus in the MonitoringMethods.org website.

D. Wind River

199801900 - Wind River Watershed

Sponsor: Underwood Conservation District (UCD), US Forest Service (U.S. Forest Service), US Geological Survey (USGS), Washington Department of Fish and Wildlife (WDFW)

Short Description: The Wind River Watershed project is a collaborative, multi-agency effort to restore wild Wind River steelhead through watershed-scale habitat improvement and RM&E. The project has been funded since 1998 and involves the US Forest Service, Underwood Conservation District, USGS Columbia River Research Lab, and Washington Dept of Fish and Wildlife. The RM&E components of the project have already been vetted through the RM&E Review. See: <http://www.cbfish.org/Proposal.mvc/Summary/RMECAT-1998-019-00>

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This is a scientifically justified proposal. The ISRP suggests that the project sponsors dedicate some additional effort to evaluate fish and habitat response to some of the restoration methods being employed in the watershed. An improved understanding of the canyon life history also would be useful. The project sponsors should continue to pursue funding to address these issues.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Overall, the project significance and problem statements were well written and persuasive. The relationship between this project and regional restoration programs was explained in detail. This project appears to be well-aligned with regional priorities. The steelhead in the Wind River represent a key population for recovery of the ESU. And the Wind River watershed, by virtue of federal ownership, is unlikely to be impacted by significant changes in land use. Therefore, this site represents a great opportunity to establish a healthy watershed that can serve as an anchor for the restoration of steelhead in this area of the Columbia Basin.

The technical background provided in the proposal was brief, but links to other documents provided sufficient detail to illustrate that the approach being used to identify restoration projects and to monitor habitat and fish populations in the study area are scientifically sound. Additional summary data of steelhead abundance over time in the Wind River in the body of the proposal would have provided useful context. The land use and dam construction section was very helpful. The objectives section summarized the biological and habitat monitoring aspects of the project but did not address the habitat restoration actions. It would have been helpful to summarize the major restoration projects being carried out with partners, especially the Forest Service.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The proposal provides a thorough review of project history and accomplishments. A summary of results to date was provided in the proposal. Results of research and monitoring projects that have been associated with this project also are provided through links to reports and publications. This project has an excellent history of cost-sharing. The restoration work itself has included a wide variety of activities ranging from barrier removal to riparian re-vegetation to instream structure placement. The major restoration project has been the removal of Hemlock Dam on Trout Creek and another small dam on Martha Creek. The table and photos showing major habitat accomplishments by year was very informative.

The section on adaptive management was generally well done and included information about how learning has taken place in both the restoration and biological monitoring aspects of the study. Restoration project selection is still largely based on an EDT assessment and a Forest Service Watershed Analysis that were conducted almost ten years ago. At some point it would be valuable to use the monitoring results generated after these initial assessments to update and revise the analyses.

The project sponsors are encouraged to publish results in peer reviewed journals.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

This project appears to be well aligned with other efforts on habitat restoration and fish and habitat research in the Columbia Basin. Some of this coordination is a product of interaction of the project participants with scientists involved in the ISEMP, CHaMP and PNAMP processes. These relationships help to ensure a high level of data compatibility between this project and monitoring efforts elsewhere in the Columbia Basin. This project further benefits from the collaboration among multiple management/research organizations including the U.S. Forest Service, U.S. Geological Survey, and the Washington Department of Fish and Wildlife.

The biological monitoring in this project far exceeds most of the other habitat-focused projects funded by BPA, and the ISRP continues to applaud project sponsors for their efforts. Investigators have learned much about steelhead life history in the Wind River, and their discovery of two rearing strategies, the headwater tributary and lower mainstem or canyon rearing, have allowed them to design monitoring systems to evaluate the significance of both strategies and the role of habitat restoration in recovering the overall population. The PIT-tag detection network in Wind River tributaries is among the most complete in the Columbia River Basin.

There is a very good process in place to assess adult fish returning to the system, parr abundance and movement, and smolt production. Given the significance of the canyon life-history strategy for steelhead, additional research on the canyon life history would be appropriate. The addition of a CHaMP habitat monitoring program to the Wind River will provide a very good indication of habitat status and trends in condition overall. The Hemlock

and Martha Creek dam removals represent an excellent opportunity to study small dam removals as a model of addressing an obvious limiting factor, and it appears that project sponsors are monitoring the outcomes as best they can with available resources. We are encouraged that the Hemlock Dam removal project is receiving biological effectiveness monitoring.

The project sponsors provide a very clear explanation of why they feel that PIT tags are the most appropriate technology to use in answering the questions to be addressed through this project. The PIT-tagging network allows project sponsors to track adult and juvenile steelhead movements to and from Wind River tributaries.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables were adequately identified for the steelhead life history studies and steelhead response to restoration. The proposal did an excellent job of explaining or providing links to the biological response metrics and methods that would be used to track fish movements. Because this project is well integrated with ISEMP and CHaMP (although it is not an IMW), the biological and habitat monitoring work elements are generally on solid scientific ground. There does, however, appear to be a lack of project-effectiveness monitoring. There is a very good process in place to assess adult fish returning to the system, parr abundance and movement and smolt production. The addition of a CHaMP habitat monitoring program to the Wind River will provide a very good indication of habitat status and trends in condition overall. But there is very little mention in the proposal about efforts to evaluate habitat or fish response to many of the restoration projects that have been completed, with the exception of the assessment of the effect of the removal of Hemlock Dam. Some additional evaluation of the effectiveness of the less-dramatic restoration treatments would be useful for refining the process for prioritizing projects in the future.

About 25% of the funding requested by this proposal will be used to implement restoration treatments. Details about proposed habitat restoration actions were not as complete as were details about life history and habitat monitoring. Some discussion of how far along the program of restoration is in the Wind River drainage would have been useful. Project sponsors explain that it takes several years to plan and execute a restoration activity, and specific project locations are often opportunistic. The proposal does, however, provide reasonable detail about the general types of restoration efforts that are taking place. Nevertheless, a little more information about what restoration work is critical and what efforts are "in the pipe" would have been helpful.

Specific comments on protocols and methods described in MonitoringMethods.org

This proposal does an excellent job of linking the monitoring methods to existing protocols and techniques as described in MonitoringMethods.org.

E. Fifteenmile Creek

199304000 - Fifteenmile Creek Habitat Improvement

Sponsor: Oregon Department of Fish and Wildlife (ODFW)

Short Description: This proposal continues the O&M of previously installed instream and riparian habitat improvements and the maintenance of antennas at four PIT tag arrays throughout the Fifteenmile subbasin. Planned future restoration projects target the increase of instream habitat complexity through the additions of large woody debris complexes along with the protection of the adjacent riparian areas. Project staff will continue to refine construction techniques on MUX based antennas and All-Flex technology.

ISRP response loop recommendation: Meets Scientific Review Criteria

Comments:

The project sponsors have provided reasonably detailed answers to most of the ISRP's questions. However, as the project progresses, we feel that more thought should be given to establishing metrics that will enable biological assessment of restoration success. The response to question 1 (*What quantitative evidence exists that habitat projects have led to increases in steelhead abundance or distribution within the drainage system?*) shows that steelhead spawning is now more dispersed in the drainage network than was the case a decade ago, but the link between this observation and restoration actions was not fully discussed. As pointed out, the monitoring period has likely not been sufficiently long to detect trends in smolt production or adult steelhead escapement, but it would be very helpful to identify a time frame for expected benefits, the life history stages most likely to be influenced by restoration actions, and a target trajectory for population recovery. We realize that annual variability makes it very difficult to establish meaningful, realistic fish population goals. But without some quantitative biological metrics and targets, it will be impossible to gauge long-term restoration success.

The response to Question 6 was not complete. The ISRP asked how biological targets for steelhead were being established for Fifteenmile Creek. The project sponsors indicated that the objective was to achieve "highly viable" status for the steelhead population as at least one eastside Cascade tributary needs to achieve this status for recovery. The project sponsors should collaborate with the group conducting the RM&E project on this stream to develop realistic, quantitative objectives for the steelhead population recovery.

Adult and smolt data from the RM&E project were provided, but interpretation of these data was very brief. The project sponsors suggest fish data have not been collected for a sufficiently long period of time to detect any response to habitat improvements. However, there are also suggestions of a response in terms of improved distribution of spawning steelhead and an increase in smolts leaving the system the last several years. Continuing these monitoring efforts should eventually provide some indication of the overall success of the restoration program for steelhead. Juvenile steelhead density and distribution will be monitored at large-scale habitat

projects. These data will be most useful if they are collected in a manner that enables estimation of the contribution that fish from these project sites make to system productivity.

The photo-points and descriptions of riparian habitat improvements in the Fifteenmile subbasin were appreciated. More detailed description of how the working relationship with the ODFW research and habitat project has benefited the project (including the use of data to develop specific steelhead population goals) would improve the project proposal and help focus future habitat improvement work.

Evaluation of Results

The restoration efforts in the Fifteenmile Creek subbasin are remarkable in that they have covered a very significant portion of privately owned lands. The extent of restoration coverage, and the obviously successful collaboration between conservation organizations and local stakeholders, is an example for other subbasins to follow. Given this high level of cooperation and the high percentage of riparian zones enrolled in the CREP program, measureable improvements in freshwater production ought to be achieved over time. Carefully selected biological metrics can help document long-term population recovery.

Preliminary ISRP comment requesting a response:

The project has achieved important improvements in stream and riparian habitat on private lands in the Fifteenmile Creek subbasin, and the ISRP continues to find this effort justified. Because the project has been in place for two decades, we would like more details about the results of the restoration efforts to date. Specifically in the response, we would like to know (1) what quantitative evidence exists that the habitat projects have led to increases in steelhead abundance or distribution within the drainage system, and (2) what improvements in riparian communities have resulted from livestock exclosures and alternative watering sites. The response also should include summarized results from the ODFW monitoring project, acknowledging that monitoring is indicating that more adult steelhead are spawning in Fifteenmile Creek and that smolt production has increased. We would also like a little more detail about the budget requests for habitat complexity improvements in FY 2017 and 2018, and about the methods being used to monitor restoration success.

The components of the proposal related to O&M of existing habitat projects are adequately justified. We request more detail about the process being used to identify and prioritize new projects to determine if this part of the proposal is scientifically sound. Also, a more thorough description of the process to be used for adaptive management should be included. The existence of research programs for steelhead and lamprey in the Fifteenmile Creek watershed provides the opportunity to develop a very powerful adaptive management strategy for identifying future habitat projects, and a formal process should be established to ensure the research results are utilized to their full potential.

Other questions include:

If the project is intended to become a programmatic umbrella project, how will future restoration actions be selected and prioritized?

How are biological/fish targets for restoration benefits derived?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project is now in its 20th year and deals with stream and riparian habitat restoration in Fifteenmile Creek, the easternmost limit of winter steelhead distribution in the Columbia River. Currently, Fifteenmile Creek supports one of two viable steelhead populations in the mid-Columbia, although adult population estimates are believed to be only about 30% of pre-development numbers. The steelhead population is also notable in that it is entirely of natural origin and has never been supplemented with hatchery fish, and thus it is of interest for assessing the success of habitat restoration in a location where artificial production has not confounded the interpretation of population status and trends. Project sponsors have done a good job of relating this project to regional restoration programs. The technical background was clearly explained, and the habitat objectives in general were clear. No quantitative targets for habitat conditions over the entire subbasin were given, but the specific objectives of projects to be implemented in Fiscal Years 2014-2018 were clearly delineated.

This proposal covers a wide range of habitat restoration activities on Fifteenmile Creek. Effectiveness assessments associated with these projects have included photo points and water temperature monitoring. In addition, a project designed to assess steelhead population attributes has been implemented in this watershed. However, the only information provided about results from these efforts was before-after photos of vegetation recovery at several of the riparian fencing sites. Little information is provided about the temperature response at restoration locations or if water temperatures, in general, in the watershed are trending downwards as a result of the efforts. The proposal did not include information about steelhead response to the projects that have already been implemented. Even if insufficient data have been collected to determine the response of steelhead to the restoration efforts, some discussion of current status of the population would have provided valuable context for the habitat restoration program.

The objectives are appropriate for the project, but they are rather generic. Objective 1 does provide a quantitative goal in terms of increased steelhead smolt production. There is no link between this goal and the contribution past and future habitat restoration projects are expected to make towards achieving this goal.

The ISRP would like to have seen more information about what is being done to monitor agricultural chemicals. Because most steelhead spawning takes place above Dufur and a large fraction of Fifteenmile Creek spawning habitat lies in privately owned lands, chemical contamination of aquatic ecosystems could constitute a limiting factor.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Habitat accomplishments to date were adequately summarized. Although barrier removal and instream structure placement have figured prominently in the project's history, the centerpiece has been fencing 206 miles of riparian zones and installing 52 off-channel livestock watering sites. The photographs were helpful, although adding dates of the photos would have provided useful time references. The ODFW has also devoted resources and expertise to installing PIT-tag detectors and a screw trap to monitor juvenile movements on private lands, although data management has largely been given over to project 2010-035-00.

As noted above, there is relatively little presentation of results from the monitoring that has been conducted under this project or the companion steelhead monitoring project (2010-035-00). It would have been informative to provide an overview of the monitoring results to date to complement the description of the types of habitat projects that have been implemented.

The adaptive management discussion in the proposal needs further detail. The project sponsors focus on the critical need for good landowner relationships and the problems they have encountered with noxious weeds at their project sites as evidence of an adaptive management element for this project. However, no description was provided of how results from the steelhead population studies or the water temperature monitoring at project locations are being used to guide the selection of future projects. The existence of the steelhead research program in the Fifteenmile Creek watershed could provide information that could greatly improve the effectiveness of future habitat restoration efforts. There should be a formal process for reviewing the fish data regularly and incorporating these findings into the process for identifying and prioritizing future projects. This type of process would represent a true adaptive management component for this project.

The recent history of accomplishments, which uses photo point comparisons and documents 208 miles of fencing, is generally adequate.

Evaluation of Results

In our last review (2006) the ISRP requested information on how the restoration projects were affecting the distribution and abundance of steelhead and secondary focal species in the Fifteen Mile Creek subbasin. In this proposal, the project sponsors essentially point to project 2010-035-00 for a summary of population trends. We feel, however, that it would be helpful to show, in brief summary form, a graph or table of estimated adult steelhead escapement to Fifteenmile Creek over the last decade (or however long a reasonable database exists); a map or graph showing the current distribution of steelhead in the subbasin relative to the distribution prior to passage barrier removal; and a graph or table of the number of estimated steelhead smolts leaving Fifteenmile Creek. These data would help indicate whether the anticipated benefits of habitat restoration have been expressed over the last decade or so.

In addition, it would also be helpful to know how riparian areas are responding to livestock enclosures. Apart from before-after photos, have any vegetation plots been established to document riparian recovery over time? As well, can an indication of the extent of spread of invasive plants be provided? These data would provide evidence of the anticipated benefits of riparian protection.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The other projects occurring in the Fifteenmile Creek watershed were listed and briefly described. However, the actual linkages between these various projects and the one described in this proposal were not provided. For example, the proposal indicates that the monitoring projects for steelhead and lamprey in Fifteenmile Creek will generate information relevant to the design of habitat restoration efforts, but no evidence is provided that results from these projects were considered in identifying the new habitat actions included in this proposal. A more detailed description of the relationships among these projects is needed. Also, some discussion of the extent to which this habitat project is attempting to take advantage of results from the large habitat research programs in the Columbia Basin, for example ISEMP and CHaMP, should be included in the proposal.

The emerging limiting factors discussed in the proposal are climate change and the problems that have been encountered with noxious weeds. The climate change discussion is appropriate, and it is clear that many of the activities that have been included in this restoration program do have the potential to help mitigate for the expected changes in water quantity and quality caused by a warming climate. It is gratifying to know that the emphasis has been on improving habitat on private lands, which have often been overlooked in other subbasins. One of the climate-related factors that could affect habitat in Fifteenmile Creek and its tributaries is a change in the incidence of wildfire. In the event of a severe fire season, it will be interesting to examine how the riparian fencing projects hold up.

The significance of the noxious weed issue as a limiting factor for steelhead was less clear. Noxious weeds can certainly impact terrestrial systems, especially wildlife, but the manner in which these undesirable plants impact steelhead survival or the productive capacity of freshwater habitats in the Fifteenmile Creek watershed was not convincingly presented. Continued vigilance with respect to invasive plants is appropriate as an O&M activity associated with this project; however, this activity would likely be of greater significance to terrestrial system conditions than aquatic.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables, work elements, and methods were described in a straightforward manner. The Dufur water intake bypass project seems appropriate. The additional 2 miles of riparian fence will only increase the fenced total in the subbasin by 1%, so it is assumed that most of the work will be on maintaining and repairing existing fences. A little more detail could have been provided for the Schanno, Remington, and Fulton habitat complexity projects, including

location in the drainage network and perhaps a schematic diagram of the 5-mile reach after restoration has been implemented.

The project budget shows a large increase in facilities and equipment in FY2017 and 2018, but few details are given about these significant cost increases. What, specifically, will the funds be used for in these two fiscal years?

Maintaining the integrity of the fenced riparian areas and instream structures will be required for restoration efforts to positively influence steelhead production. The work elements associated with the new restoration projects, however, are not yet described fully enough to assess their technical merit. A more complete description of the process being used to identify the highest priority projects should be included in the proposal. Landowner willingness to participate is identified as the major factor for selecting projects in this watershed. However, the process being used to select projects from among those with a willing landowner is not fully described. The manner in which research results from the steelhead and lamprey projects has influenced the selection of the sites for future restoration projects also was not described. A clear description of how projects are prioritized and the manner in which research results will be used to modify the project selection process should be incorporated into the proposal.

Specific comments on protocols and methods described in MonitoringMethods.org

The methods listed in the proposal all address assessing the impact of livestock on streams. Because livestock exclusion from riparian areas is a major restoration element in this project, these methods do seem appropriate. However, several of the methods are related to assessing sediment levels in the stream or assessing the extent of bank erosion. The proposal indicates that the only monitoring associated with this project is compliance monitoring of project implementation, photo points, and temperature monitoring. If the project-scale monitoring does include an assessment of sediment, the manner in which these methods will be applied should be included in the proposal. None of the listed methods appear to be relevant for assessing the effectiveness of instream structures. What monitoring will be associated with the placement on logs or other structures in the stream?

[200102100](#) - 15 Mile Creek Riparian Buffers

Sponsor: Wasco County Soil and Water Conservation District (SWCD)

Short Description: Wasco County SWCD will provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the Fifteenmile Subbasin and other direct tributaries to the Columbia River in northern Wasco County. This project is important because it helps implement FCRPS 2008 BIOP RPA 35, and strategies to address limiting factors identified in the subbasin plan and Mid-Columbia Steelhead Recovery Plan.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a well-organized project that has achieved real progress in protecting riparian zones in the Fifteenmile Creek subbasin. The qualification is that project sponsors should continue to bolster efforts to increase biological effectiveness monitoring associated with the buffers. The response indicates that Wasco County SWCD is closely working with ODFW to assess site-specific restoration effectiveness and that efforts are underway to implement ISEMP/CHaMP monitoring protocols on a group of 25 sites within the system. These efforts are critically needed, and the ISRP recommends that effectiveness monitoring of selected CREP buffers be implemented as soon as is feasible. In addition, the plan of work should state how plant assemblage goals were specifically determined. NRCS standards were used to select plant assemblages, but a summary of NRCS plant assemblage standards (with species of plants typically used) should be included in the project description with a reference to how these assemblages will benefit aquatic habitat.

Comment:

The project sponsors provided thoughtful and detailed responses to the ISRP's questions. These responses included (1) riparian buffer dimensions, types of restoration actions, and adaptive management plans, (2) additional information on the rates of riparian recovery after fencing and replanting as measured by SVAP protocols, as well as a link to the OWEB macroinvertebrate study report showing improvements in caddisflies, stoneflies, and mayflies at buffered sites, and (3) additional details on coordination activities between Wasco SWCD and ODFW, and plans to include ISEMP monitoring and CHaMP habitat survey protocols in Fifteenmile Creek. The coordination with partners and landowners has been excellent and the working relationship with the ODFW habitat improvement project is described in reasonable detail. The ISRP was impressed with the level of coordination between federal, state, county, and local landowners in the subbasin. The ISRP was also encouraged that the project sponsors are aware of the need to increase effectiveness monitoring efforts and are taking steps to make this happen.

Evaluation of Results

The high percentage of riparian buffers that have been enrolled in the CREP program and the number of landowners that are not eligible for CREP but are voluntarily participating in Wasco SWCD and ODFW restoration efforts suggest that the Fifteenmile Creek can be considered a regional model for cooperation in restoring wild steelhead. When effectiveness monitoring results become more complete, the project sponsors together with ODFW should publish their results. Thus others in the Columbia Basin can appreciate their success and learn from their experiences.

Preliminary ISRP comment requesting a response:

The ISRP understands that the project supports the administration of CREP buffers and that currently over 90% of private landowners have enrolled in the CREP Program – Wasco County leads the state in this regard. However, a little more information is needed on a few key items.

An adequate response should address the following questions. First, we would like to know more about the buffers themselves: what are their typical width dimensions, how are riparian plant assemblage goals established, and what are the different types of restoration actions in the CREP buffers? Second, what riparian results have been achieved by implementation of CREP buffers to date; specifically, how quickly are riparian areas moving toward desired conditions, and are project sponsors satisfied with progress to date? Finally, more details are needed about how the Wasco SWCD interfaces with ODFW in coordinating restoration activities along Fifteenmile Creek and its tributaries.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This primarily administrative project enables the local soil and water conservation district in the Fifteenmile Creek subbasin to negotiate riparian protection agreements with private landowners under the Conservation Reserve Enhancement Program (CREP). The agreements involve native riparian plant re-establishment, weed control, and livestock exclusion along Fifteenmile Creek, some of its tributaries, and other small streams draining directly to the mid-Columbia River. Much of the cost of the CREP program in Fifteenmile Creek is borne by the USDA, with the Wasco SWCD requesting a modest \$86-91K for planning and contract execution over the next five years.

Some of the original CREP agreements are expiring, and the project sponsor wishes to renew them as well as to add new agreements with private landowners to fill gaps identified in the first map: 38 stream miles in total, including Fivemile, Eightmile, Fifteenmile, Ramsey and Dry Creeks. The project's objective is to negotiate 80 CREP agreements (16 per year) committing landowners to abide by CREP rules and to maintain the riparian protections implemented as part of the restoration effort.

While the background and objectives are clearly explained in general terms, little detail is provided about the buffers themselves such as width, specific riparian objectives, or types of restoration actions. A chart or table breaking down restoration actions into general categories - revegetation, weed control, livestock exclusion - would be helpful. There is considerable collaboration between this project and the companion ODFW habitat improvement project in the Fifteenmile Creek subbasin (1993-040-00), and more details are needed about how these two projects work together and share resources.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Because the project is administrative in nature, its accomplishments are described as successful CREP agreements with landowners. The reported results, therefore, are given as contracts signed and miles of stream affected by the agreements. The proposal did not provide any specific data or evidence about improvements in riparian condition over time since the contracts were executed. On the other hand, it is clear from the map that the extent of CREP coverage on the subbasin and adjacent streams is extensive, and if the CREP objectives for riparian condition are being met there is little doubt that the project has led to significant improvements in riparian condition and stream habitat.

Although the ISRP requested project sponsors to show a link to biological improvements resulting from the project in a previous review, the current proposal is still somewhat deficient in this regard. We understand that a convincing demonstration of improvement in steelhead productivity is in the future, but what evidence is available to demonstrate that the buffers have resulted in desired changes in riparian condition? There must be some data showing that the CREP agreements are working. Additionally, even though the results of the stream visual assessment protocol surveys are preliminary they are still of interest to the ISRP and should be included in the proposal.

In the section on adaptive management, the project sponsors state that individual agreements can be modified as needed. It would be helpful to describe how decisions are made regarding modifications and what evidence is required for a modification to take place.

Over the first 11 years this project has signed up 142 contracts covering 3809 acres and protected 128.7 miles of creek riparian habitats. The future goal is to average 10 new contracts per year through 2023 (Is this future goal consistent with the objective for 16 per year under this contract?). Past ISRP reviews have asked for ties to biological/fish monitoring. This proposal indicates that ODFW project 2010-035-00 will do the monitoring. However, the proposal should provide a link or brief summary of that project's results to date that relate trends in benefits to fish from habitat protection applied to Fifteenmile Creek.

Evaluation of Results

The ISRP notes that the 15-year CREP enrollment period may not be long enough to allow monitoring to assess the full habitat benefits of CREP protection. This could be remedied by

either extending the contract time or by establishing interim habitat goals that can be monitored during the 15-year period, for example at 1, 3, 5, and 15 year intervals post-enrollment.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

As pointed out above, the relationship between this project and the older ODFW habitat improvement project in Fifteenmile Creek (1993-040-00) should be made clearer. How are duplicative efforts avoided? How are riparian improvements coordinated between the two projects and how are workloads shared, if at all?

With regard to emerging limiting factors, the ODFW habitat project identifies the spread of non-native invasive plants as a significant threat to the subbasin. While weed control is mentioned among the supported CREP actions, it was not clear if efforts to control invasives will need to be stepped up in the coming years.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables and work elements were administrative such as landowner coordination, preparation of NRCS checklists, conservation plan development, CREP agreements, report preparation, and thus there were no technical metrics or methods to review. The proposal did do an adequate job of describing administrative details, however. Based on the funding requested here it is evident that most of the cost of the CREP buffers will be supported by the USDA Farm Service Agency.

The ISRP was intrigued by the macroinvertebrate monitoring studies that were discussed during the site visit and hopes that such sampling can be expanded in the future.

Specific comments on protocols and methods described in MonitoringMethods.org

The proposal states that no RM&E protocols will be needed; however, project sponsors will be implementing the NRCS stream visual assessment protocols as mentioned earlier. It would have been helpful for the proposal to briefly describe the SVAP technique.

F. Hood River

199802100 - Hood River Fish Habitat

Sponsor: Confederated Tribes of Warm Springs

Short Description: The goal of this project is to restore fish habitat to increase natural production of salmon and steelhead in the Hood River Subbasin. Over the past 15 years project staff has worked with subbasin partners to improve instream and riparian habitat and water quality using a variety of restoration techniques. We work with irrigation districts, agencies and other stakeholders to plan and implement projects that restore instream flow, conserve water, and improve water quality and fish passage.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The two issues below may be addressed in contracting and focused on in future project planning and proposal development.

1) The proposal lacks technical background and details regarding the nature of the habitat degradation and the purpose for the extensive efforts to re-introduce large wood into the stream network. How far below wood loading targets is the system currently?

2) The ISRP repeats its belief that this project deserves to be coupled to a biological monitoring effort (potentially ODFW Project #198805304) so that the benefits of the restoration can be demonstrated. Further information about how effectiveness monitoring could take place should be provided.

Comment:

The comments and questions in the sections below are intended to assist the sponsors in improving their project. The ISRP does not request a response.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Hood River Fish Habitat Project responds to goals and objectives in the following regional plans/programs: Western Hood Subbasin Total Maximum Daily Load (DEQ, 2002), ESA Recovery Plan for Lower Columbia Steelhead (NMFS, in progress), ESA Recovery Plan for Hood River Bull Trout (USFWS, 2002), Hood River Subbasin Plan for Fish and Wildlife (NPPC 2004), plus others.

This project focuses primarily on restoring spawning and rearing habitat for Chinook and steelhead in the Hood River subbasin. Categories of actions include increasing instream flows during the irrigation season, monitoring water quality for agricultural chemicals (used primarily by fruit growers), restoring access to blocked habitat, and increasing channel complexity

through large wood additions. The project is in its 15th year and seems reasonably well integrated into other restoration programs in the Columbia Gorge area.

The technical background and problem statements were explained in general terms, but it would have been helpful to provide more details about the extent and nature of habitat degradation. For example, why has there been an extensive effort to re-introduce large wood into the stream network (how far below wood loading targets is the system currently)? Overall, however, the project sponsors have placed their restoration emphasis on addressing obvious problems and their objectives seem clear and well grounded.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments to date are summarized primarily as miles of channel restored, for example treated in some way to achieve habitat targets such as wood loading, pools per mile, area of suitable spawning gravel, miles of stream made available through barrier removal, or additional stream-flow during the irrigation season. Summaries of habitat improvements in the proposal clearly explained what has been done in the past.

How the restoration sites were prioritized and ultimately selected in the Hood River subbasin was somewhat less clear. The proposal does not mention if the EDT analyses were used to prioritize habitat improvement activities, although later in the proposal it is stated that Intrinsic Potential (IP) modeling formed the basis for some of the wood addition projects.

We wish there were a summary of the status and trends of fish populations in the Hood River. The ISRP called for monitoring of fish response to habitat actions in our 2007 review of this project, but the linkage between restoration and population improvements appears to have remained unexamined. Perhaps fish monitoring is taking place as part of other projects, but if so it would have been very helpful to have shown the connection between the habitat work here and what others are learning about population trends.

Fish passage projects completed include installation of two fish screens on irrigation diversions, upstream migrant passage restoration on the Middle Fork Hood River, and preliminary design for a diversion replacement on the East Fork Hood River. Without a presentation of the extent of the problem and the extent to which past efforts have been successful, it is not easy for reviewers to assess these activities. No mention is made of fish abundance. Nevertheless, it seems reasonable progress is likely being made with regard to this objective.

The ISRP was also concerned about the potential effects of residualized hatchery Chinook on naturally produced fish, and the proposal suggests that hatchery residualism might not be as high as formerly thought. Even though the results are stated to be preliminary, it still would have been helpful to see the evidence.

Adjustments in the water quality sampling program in response to what was learned from prior chemical monitoring is an excellent example of adaptive management and shows that the

project sponsors have been willing to change their water quality monitoring protocols to address key questions.

Evaluation of Results

Over a decade and a half this project has accomplished an extensive number of habitat protection and restoration actions. Results of these actions as far as the physical characteristics have been adequately reported in the current proposal in the format of summary tables and in annual reports to BPA.

In the ISRP FY07 review of this project the following recommendations were made:

"FY07 review: A history of watershed assessment and prescription within the Hood River indicates good planning, based on previous Provincial reviews, and has served as an example for other studies. Lacking to date, however, is an understanding of results in terms of benefits to fish. There is an ongoing fish M&E effort in the subbasin that this project might have drawn from, but benefits to fish and wildlife were not indicated in the proposal or response. The lack of fish data and results within the proposal or the response is viewed by the ISRP as a serious concern. In addition, the reporting of activities towards achieving project goals was lacking, and only a short list of activities exists for the time since commencement (1998).

The response leads to the ISRP recommendation of "Fundable (Qualified)" with the qualification that sponsors: (a) develop and implement monitoring and evaluation of the fish response to their habitat-related actions and (b) assess the extent to which the residualism of hatchery steelhead is resulting in the displacement of wild fish from Hood River habitat. It is expected that much of both tasks will be done in close conjunction with projects 198805303 and 198805304."

In response, the sponsors provided an adequate discussion of results from project 198805303 indicating the level of impact of hatchery steelhead on wild steelhead. But no information was included responding to the request for M&E data to measure/evaluate the habitat benefits to fish. The only statement was that the project was waiting for BPA to provide funding to meet their obligations for monitoring. The sponsors should at least coordinate with ODFW project 198805304 to summarize such information and see if changes in fish population status may be correlated with timing of habitat work. The last report from this ODFW project (2011) provided extensive fisheries data regarding the current status of steelhead and Chinook populations in the subbasin. The opportunity to discuss how the habitat restoration work completed may have affected the current status should be explored.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Restoring summer water flows, reducing herbicide and pesticide inputs, eliminating passage barriers, and increasing channel complexity are the main emphases of this project and in general the proposal does a good job of explaining how project staff has worked well with local

landowners, irrigation districts, DEQ, and the Forest Service to accomplish objectives. Emerging limiting factors such as glacial recession leading to lower summer flows and the spread of invasive riparian and aquatic species are touched upon, but strategies for dealing with them are not identified.

Tailored questions are answered briefly.

4. Deliverables, Work Elements, Metrics, and Methods

Overall, the description of deliverables was reasonably complete. There were a few questions, however:

- 1) What is the anticipated benefit (in CFS to the Hood River) of the combined water conservation and irrigation efficiency actions?
- 2) The proposal suggests that thousands of logs will be introduced into the channel network over the next four years. Will this wood be anchored to prevent downstream movement, or if not, is there any concern that the mobilization of large quantities of wood during a severe storm could endanger capital structures downstream of the restoration?
- 3) A few more details about the engineered side channel in the lower Hood River would be helpful. Is it anticipated that the channel will need annual maintenance to continue to function as intended?
- 4) What species of plants will be planted in riparian buffers between orchards and the stream channels? What, if any, steps will be taken to reduce browse damage on these plants?

Specific comments on protocols and methods described in MonitoringMethods.org

Protocols and methods have been entered in MonitoringMethods.org and are completed with adequate details for all objectives.

G. Klickitat River

199705600 - Klickitat Watershed Enhancement

Sponsor: Yakama Confederated Tribes

Short Description: KWEP works to restore, enhance, and protect watershed function within the Klickitat subbasin. Project work emphasizes restoration and protection in watersheds and reaches that support native salmonid stocks, particularly steelhead (*Oncorhynchus mykiss*), spring Chinook (*O. tshawytscha*) salmon, and bull trout (*Salvelinus confluentus*).

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

These two issues can be dealt with in contracting, statement of works, and preparation of papers.

1) In order to continue to justify the investment in restoration actions, there needs to be a more explicit tie between these projects and fish responses. It is ok if another project does the biological monitoring to determine if the habitat restoration work is having a positive impact on fish, macroinvertebrate, and wildlife populations. It appears that companion project #199506325 is doing such monitoring. A brief summary of their pertinent findings should be included in the proposal or an explanation of how the results from the fish monitoring work is being incorporated into this watershed enhancement project.

2) The ISRP is impressed with the accomplishments of this extensive restoration project and recommends that the sponsors pursue publication of the long-term results of their efforts.

Comment:

The comments and questions in the sections below are intended to assist the sponsors in improving their project and the ISRP does not request a response to these.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of this project is to continue actions that improve watershed processes and fish habitat in the Klickitat River Subbasin, and as the proposal indicates, this project responds to goals and recommendations in the Council's Fish and Wildlife Program (2000), the Klickitat Subbasin Plan (2004), the USFWS 2005 Bull trout BiOp, and several other tribal and state plans.

Restoration efforts primarily include floodplain reconnection, road decommissioning, large wood placement, and riparian re-vegetation. The technical background of the project was adequately explained, although a little more information about the status and trends of focal species (spring Chinook, steelhead, and resident rainbow trout) would have been helpful in order to provide context for the project.

The four objectives are really stated as broad goals and need to be better defined. For example, Objective 1 "Protect ecological and geomorphic functions that are at present productive for fish and wildlife populations to provide a base for expansion." Which populations and how much expansion? Where? There are metrics following each objective, but they also are too general to be of much value unless they are refined. Examples of the metrics used are "Fish/habitat usage and Flow duration." These are incomplete metrics. In the following section of the proposal, Project Goals are listed for each restoration project. These could/should be put in the Objectives section they are really measurable/quantifiable objectives.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The proposal gave a detailed description of restoration efforts to date and the before-and-after photos were helpful. The project sponsors did not mention if continued maintenance of some of the enhancements have been needed, but perhaps the projects have not required maintenance (suggesting that they were well designed in the first place). A helpful addition would have been a discussion of the alternative activities considered for each project, and a description of why those other options were rejected.

Results in the proposal are nicely detailed for the habitat work, but here and in annual reports the results are just of implementation monitoring - no biological monitoring results. Information is needed on fish and other biological responses to restoration actions. For example, what is the evidence that salmon and steelhead have made use of the added length of streams resulting from barrier removal? Are juvenile fishes using floodplain habitats that have been opened up by road re-location? What are the sources of mortality of trees planted in riparian zones? In terms of adults returning to the Klickitat River and its tributaries, what is the evidence that restoration projects have contributed to focal species productivity?

The only specific example of adaptive management was mention of adjustments in plant sources and pruning treatments to improve survival. One or two other examples of how lessons from past projects have been incorporated into current plans would be useful.

Evaluation of Results

This is a fairly long running project with an extensive list of habitat restoration projects. Since earlier ISRP reviews, which requested more details regarding the selection and prioritization process, the KWEP has improved the proposals with more details on project selection and functions they are seeking to rehabilitate. The annual reports have also significantly improved.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Relationships with most other projects are very generally stated and the sponsors did not describe how the information generated by those interacting projects was used. The sponsors did mention that they had close interactions with their M&E project #199506325 but gave no basic summary results from that project.

Limiting factor analysis has been conducted using both EDT (for summer steelhead and spring Chinook) and expert opinion. This is commendable, but a specific presentation of just how this analysis has been applied to specific life stages of a species is missing. Much more detail is needed.

Emerging Limiting Factors - The sponsors only provide a simple list of limiting factors with no discussion of how they will specifically respond to these.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables and work elements were, in general, adequately described. It was not clear whether heavy equipment will be used to change stream morphology from a plane bed to forced pool-riffle morphology (DELV-1). A couple of the actions included "maintain/remove vegetation," which suggests that invasive species control will be used. A little more detail is needed on this aspect of the work. Some of the large wood additions involved placing the logs by helicopters. Does this mean that the logs will simply be placed in the channel or along the stream-bank, or will they be anchored by cabling or burial? Some information was provided during the site visit, but a few more restoration details are needed.

H. Rock Creek

200715600 - Rock Creek Fish and Habitat Assessment

Sponsor: Yakama Confederated Tribes

Short Description: The Rock Creek Fish and Habitat Assessment project's primary goals are to gather information on the anadromous salmonid populations' (steelhead, fall Chinook, and coho) status within the subbasin, assess habitat conditions, and identify factors limiting anadromous salmonid populations. The information collected on the abundance, growth, genetics, diseases, habitat use, and life-history of salmonids in Rock Creek was used to create a scientifically based restoration plan.

ISRP recommendation: Meets Scientific Review Criteria - In Part (Qualified)

Qualifications:

The elements of this project related to data collection generally meet scientific criteria. However, proposal elements related to the identification and execution of habitat restoration actions are not adequately justified from a scientific standpoint. It is not possible to assess the technical merit of the project identification process until the geomorphology and salmonid population assessments are completed in 2014. The ISRP looks forward to reviewing these reports and the process to be used to identify priority projects.

Qualifications include:

- 1) Geomorphology and fish population reports should be reviewed by the ISRP when they become available.
- 2) The strategy for incorporating these data into the restoration prioritization process needs to be clearly described.

The ISRP should review the reports and the prioritization process as a package rather than individually.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project proposes to continue an ongoing effort to collect and analyze salmonid population and habitat data on Rock Creek for the ultimate purpose of identifying habitat restoration projects that would be most beneficial to the fish. The Rock Creek watershed appears to be an appropriate location for such an effort. The proposal indicates that this population is a focus of recovery efforts for the Mid-Columbia ESU.

The four objectives for this project are:

(OBJ-1) Understand the current habitat conditions

(OBJ-2) Protect and conserve existing good quality habitat and expand upon these focal areas

(OBJ-3) Identify protection/restoration sites and actions

(OBJ-4) Restore and enhance habitat

The general approach being taken is consistent with the guidance provided by the ISRP for years: identify restoration actions based on a thorough understanding of how the focal species are using the watershed. The technical background on the project activity to date was sufficient to illustrate what has been accomplished. However, key elements of the watershed assessment have yet to be completed (geomorphic assessment and juvenile fish assessment reports due in 2014). It appears that these reports will form the basis of a new EDT analysis that will be used to identify project locations and limiting factors. An evaluation of the technical adequacy of the process that will be used for project identification would require that these reports be included in the proposal. Therefore, Objectives 1 and 2 are justified in the proposal. However, the adequacy of the process that will be used to identify priority restoration sites (Objective 3) cannot be assessed with the information provided in the proposal. As a result, Objective 4 is not appropriate at this time.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The history and past accomplishments of this project are described briefly in the proposal. However, it appears that relatively little rigorous analysis of the fish or habitat data that have been collected to date has been completed. The discussion of results is similar in scope to that examined in the previous ISRP review (spring 2012) and is only slightly improved in terms of providing a comprehensive understanding of the situation. The proposal mostly contains a description of the types of data being collected and provides examples of some of these data including number of spawners and index of juvenile density. Additionally, the location of stream reaches that experience significant dewatering should be displayed. Also, it would be useful to know if the presence of non-native fishes in lower Rock Creek has had any effect on the survival of juvenile steelhead as they emigrate from the watershed. It seems that the reports due in 2014 on channel geomorphology and salmonid fishes will include detailed analyses of the data. The ISRP would require these reports and a description of the process to be used to identify priority projects in order to fully evaluate this proposal.

There is no explicit description of an adaptive management process associated with this project. However, there is a clear indication of an intention to use adaptive management principles as a foundation of the restoration process. Data being collected is intended to be used to identify high-priority projects. It appears that EDT will be the tool used to achieve this

goal. Development of a more formal adaptive management process for this project could help ensure that the data being collected are used to fullest advantage.

Evaluation of data collected by this project to date was not provided in this proposal. The reports planned for release in 2014 should contain a thorough data analysis and a discussion of the implications for habitat restoration.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal provides only a very high-level description of the relationships between this project and other habitat RM&E and habitat restoration projects in the Columbia Basin. They apparently are using some sampling protocols developed through the CHaMP and PNAMP processes. But the actual relationship between this project and the large habitat RM&E efforts in the basin, like CHaMP and ISEMP, is not described. It would seem that considerable leverage could be gained by aligning the sampling protocols being used in this study with efforts attempting to achieve similar objectives. The data management system described for this project in the proposal also might benefit by closer association with the large RM&E programs, which have developed very sophisticated data management systems.

The proposal generically identifies limiting factors for the Rock Creek watershed, but it also indicates that site-specific limiting factors can only be reliably identified once data collection and analysis is complete. This approach is technically sound. Water temperature is identified as a limiting factor in the proposal, and the work has also included pathogen sampling, although results of that sampling are not presented here. Is there any possibility that high temperatures have exacerbated disease or parasite problems in Rock Creek? The proposal does not address any of the key emerging limiting factors such as climate change, invasive species, or future development of the watershed. A careful assessment of how these things may affect restoration actions should be incorporated into the process being developed to identify priority restoration actions.

This project uses PIT tags and two instream PIT tag readers to assess juvenile steelhead movement, smolt production, and adult returns. The proposal clearly explains why PIT tags are the best choice for application in this project. However, it is not clear if an adequate number of fish have been PIT-tagged to get sufficient recoveries to make generalizations about fish movements.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables, work elements, and metrics associated with the collection of fish and habitat data for Rock Creek appear to be appropriate for project objectives. However, there was little description of how these data are being analyzed (other than that EDT is being used); some additional information on this point would have helped assess the technical merit of the analysis methods being used. Presumably, these items will be addressed through the reports planned for completion in 2014. It was stated that genetic analysis of steelhead is being

discontinued. No information was provided in the proposal on how the information from this part of the study will be used to help inform habitat restoration priorities.

There is insufficient information provided to determine if the methods that will be used to identify the most effective restoration projects are scientifically sound. The use of EDT to examine these data is a reasonable approach. However, until the reports on system geomorphology and fish populations are completed in 2014, it is not possible to assess whether or not these data will be sufficient to accurately parameterize the EDT process. In addition, it would be wise to use EDT in conjunction with a second analytical approach. Consistent outcomes from the two approaches would add considerable assurance that the most significant projects are being correctly identified.

Specific comments on protocols and methods described in MonitoringMethods.org

The proposal was adequately cross-referenced with respect to the MonitoringMethods.org protocols.

I. Northeast Oregon Multi-basin Projects - Deschutes, John Day, Umatilla, Walla Walla (OR), and Grande Ronde

200820700 - Umatilla Tribe Ceded Area Stream Corridor Conservation & Protection

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: The project focuses on securing permanent protection of priority anadromous fish core habitats in the Grande Ronde, Umatilla, Walla Walla, and John Day River watersheds through conservation easement and capital acquisition of fee title. Continued pressure from development and commodity based resource management threatens to seriously degrade watershed productivity and function. Process is guided by the subbasin plans, focused on filling BPA's BiOp gaps for habitat conservation.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP's qualifications from its previous review of this project in 2011 remain (see [ISRP 2011-23](#)). Informed by the ISRP's 2011 review, the Council recommended in January 2012:

"Bonneville will include as part of contracting specific deliverables for 1) the details of the framework the CTUIR references as a tool for prioritizing properties for potential acquisition, 2) a comprehensive plan or statement of reference condition that can be used as the basis to evaluate or compare each property presented as a priority for acquisition, and 3) additional detail regarding CTUIR monitoring and how acquired parcels will be accounted for within the context of the regional framework for habitat status and trend monitoring.

Based on the CTUIR's development of the aforementioned detail as part of contracting, the Council recommends this project to Bonneville for implementation. This recommendation is conditioned on the sponsor addressing in contracting the issues raised by the ISRP. The Council requested that follow-up be provided by Bonneville that reflects these contractual elements were incorporated. In addition, the revised prioritization framework and updated narrative will be reviewed as part of the geographic review."

BPA has not issued a contract for this project, and the issues and conditions in the Council's January 2012 recommendation have not been addressed. Therefore, the ISRP recommendation for the Geographic Review remains unchanged from the 2011 review recommendation of Meets Scientific Review Criteria (Qualified) (ISRP document 2011-23). The Council's January 2012 recommendation, as informed by the ISRP's review, still applies. The ISRP looks forward to reviewing a response addressing the qualifications.

Preliminary ISRP comment requesting a response:

While this version of the proposal was marginally better than the last one, the sponsors need to adequately address some basic ISRP concerns. Acquisitions and easements on critical streams and land parcels should be a high priority and could provide significant opportunities for enhancing habitat and improving fish growth and survival. However, those actions need to be completed with a clear vision of how they contribute to larger goals, how the acquisition/easements will be affected by future environmental conditions, and how they will be monitored to show if the strategy is working.

The ISRP requests a response as follows:

1) Provide further responses to ISRP 2012 comments 2, 3, and 8.

ISRP Comment 2: Provide more detail on how the sponsors will determine quantitative anticipated benefits of land acquisition and leasing to fish and wildlife in terms of protection or restoration of productivity, abundance, diversity, and spatial structure.

ISRP Comment 3: Provide a rationale for the five criteria in the Acquisition Project Area Prioritization Worksheet, and for the implicitly equal (additive) weighting of each criterion. In particular, justify how criterion 5 (administrative value) should be combined with the other four criteria that measure biological value.

ISRP Comment 8: Outline how effectiveness monitoring of habitat and fish populations will be conducted. A detailed monitoring plan is not necessary at this point.

2) Provide an adaptive management process or strategy to evaluate whether the acquisitions/easements are fulfilling their intended purposes.

3) Provide a strategy or plan to address questions about “emerging” factors as noted above.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal is for acquisition of land or easements in the Grande Ronde, Umatilla, Walla Walla, and John Day subbasins for protection and restoration of riparian areas to benefit ESA-listed spring Chinook and summer steelhead. The project focuses on securing permanent protection of priority anadromous fish core habitats in these subbasins through conservation easements and capital acquisition of fee title.

This project is identified as the CTUIR's primary project for providing permanent conservation of habitats under the Columbia River Accords agreement, and as contributing directly to the vision of Fish and Wildlife Program. The proposed work is consistent with the subbasin plans for the four subbasins, and other federal, state, and tribal recovery plans. The project has clear

significance to regional programs. The sponsors and their partner organizations appear to have the technical background to successfully complete the activities

The emphasis is on acquiring core, high quality habitats that have been minimally disturbed or have a high potential for restoration. The approach seems to entail using the priority geographic areas identified in the subbasin plans as well as the Atlas as the basis for identifying and selecting acquisitions. When land acquisition opportunities become available in the priority geographic areas, the sponsors will prioritize these potential acquisitions for their conservation value using a set of criteria that numerically rank the acquisitions. Evaluations will be done by a multidisciplinary team.

The ISRP previously reviewed this project in 2012 and found that several issues needed to be addressed. The project was approved with a directive to review it again in this round of proposals when outcomes of the three tiered project prioritization were available. Three of these issues were not addressed adequately in the proposal.

Below, the ISRP comment from their 2012 review is noted first. CTUIR's response (dated 10/12/11) to the each comment is given next. Finally, the ISRP comments on the response and whether it is adequately addressed in the present proposal are provided.

ISRP 2012 Comment 2: “.... more explanation is needed on the quantitative anticipated benefits to fish and wildlife in terms of protection or restoration of productivity, abundance, diversity, and spatial structure (presumably from EDT/QHA estimates).”

- **Sponsor’s Response (partial):** *“Quantitative changes in productivity, abundance, etc will be evaluated at a watershed and subbasin scale as part of ongoing natural production R,M and E and not at the project or reach scale.”*
- **ISRP Comment:** The present proposal does not offer a clear description of how this will be accomplished. The sponsors should develop a criterion that directly addresses the potential of a property for increasing abundance and productivity of fish.

ISRP 2012 Comment 3: “Some indication is needed of (a) the prioritization of the four subbasins – Grande Ronde, Umatilla, Walla Walla, and John Day – that are components of the acquisitions and (b) the anticipated extent of the acreage to be acquired.”

- **Sponsor’s Response (partial):** *“The “Hillman Method” used by the Action Agencies to estimate population productivity improvement was not conducted in such a way as to permit comparison between subbasins.”*
- **ISRP Comment:** The accumulated experience of the sponsors and other quantitative methods should allow prioritization of subbasins. This concern could be addressed more adequately in the present proposal.

The sponsors propose a process for identifying, prioritizing, and acquiring through purchase or lease floodplain sites in each of the four subbasins. The proposal includes a worked example of

the prioritization process for an anticipated land acquisition. While this example was informative, the description of the prioritization process is still too vague to allow rigorous evaluation. The example in the Acquisition Project Area Prioritization Worksheet on pages 5-7 does not explain the three-tiered prioritization based on EDT/QHA analysis nor does it explain the rationale for using the 5 criteria for ranking sites. Choosing weights for multiple attributes in additive ranking schemes is a tricky business and warrants some testing in worked examples to demonstrate that ranks remain robust over a range of scenarios. The first two of the five criteria judge potential biological benefits of the site considered in isolation of other sites, resulting in subtotaled scores ranging from 2 to 6. The next two criteria adjust the total score upwards or downwards depending on the duration of benefits or potential synergies through connectivity with other actions, resulting in a modified subtotal ranging from 0 to 10. This sequence seems reasonable in principle.

The last criterion is poorly explained, but appears to be qualitatively different in that it scores administrative advantages or problems resulting from choosing the site in question, that is an attribute not directly related to biological benefits. Moreover, applying the fifth criterion produces a peculiar total that ranges from -3 to 13. Because the last criterion is qualitatively different, its appropriate weight will be difficult to judge without some experience; it probably makes more sense to graph the subtotal for criteria 1-4 (biological value) against the fifth criterion (administrative value) and to develop isopleths of perceived equivalent value by consensus. For example, in the current scoring procedure, two sites with total score of 10 would be considered equivalent, that is on the same isopleth in the plot suggested, even though the first has a biological value of 13 and an administrative value of -3, whereas the second has a biological value of only 7 and an administrative value of +3. Plotting values for trial examples and reflecting on the reasonableness of the outcomes would provide a way to gain confidence in the weighting system before applying it systematically. Perhaps this has already been done. If so, the process should be described in more detail.

ISRP 2012 Comment 8: Develop a monitoring and evaluation framework.

- **Sponsors Response (partial):** *“... CTUIR will continue to coordinate and integrate efforts of model watershed (s), ODFW, WDF, CRITFC, U.S. Forest Service, BOR to meet VSP, hatchery, and habitat effectiveness monitoring.”*
- **ISRP Comment:** The present proposal did not provide enough detail to judge if the monitoring is appropriate or adequate to show that the land acquisitions have improved or maintained habitat and fish survivorship, abundance, and diversity.

The proposal lists one objective that is very broad and merely restates the purpose of the project. An outreach and education objective should be included to inform neighboring landowners and other members of the public about what activities in the acquisition are ongoing or planned, and the progress that is being made. Outreach and education could be highly beneficial in encouraging landowners to participate in some way in the conservation process.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This is a new project, and it does not provide accomplishments or results. No adaptive management process or strategy is articulated. A strategy for adaptive management clearly is needed.

Evaluation of Results

The purpose of this project is to acquire or lease land to protect or improve habitat to benefit ESA listed summer steelhead and spring Chinook. Acquisitions and easements on critical streams and land parcels should be a high priority and could provide significant opportunities for enhancing habitat and improving fish growth and survival.

The proposal was reviewed by the ISRP in 2012. The review identified several issues of concern and requested a response. The sponsors provided a response dated 10/12/11. In the current review the ISRP found that several of their original concerns were adequately addressed in the sponsor's response and in the current proposal. The ISRP found that other issues (ISRP comments 2, 3, and 8) were insufficiently addressed in the proposal and again requested a response.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsor has a long history of relationships with other groups and agencies. The sponsors cite relationships with several ongoing projects in the Grande Ronde, Umatilla, John Day, and Walla Walla subbasins but provide little information on how they are cooperating or coordinating with these projects. The counties do not appear to be directly involved in significant ways.

The proposal includes thoughtful consideration of the likely impacts of climate change, and how site acquisition decisions might reduce these impacts. It is not clear, however, that this reasoning was included in the five criteria used to rank sites.

Climate change is noted as an emerging limiting factor. However, it could easily be argued that it is no longer an "emerging" factor. Climate change started in the region about 1950 and this "phase" of loss of late summer snowpack is thought to be completed around 2030. There are new modeling environments available that the sponsors may wish to examine that give insights into future stream conditions. These modeling environments may help guide restoration actions.

Other "emerging limiting factors," or just limiting factors, that received little attention in the proposal include non-native species, hatchery effects on native salmonids, predation, toxic chemicals, and trends in agricultural water withdrawals and land use. How will the proposed acquisitions be affected by these factors? Or, how can the acquisitions help mitigate some of their ecological effects?

Mussels should be listed as species of concern and should be considered in acquisitions. Mussels appear to be in serious decline in the region, and it would not be surprising to see some species proposed for listing in the next decade. It is important to start protecting them now so as to be prepared for future restrictions.

4. Deliverables, Work Elements, Metrics, and Methods

The Deliverables describe the steps in the process of identification, prioritization, and acquisition or leasing of land. To ensure confidentiality, acquisitions and leases that are planned or are in process were not identified. The sponsors do not explicitly describe expected outcomes or products of the acquisitions. A clear set of specific objectives that describe what the sponsors hope to accomplish with each acquisition or lease and the means for accomplishing them would help define outcomes.

Specific comments on protocols and methods described in MonitoringMethods.org

No comments.

200820600 - Instream Flow Restoration

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: The Columbia Basin Water Transactions Program, a partnership between BPA and the National Fish and Wildlife Foundation, works through qualified local entities to acquire water rights to enhance instream flow for the benefit of threatened and endangered anadromous and resident fish species. Water transactions provide an effective and appropriate response to address inadequate stream flows, often cited as a key factor limiting the productivity of both anadromous and resident fish species.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The Columbia Basin Water Transactions Program can point to numerous successes in acquiring or leasing water rights to improve stream flow. The sponsors have developed what appears to be a sound approach for selecting and monitoring projects. A particular strength of this project is the outreach and education provided by the QLEs that both inform and encourage landowners to participate in the water transaction program.

The following qualifications should be addressed during contracting and in future proposals and reports:

1) Ensure that the sponsors provide appropriate Deliverables for Objectives 4, 5, and 6; or delete them from the proposal as stated objectives.

- 2) Ensure that the sponsors provide defensible biological targets for late summer flows in the targeted streams.
- 3) Ensure that the sponsors provide a long-term strategy for integrating the suite of “emerging” factors with the E-flow program.
- 4) Ensure that the sponsors provide an integrated scenario analyses for targeted streams into the work plan.
- 5) Ensure that an appropriate M&E program is in place or will be developed to evaluate the effectiveness of the water transactions. Include more explanation of how monitoring will be conducted to evaluate progress towards objectives 4 (“Improve egg to smolt survival”) and 5 (“Improve species diversity and abundance”).

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Inadequate stream flow is a major factor limiting salmon survival and growth, and impeding migration in interior Columbia River basin streams. This proposal is to support the Columbia Basin Water Transactions Program (CBWTP), a partnership between BPA and the National Fish and Wildlife Foundation (NFWF). The CBWTP works through Qualified Local Entities (QLEs) to acquire or lease water rights to enhance instream flow, especially during critical low flow periods in late summer, for the benefit of threatened and endangered anadromous and resident fishes. The focus of the project is the Walla Walla, Umatilla, and Grande Ronde subbasins. If done properly, this effort can yield important benefits for ESA listed salmon and resident fish.

The proposal describes the Columbia Basin Water Transactions Program's project goals, objectives, means of acquiring water rights, and accomplishments. The priority of the Program is acquiring or leasing senior water rights. The CBWTP program seems to be well organized and managed. The project is clearly significant to regional programs and is strongly guided by the subbasin plans and ESA recovery plans for the Walla Walla, Umatilla, and Grande Ronde subbasins, and other federal, state, and tribal recovery plans. It appears to be well-coordinated with other regional programs and, therefore, is an important component of the regional restoration strategy.

The Problem Statement provides a good description of the issues being faced. The fourth paragraph implies that low water flow currently delays steelhead migration upstream into the Touchet River. Is there evidence that they previously were able to migrate upstream earlier, or that earlier migration would be beneficial?

While all the Objectives are relevant, only the first three are adequately addressed. Objective 4 (Improve egg to smolt survival ratio), Objective 5 (Improve species diversity and abundance),

and Objective 6 (Address Limiting Factors), while vitally important, basically are not addressed by the work elements and deliverables in the proposal. They should be important parts of the proposal and, as such, need to be fully developed with quantifiable deliverables.

The challenges to achieving Objectives 4 and 5 are significant and are not well explained. Multiple factors can influence egg-smolt survival and species diversity and abundance. An important consideration is whether immigration and emigration can be estimated or ruled out as factors confounding estimates of egg-to-smolt survival. Also, why would the challenge of controlling for environmental variability and biophysical changes, for example requiring control streams, be greater for Objective 5 than for Objective 4? Objectives 3 and 6 appear to be much the same except that temperature is mentioned in Objective 6 but not in Objective 3. If there is a difference between these objectives, more explanation is required; if not, they should be combined.

As the sponsors clearly recognize, M&E is crucial for accomplishing Objectives 4, 5, and 6 via Deliverable 3. However, the current status of the RM&E program is unclear. On the one hand, the sponsors imply that a monitoring program to evaluate the effectiveness of water transactions in improving habitat and fish survival and growth was developed in 2011 (for example, see the Executive Summary) and therefore currently is in place. If an M&E program is in place, the sponsors should provide details of that program. While the sponsors cite methods and metrics for monitoring in MonitoringMethods.org, for example CHaMP, they do not provide critical elements essential for a successful monitoring program such as its objectives, a sampling design, how sample sites will be selected, and the scale of the monitoring program, that is, will monitoring occur at the site, reach, or watershed scale. Will there be uniformity of monitoring design and methods among all transactions or will it be adapted to local conditions?

On the other hand, the sponsors also imply that a comprehensive habitat and biological monitoring program currently is not in place but will be developed or at least implemented as part of the current project. The proposal states that the CBWTP will be working with QLEs to establish the baseline information needed to increase monitoring of biological response to enhanced instream flow. If an M&E program is not in place, the approaches and strategies for developing one need to be described in reasonable detail. Developing and implementing a comprehensive M&E program for habitat and fish is a large and complex undertaking, and likely will require participation of partners such as ODFW. The sponsors should clearly define the roles of these partners and ensure that they will participate to the fullest extent in development of the M&E program.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This project has completed an impressive number of water transactions to enhance flows. Although it is reassuring to see continuing improvements through the years, the accomplishments seem to pre-date the initiation of this project.

The sponsors appear to have a well-defined process for selecting and implementing water transaction projects. The projects are selected using criteria approved by the ISRP. A link is provided that discusses the criteria in detail. Once projects have been implemented, an Accounting Framework will be used to track the effectiveness of the flow enhancement projects. This framework will be implemented in 2013.

The program's responsiveness and ability to deliver large quantities of information in a timely manner are key strengths. It is reassuring to note that increasingly more of the annual budget is going towards transactions as the program develops (19% in 2010, 24% in 2011, and 28% in 2012), and that correspondingly greater amounts of water volume and flow have been secured. It is difficult to understand the ecological importance of acre-feet of water and cubic feet per second of flow by themselves. What percentage of the flow expected to occur naturally or historically is being conserved? A comparison to historical flow estimates during the low flow months would be more meaningful. The figures on pages 8, 11, and 12 would provide greater perspective if the amount of water secured by transactions was also expressed as a proportion of the total water volume, and if targets were indicated. Also, more explanation is needed of the forecasted amounts of water reserved for instream flow (2013-2030 and perpetuity) in the figures on page 8; presumably the decline in forecasted amounts is due to past transactions expiring over time. Have forecasts of reduced flow due to climate change been incorporated, or could they be an additional scenario? Some effort in this direction is needed to reassure reviewers that the program is gaining or at least maintaining flow.

While it is encouraging to see improvement in flows, are there quantifications of what the ideal flow for fish would be? Considering the costs and efforts involved in flow restoration, having an ideal target flow that can be ecologically defended, is essential. Further, these streams probably are ecologically important for mussels, fishes other than salmonids, and for other organisms. What are the E-flow requirements for these species? After all, the ultimate goal is to establish vibrant ecological systems.

The figures on page 10 and 11 that show an increase in adult steelhead abundance in the Touchet River after water transactions began in 2010 are out of date. What has happened since 2010? What mechanism is proposed to account for the increased abundance and the relatively greater increase in wild than hatchery adults?

The sponsors should avoid statements that cannot be statistically supported. For example, the proposal states that "In 2010, when transactions were implemented on the Touchet River, the number of adult fish went up dramatically. Thus providing a correlation between the importance of instream flows and fish population numbers." This increase is only for one year. It is not clear if these were hatchery or wild fish, or resulted from natural year-to-year variations in stock strength.

Adaptive management appears to be a strong aspect of this program as evident in the diversity of approaches being tried, including the novel experiment to store spring runoff in underground aquifers so that it could be pumped into Catherine Creek as needed later in the season.

Sustainability is enhanced by these deliberate efforts to experiment because they generate new ideas and options, thereby increasing cultural adaptability. Following an ISRP recommendation, the CBWTP has instituted an improved process for selecting and implementing project and coordinating with state, federal, and tribal entities. Nevertheless, adaptive management could be practiced more effectively. Perhaps, because of the nature of the activities conducted by the CBWTP, adaptive management may not be fully appropriate. In that case, it might be better to employ Structured Decision Making, which the sponsors seem to be doing already.

Evaluation of Results

This project facilitates a partnership between the CTUIR and the National Fish and Wildlife Foundation (NFWF) enabling funds from the Accords agreement to be used by the NFWF's Columbia Basin Water Transactions Program (CBWTP; BPA project 2002-02-301) to acquire or lease water rights to improve instream flow. The CTUIR will work with the CBWTP and the National Fish and Wildlife Foundation to identify flow restoration opportunities, purchase water rights, and implement flow enhancement projects. The core of the CBWTP is the Qualified Local Entities (QLE), which include state water agencies and nonprofits. In coordination with the NFWF and CTUIR, the QLEs work in local communities to identify, develop, and negotiate water transactions.

This project has completed an impressive number of water transactions since its inception and appears to have a well-defined process for selecting and implementing water transaction projects. It has enacted over 340 water transactions that returned over 1000 cubic feet per second of flow to subbasin tributaries, has secured over 4.9 million acre-feet of water, and enhanced flow for over 1500 miles of stream. Since CTUIR partnered with the CBWTP in 2010, 20 transactions have been funded through the Accords agreement.

The sponsors recognize that RM&E is critical for evaluating the effectiveness of water transactions in enhancing instream flow and improving fish survival and growth. Objectives 4, 5, and 6 in the proposal pertain to biological responses to water transactions, but they are not addressed adequately by the work elements and deliverables. It is clear that a robust and well-designed M&E program is crucial for accomplishing these Objectives.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project appears to be well coordinated with the QLEs and other partnering entities. It is clear that the success of a program like this one depends on the capacity of the sponsors to find willing partners by undertaking extensive outreach, planning, and coordination with the community at large and other QLEs. The record of success to date suggests that project relationships have been a strong aspect of the program.

This work, understandably, appears to be done in isolation of other limiting factors such as temperature, toxic agricultural chemicals, sediment delivery, beaver, and riparian conditions. What is the longer term view on how these factors will be integrated with E-flows?

The implications of climate change are discussed in some detail. Nevertheless, climate change effects could be addressed more effectively. More quantitative projections of the effect on water flow and timing under a variety of scenarios would be useful to demonstrate that this approach has a reasonable probability of achieving its ultimate objectives (4 and 5 in the proposal). There are approaches in use to gain insights into future flows. These include scenario analyses to inform and improve existing instream flow restoration projects (see Donley et al. 2012, *Global Change Biology* (2012), DOI: 10.1111/j.1365-2486.2012.02773.x). It is important to assess the sensitivity of late summer (July, August, and September) flows to the following scenario simulations singly or in combination: climate change, changes in the quantity of water used for irrigation and possible changes to existing water resource policy. As the sponsors are aware, flows can be modeled using the Water Evaluation and Planning system (WEAP; as well as other modeling platforms) under historical and projected conditions, for example 2020 and 2040, for each scenario. It is surprising that models to perform these analyses were not mentioned in the proposal.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables one and two are crucial to the success of the water transaction program. Adequate Deliverables are required for Objectives 4, 5, and 6. These Objectives are essential for determining whether water acquisitions are effectively improving instream conditions and fish growth and survival. The Deliverables are far too general, make simple assumptions about the relationships between water transactions and biological responses, and lack detail concerning the proposed M&E program. The Deliverables will not, by themselves, be sufficient to achieve, or even to monitor progress to achieving the success of Objectives 4 and 5. No Deliverables are given for Objective 6 (Address limiting factors).

Work elements should include scenario modeling for the target streams to assess vulnerability to climate change, agricultural water withdrawals, and policy change. If WEAP is not being used or is inappropriate, then a statement is needed as to why it is not employed.

One or two professional publications in a refereed journal should be listed as a Deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community.

Specific comments on protocols and methods described in MonitoringMethods.org

No comments.

[199306600](#) - Oregon Fish Screens Project

Sponsor: Oregon Department of Fish and Wildlife (ODFW)

Short Description: The Oregon Fish Screen and Passage Project provides immediate and long-term protection for anadromous and resident fish species in the Deschutes, John Day, Umatilla, and Walla Walla River basins by installation of NOAA Criteria fish screens (irrigation diversions, pump intakes, barriers, etc.), passage structures (ladders, siphons, culverts at road crossings, habitat improvements associated with passage, etc.), or water efficiency devices, and the removal of complete passage barriers.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The program has identified a significant number of diversions as high priority projects that will take decades to address. The need is very clear on these projects – project completion could significantly improve fish survivorship. The ISRP encourages the program to expedite the completion of work on the high priority screening projects. In order to accomplish this, we are encouraging the Council and BPA to increase funding in order to improve the implementation rate. If the Council and BPA agree, the sponsor will need to produce an expanded proposal to meet these needs.

A specific suggestion: explore research opportunities for using screen outfalls for sampling fish parameters. The irrigation diversions possibly could be used for basic fish M&E. Note that PIT tag release designs will not work for this because fish are captured, tagged, and released above the sites.

There are a number of issue-related suggestions in the following text. The ISRP encourages the sponsors to seriously consider and, where appropriate, address the issues to improve the project.

The comments and questions provided are intended to improve the statement of work, project implementation, and future reviews. The ISRP is not asking for a response.

Comment:

This is a solid proposal with a long track record. The questions raised may seem insignificant on the surface, but concerns about hatchery straying, effectiveness monitoring, improving passage of non-natives, any active removal of beaver dams, and the lack of any adaptive management leave some lingering concerns.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Oregon Fish Screen and Passage Project is of significance to regional programs by providing immediate and long-term protection for anadromous and resident fish species in the

Deschutes, John Day, Umatilla, and Walla Walla River basins by installation of NOAA Criteria fish screens, irrigation diversions, pump intakes, and barrier removal as well as passage structures including ladders, siphons, culverts at road crossings, and habitat improvements associated with passage plus water efficiency devices. The project and personnel have many years of experience and thereby have developed the technical expertise to carry out the passage installations and modifications.

The Objectives are straightforward and appropriate.

Given the very large number of sites needing treatment a question arises as to what efforts are being used to prioritize work. How many individual projects remain? There are currently 300 diversion sites identified as important. Is there a target date to complete them? Also as projects are added so is maintenance, but the O&M budget is not increasing.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The accomplishments and results to date are as expected, and are assisting the recovery of native fishes.

While there is a good discussion of lessons learned and subsequent program improvement, adaptive management is not being practiced nor is Structured Decision Making. This needs to be corrected by setting quantitative goals and timelines for improving fish passage for each project activity and by articulating hypotheses that can be tested statistically via appropriate monitoring data.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project has a long history of working with landowners, Tribes and agencies – and these relationships appear to be working well. Nevertheless, it is not clear to what extent this program coordinates with others that are working on fish passage restoration, especially correction of culvert passage at road-stream crossings and irrigation diversions. The process for prioritization is described as primarily driven by ODFW with some reference to subbasin plan priorities. Given the wide area covered by the program and the multiple players involved in an array of restoration activities, including passage, it appears that additional coordination is needed.

Further, it appears that some of the instream activities proposed for the John Day River are not well coordinated with the Warm Springs Tribe and their proposed activities. Clarification is needed on this point.

Specific questions:

1) In the Umatilla Basin, it is proposed to construct pool and riffle habitat using instream modifications. Where opportunities exist, work on public, federal, state, tribal and private lands

will be conducted to increase the quantity of pools and gravel dominated riffles, as opposed to cobble. What agreements are in place to conduct this work? Is there any overlap with other proposals or projects?

2) The river systems being considered for fish passage improvements contain many native fishes as well as non-natives. Have analyses been conducted to compare the positive versus detrimental effects of improving passage for non-natives? Further, hatchery strays are a serious consideration, especially on the spawning grounds of native salmonids. Have similar analyses been conducted to weigh the advantages and disadvantages of improved passage?

3) Is there any way to use the screens and diversions to restrict the movements of non-native fishes?

4) What is the project's policy concerning beaver dams?

It is refreshing to see that the project is taking climate change seriously as an emerging limiting factor and planning for it. The reality is that this region is already more than half way through the transition from snow-dominated late season runoff to more winter precipitation as rain.

4. Deliverables, Work Elements, Metrics, and Methods

The program is grounded in screening and passage yet is reliant on personal observation and word of mouth for the identification of many sites. Unfortunately, there is no assessment of irrigation diversions for the Deschutes River basin and there was no discussion as to when that might occur. Additionally, there is no reference to other assessments such as the Forest Service's comprehensive assessment of fish passage at road-stream crossings.

Project prioritization is accomplished primarily by ODFW personnel using sets of rating criteria. It is not clear if these are only considered or whether they are actually scored for setting priorities. Additionally, there seems to be little if any coordination with restoration activities of other stakeholders which may be an important consideration in establishing a multi-year work plans.

The reporting rate is very low in comparison to other projects. This needs to be improved. Otherwise, the deliverables, work elements, metrics, and methods are appropriate.

In the budget, overhead is charged at 22%. In addition, there is a line item for rent and utilities (water, sewer, power, telephone, postage, office supplies, propane, garbage service, inspections, build). Should this line item be paid through the overhead rate?

Specific comments on protocols and methods described in MonitoringMethods.org

The need for improved Effectiveness Monitoring was previously identified by ISRP. According to the proposal this was not possible at most sites, for a variety of reasons. As a result, three by-

pass traps were installed in the John Day watershed and three additional sites were to be established in 2013. There is no discussion of how these sites were selected or any findings, other than the number and species of fish trapped. As well, no location is given for the new sites. It was also mentioned that there are continuing difficulties in funding of effectiveness monitoring. Effectiveness monitoring needs additional attention. Further, there was no mention of ISEMP or AEM or any future program involvement with monitoring.

[200201500](#) - Coordination and Technical Assistance to Watershed Councils and Individuals in Sherman County, Oregon

Sponsor: Sherman Soil and Water Conservation District (SWCD)

Short Description: Private Landowners who are striving to mitigate the effects of the watersheds' limiting factors to steelhead and redband trout populations will be assisted by the funded staff during project planning, implementation, and yearly maintenance/monitoring. High stream temperature, low stream flow, and sediment load are some of the limiting factors that will be addressed, which have a direct impact on steelhead and redband trout populations.

ISRP response loop recommendation: Does Not Meet Scientific Review Criteria

Comment:

The importance of the CREP program is well justified; however, the sponsor's responses to the ISRP concerns raise serious doubts about continued project effectiveness. Our major concerns, that the program appears to have accomplished very little over the past three years and the need to explain why the program has been so unsuccessful recently, were not adequately addressed in the responses. Further, several responses to our eight specific concerns indicated a lack of understanding about the need for quantitative goals, use of the Adaptive Management process, and, importantly, the need for revised deliverables, work elements, metrics, and methods to support a revised proposal. These were not provided; therefore, it is not possible to evaluate the proposal in any meaningful way. Further, a plan/strategy to stem the high turnover rate of personnel is essential. It seems that the sponsors need time to re-group, address the substantial shortcomings of the project, and prepare a greatly revised proposal.

Preliminary ISRP comment requesting a response:

This program appears to have accomplished very little over the past three years. The reason may be intransigent landowners or lack of effort to recruit them. As a minimum, there is a clear need to explain why the program has been so unsuccessful recently.

In addition, a response should address the following concerns:

- 1) Provide a monitoring plan to assess the effectiveness of the proposed actions, and a timeline, on the abundance of the focal fish species (steelhead and redband trout). Juvenile fish – and appropriate wildlife – should be included in this plan as well as Chinook and lamprey.
- 2) Restoration programs similar to this one have seen their actions undermined by excessive herbivory from native ungulates and beaver. If this is a problem, how will it be addressed?
- 3) Provide an explanation of the information on past performance related to the number of contracts, miles of buffered stream, and acres buffered. Include information on fish abundance.
- 4) Provide a revised adaptive management plan that includes hypotheses for individual actions and systematic monitoring to be conducted in order to determine if actions will be effective.
- 5) Describe how SWCD cooperates with core personnel in the catchments to accumulate knowledge to improve effectiveness of SWCD efforts.
- 6) Provide evidence that the SWCD is working cooperatively with the Tribes and other key agencies conducting restoration in the catchments. It will be important to show a cooperative effort with ODFW to monitor fish populations and stream habitat response through the implementation of riparian buffers.
- 7) Provide a strategy or plan to effectively address the consequences of climate change and non-native plant proliferation in future restoration efforts.
- 8) Revised deliverables, work elements, metrics, and methods will be needed to support the revised proposal.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The proposal's purpose is for Sherman County SWCD to provide local leadership in the implementation of watershed enhancement projects focused on improving fish and wildlife habitat, overall watershed health, and water quality. The SWCD works closely with the four Watershed Councils in Sherman County to develop and implement scientifically sound, economically feasible natural resource conservation plans for private landowners.

They have accomplished these activities in the past and thereby appear to have the technical expertise to successfully complete the proposed work.

The Objective is to increase adult returns and long-term average annual runs in the Deschutes and John Day subbasins within Sherman County. Unfortunately, there is no monitoring to assess the effectiveness of the proposed actions and no timeline given; therefore, the objective cannot be evaluated.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Reporting of five miles fenced in three years is not an adequate indication of program success. Information is provided on number of projects, stream miles protected, and acres buffered. Unfortunately, the effectiveness of these actions on improving the abundances of steelhead and redband trout cannot be determined since the fish were not monitored. Further, the restoration actions were not monitored after installation to determine if they remained effective. There is information provided by year in a Table on the number of contracts, miles of buffered stream and acres buffered. Unfortunately, there is no explanation of Table components or temporal trends, or information on fish abundance. As such, it is not possible to determine if the objective is being met.

Adaptive management is not being practiced as intended. There are no hypotheses offered for individual actions and no systematic monitoring conducted to determine if the actions are effective. Therefore, it is not possible to learn efficiently from the program activities. Further, it does not appear that personnel associated with this project have been associated with the program for very long – also limiting the adaptive capacity of core personnel to accumulate knowledge from their collective experiences.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

It does not appear that the SWCD is working cooperatively with the Tribes and other key agencies conducting restoration in the catchments. Further, the SWCD needs to show that they have a cooperative effort with ODFW to monitor fish populations and stream habitat response through the implementation of riparian buffers. The SWCD state that they work closely with ODFW on all projects involving fish and wildlife habitat within the boundaries of their district, but the nature of that relationship is not articulated.

The ISRP is surprised that climate change was not listed as one of the emerging limiting factors, especially since summer water temperatures and late summer flows are of great concern in both catchments. Near all of the factors mentioned are not “emerging” but existing ones generated from past land use practices. The one exception might be the proliferation of non-native plants. Sadly, invasive species are here to stay. While some control may be attempted – usually at very high costs and effort – the fact is that managers are faced with the emergence of dynamic hybrid communities going forward. The ISRP suggests that it would be more effective to develop strategies that accepted the presence of hybrid communities, increase riparian shade to naturally repel invasive plants (an ecological approach), and only institute chemical control measures for species causing extensive ecological harm to the river (for example, knotweed on rivers west of the Cascades). Has fire been considered as a control measure? It has been very effective in other fire dominated communities including riparian zones.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables, work elements, metrics, and methods are adequate for the scope of the proposal, as written. ISRP concerns relate to items identified above.

Specific comments on protocols and methods described in [MonitoringMethods.org](#)

Monitoring with ODFW is only vaguely discussed.

[200201900](#) - Develop Riparian Buffer Systems in Lower Wasco County

Sponsor: Wasco County Soil and Water Conservation District (SWCD)

Short Description: Wasco County SWCD will provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the lower Deschutes and lower John Day Subbasins. The main goal is to establish riparian buffers for 90 miles of stream (average 18 mi/yr). This project is important because it helps implement FCRPS 2008 BIOP RPA 35 and strategies to address limiting factors identified in subbasin plans and Mid-Columbia Steelhead Recovery Plan.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The qualification relates to further development of the monitoring program. Although limiting factors for effectiveness monitoring as related to stream conditions and fish production are provided, a more robust well-rounded program to monitor effectiveness is needed. The sponsors indicate that they have the tools to do the monitoring. During contracting the sponsors should describe a systematic sampling design including a procedure for selecting monitoring sites, a time frame for sampling the sites, and plans for analysis and a periodic summary of results. The ISRP will review progress in achieving a robust monitoring program, as outlined in comments below, during future proposal reviews.

Comment:

It would appear that SVAP monitoring could be the foundation of a monitoring program for vegetation recovery, tied to different treatment types and site conditions. To be most effective, it would need to be stratified by vegetation/treatment type (plant stock species/age, planting technique, irrigation vs. no irrigation) and some basic measures of site character (valley bottom type, general soils/geology, existing vegetation type and coverage, aspect, etc.) and conducted on a regular re-sampling basis for a pre-determined number of treatment sites annually. Additional low cost techniques to quantify percent canopy and/or ground cover, stem, or plant density by species, percent stream surface shading and/or water temperature, plant survival by species and planting technique could be used to supplement SVAP. It is suspected this could be

done for a relatively modest increase in cost and would provide very useful information to inform future work and to complement future OWEB effectiveness monitoring. SVAP assessments, performed to date, indicate general improvement in stream channel and riparian conditions following habitat restoration. It was informative to see the SVAP information that was provided, but it was not clear as to why the average time between surveys, shown in the bar graphs, was 1.7 years while the recommended time between sampling on the SVAP forms was 5 years. It appears that with some planning, and a slight re-balancing of time and costs, a very useful program to monitor vegetative recovery could become an integral part of the restoration program. These assessments should continue but need to incorporate a systematic sampling design, including a procedure for selecting monitoring sites, a time frame for sampling the sites, and analysis and periodic summary of results. The ISRP looks forward to reviewing the results of the SVAP assessments in future proposals.

Comments on climate change in the response were adequate.

For fish assessments, in the 2006 review, the sponsors suggested that ODFW's fish monitoring projects on two tributaries to Deschutes River could enable evaluation of the effectiveness of the SWCD's stream enhancement projects in these basins. In the recent response the sponsors indicate that this evaluation was not possible because ODFW's monitoring is at the watershed scale and will not enable evaluation of effectiveness at the scale of individual habitat enhancement projects in these streams. Nevertheless, the ODFW monitoring projects could help in evaluating the cumulative effectiveness of SWCD's habitat projects within each tributary, which would be better than no evaluation at all. The sponsors should continue to explore with ODFW the possibility of using their fish monitoring data to assess effectiveness of habitat projects at the watershed scale in these streams.

The Oregon Watershed Enhancement Board (OWEB) funded a study, completed in 2009, to evaluate the effectiveness of some of the sponsors' projects. The study indicated that buffered sites had greater abundances of some aquatic insects than un-buffered sites. Although these results are encouraging, it would have been useful if the sponsors had provided more detail on the study design and results of this study. Apparently there is the possibility that in the future OWEB will fund additional effectiveness evaluations of the sponsors' projects. This direction is encouraging, and the sponsors are to be commended for developing what could be an important cooperative relationship with OWEB. The sponsors should ensure that any future work with OWEB is carefully designed so as to yield meaningful scientific results. It would be useful in future proposals for the SWCD to involve OWEB and their new staff person in planning a low cost assessment protocol. Hopefully, some assessment of fish response will be included in future effectiveness evaluations. More information on progress should be made available in future reporting.

Regarding assessment and reporting of past SWCD experience with contract preparation and implementation, it was useful to see the summary table that was provided and to be informed of the informal information exchange that is occurring. It appears that a bit more effort to

incorporate and document this information would allow a much more comprehensive discussion of lessons learned.

The comments on buffer width were informative. Emphasis on widening them beyond minimums is undoubtedly a result of interaction between the SWCD and individual landowners. The table on what has and has not worked is useful, but a bit brief. It would also be useful to indicate what the sponsors found to be the reasons behind why particular actions worked and did not work.

Preliminary ISRP comment requesting a response:

ISRP Qualifications in the previous review were: "that the project should develop: 1. a collaboration plan (with ODFW) for buffer effectiveness monitoring; and 2. a work element to assess SWCD experience with buffer contract development and implementation. Council qualifications were similar." These qualifications do not appear to have been addressed. A response is requested for each of these items.

Additionally, this project coordinates with several other SWCD projects. The Oregon Department of Fish and Wildlife (ODFW) is conducting fish productivity studies in two of the streams where this project is performing riparian restoration. It is not clear how these latter two projects will be coordinated. Will the ODFW project be explicitly assessing fish production at the sponsor's project sites? It is also unclear if this project is coordinating with other tribal and state habitat restoration plans ongoing in the Deschutes and John Day, such as BPA-funded projects 1984-021-00 (John Day Habitat Enhancement), 2000-031-00 (Enhancement of Habitat in North Fork John Day), and 2007-397-00 (John Day Passage, Flow, and Habitat Enhancement). Additional information on these items is requested.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Wasco County SWCD has developed this proposal to "provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the lower Deschutes and lower John Day subbasins. The proposed work is relevant to several plans and programs in the two subbasins. It addresses riparian degradation, one of the leading limiting factors to salmonid production in the two subbasins, by contracting with private landowners to establish riparian restoration projects. The project engages largely in planning and implementation of riparian projects through CREP. The main goal is to establish riparian buffers on 90 miles of stream (average 18 mi/yr)." The overall background and need is well established. Identification of limiting factors for salmonid production leading to this prescription came from EDT.

Objective three is the only objective that directly describes the activities of this project. Objectives one and two pertain to increasing fish productivity in the Deschutes and John Day Subbasin. This project only indirectly addresses fish productivity. Hopefully, the proposed riparian restoration projects will increase freshwater productivity, but additional actions, for

example improved fish passage and irrigation diversion screening, also are needed to improve freshwater fish survival and growth. This project is not undertaking these additional activities. Additional detail on how the proposed work links to other important restoration in the subbasin is needed.

Although this is an important program that has been in place for nearly 15 years, there are a number of program elements as outlined below that need to be incorporated before another 5 years pass.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The sponsors have initiated a substantial number of riparian projects with landowner involvement. This project appears to be effectively cost-shared by other agencies. The sponsors present a table showing, by year, the number of contracts initiated and the number of miles and acres of riparian buffer that has been established. However, no quantitative results relating to project effectiveness in improving habitat were presented. The only statement of results was that the projects are showing a “positive trend.” This statement conveys little information about project success to date. In future proposals more information on pre- and post-riparian conditions should be presented.

The adaptive changes mentioned by the sponsors mostly have involved modification of ongoing projects on a site-specific basis. The proposal did provide details on widening buffers from 35 feet to 180 feet. There was no discussion as to what prompted this broad-scale change.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsors recognize climate change as a limiting factor but seem to believe that its impact will not be so severe in the John Day and Deschutes. The sponsors maintain that their projects will help ameliorate climate change impacts. Further consideration of these issues is needed.

Little information on an RM&E program is given. Effectiveness monitoring is not currently an integral part of the program. The ISRP, in its last review of this project, gave the Qualification that the project should develop, in collaboration with ODFW, a plan for effectiveness monitoring of their riparian projects. This Qualification apparently has not been met. The sponsors provided no explanation of why they did not develop one. The sponsors should have explained why it has not been developed. This issue is still relevant.

4. Deliverables, Work Elements, Metrics, and Methods

The Deliverables currently define the steps in the implementation process. They will lead to accomplishment of Objective 3 but only indirectly support Objectives one and two. No metrics and methods, other than procedures in the planning and implementation process, are given.

A progressive intermediate goals-met approach may need to be used to assess intermediate results. What kinds of ecological responses are expected and measurable after 1, 3, 5, 10, and 15 years? What kinds of rapid bioassessment approaches might be useful for riparian and instream responses? More effort needs to be expended in this area. More coordination for specific activities in monitoring by ODFW would be beneficial.

Specific comments on protocols and methods described in MonitoringMethods.org

SVAP effectiveness surveys are to be done prior to establishing a landowner agreement and then every 5 years after, yet the proposal states that in a span of 15 year only a few follow up surveys have been completed and this "shows positive trends were established." There is no description of desired conditions for successful restoration or a definition for fully functioning riparian areas.

Although the sponsors have coordinated with ODFW and have screw traps in Bakeoven and Buckhollow Creeks, they provided no statement on how the data informs riparian buffer treatment effects. They also stated that the ODFW monitoring project on Fifteenmile Creek "is expected to provide, for the first time, a solid basis for buffer effectiveness evaluation." It is not explained how this study will isolate the possible effects of riparian buffers from an array of other habitat restoration actions.

The project has a solid history of implementing riparian habitat restoration projects. A particularly positive aspect of this work is enlisting landowner participation, and outreach and education. With the success the sponsors have had enlisting landowner cooperation it would have been interesting to know how successful the projects have been, both in terms of biological results and landowner satisfaction.

Overall, the information presented indicates that this is a very cost-effective project with large potential habitat benefits that should continue and improve.

J. Deschutes River

[200830100](#) - Habitat Restoration Planning/Design/Implementation within boundaries of Warm Springs Reservation, lower Deschutes River, Oregon

Sponsor: Confederated Tribes of Warm Springs

Short Description: The primary purpose of this project is to protect and restore aquatic habitat critical to the production of anadromous and resident salmonids along with Pacific Lamprey on the Confederated Tribes of the Warm Springs Reservation of Oregon lands in the Deschutes River Sub-basin. This work is important because it is mitigation for fish lost through the federal hydro power system in the Columbia River. This work will allow Tribal members to exercise their treaty right to harvest wild salmon.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

Response to Qualifications on Beaver and Mill Creeks

The ISRP review of the Beaver and Mill creek restoration proposal, completed in December 2012, indicated that two areas of the plan still required some additional attention:

1. Essential details of actions at a number of project restoration sites have not yet been worked out (see first two paragraphs under Section III, p. 21). The general approach to identifying candidate sites and addressing specific limiting factors appears to be sound, but site-specific details should include (1) quantitative habitat information on existing conditions and improvements expected after restoration, (2) descriptions of how restoration of the site will contribute to improvement in viable salmonid population (VSP) parameters of focal species, and (3) estimates of the increased carrying capacity of the site following habitat improvement, which can be tracked over time to see if initial assumptions were justified. These issues should be addressed adequately as detailed information is gathered as part of annual reporting requirements, and certainly before restoration work begins.

2. More details about the habitat project monitoring efforts are needed. The proposal states that PNAMP protocols will be followed, with physical and biological components of the monitoring constituting separate phases of the monitoring and evaluation work. Each project site should have its own monitoring and evaluation plan, as the specific restoration actions will vary from place to place and will require different habitat and fish population metrics for monitoring purposes. Site-specific monitoring details should be developed and reported as part of annual reporting requirements, and the details should be clear before restoration work begins. The ISRP understands that the level of detail in plans will vary according to the scope and scale of restoration actions at a particular site and recommends that project-specific scientific review be commensurate with the complexity of the proposed action.

The revised proposal does address several of the issues raised by the ISRP in the last review. More detail on the activities associated with the projects on Quartz and Coyote creeks (projects sites in the Beaver Creek system) has been provided. This additional information does provide a much more comprehensive picture of what will be done at these sites and why it is considered important for fish recovery in Beaver Creek. Additional information also has been added on the existing habitat conditions at the project sites. The discussion provided as to the expected response of the focal species to the habitat actions remains very generic and no quantitative estimates of improvements in carrying capacity for the project sites have been included. Developing these estimates would be very useful for designing a monitoring approach for these projects (see comments below on RM&E). Nonetheless, the description of the projects is much more complete than it was in the prior proposal. The revised proposal does include more detailed information about the methods that will be employed to track changes in physical habitat over time. Channel form will be monitored using channel cross-section and longitudinal profile measurements. This information should provide a good indication of changes in width-depth ratio and pool frequency and size, basic habitat elements that are considered key to improving ecological conditions at the project sites.

As reduction in sediment delivery is an objective of several of the planned habitat actions, the inclusion of a sampling element to track fine sediment levels in streambed gravel is appropriate. A well-designed process for photo points also has been included in the proposal and should provide useful information about the response of vegetation to the riparian fencing projects. The major remaining deficiency in the revised monitoring plan appears to be the lack of any biological information. The proposal does contend that measuring biological response to the individual projects would be too expensive and labor intensive to include as a component of this project. This point would be valid if there were not any other monitoring efforts in place in the project area that are already collecting data on the fish populations. It would be very beneficial for the restoration program on the Warm Springs Reservation if the biological monitoring in Beaver and Mill creeks could be done in a manner that provided some indication of the contribution the habitat projects were making to any change in fish population metrics. As improvements in fish populations are the ultimate goal of all these projects, some understanding of how fish are responding to habitat restoration actions would be extremely valuable for modifying the process used for selecting future habitat projects.

Comment:

Warm Springs River Wood Placement - Response Requested

The portion of this proposal package that deals with the plans for restoration of the Warm Springs River (WSR) was well done for many elements but incomplete for others. The process used to identify the project location was very complete. The method used to determine habitat limitations and design habitat actions to address these deficiencies also was very well done. However, the proposal does not include a description of work elements. Presumably, most of these would be associated with the implementation of the restoration design and

establishment of the monitoring program. But they need to be included in the proposal to complete the review.

The ISRP understands that the Council recommended that RM&E needs for the Warm Springs River wood placement project be met through BPA's new Action Effectiveness Monitoring Plan (AEM). This AEM process is in its infancy. The ISRP recommends that it review the pilot study design once it is drafted. This applies to the full suite of Warm Springs' projects that the ISRP has reviewed - Mill, Beaver, and the Large Woody Debris projects. It would be preferable to do this through the response loop time period, but if this is not feasible the ISRP will review the study design when a detailed draft is prepared.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal does a very good job of explaining the significance of this project to the regional effort to increase fish populations in this area of the Deschutes River watershed. The technical background for the project is complete. Information on current habitat conditions throughout the Warm Springs River watershed is provided. The discussion of wood delivery and routing and how this understanding was used to select sites and design of LWD treatments was very thorough. A discussion of WSR hydrology and incorporation into project design was included but there was minimal discussion of how long it will take for expected flows to scour the habitats that are anticipated to develop at project sites. Table 2 does a nice job of projecting expected habitat responses to treatment and focal species response to the new habitat. Also, it was mentioned that sediment is limiting factor but no discussion on dominant sources. If upland sources are dominant, additional information on priority locations and treatments is needed. If bank erosion is a major sediment source, the potential for LWD projects to accelerate local bank erosion should have been evaluated.

Increases in fine sediment and elevated water temperatures are both listed as limiting factors. There is no discussion of complementary treatments to LWD additions such as riparian reforestation and/or silvicultural treatments to increase stream shading and enhance long-term LWD recruitment and/or road decommissioning or improvement to reduce erosion and sediment delivery. Given that LWD recruitment is described as occurring locally through fire and windstorm disturbance events, it would seem that identification and treatment of riparian areas that are understocked with trees (future LWD) would be beneficial. Although this is not a requirement, it would be useful to help understand the entire suite of projects envisioned for restoring conditions in the Warm Springs River.

Information on spawner distribution and some data on juvenile salmonid abundance also are provided. These data are used to justify the priority reaches selected for restoration and to identify the appropriate restoration approaches and designs. Although there is no explicit statement of objectives in the proposal, the description of the current habitat conditions clearly indicates that the objective is to increase spawning and rearing habitat for salmonid fishes and lamprey in a reach of the Warm Springs River where these actions have the potential to have

the greatest possible benefit. The appropriateness of this objective is well supported by the information provide in the proposal.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This project is new and, therefore, there were no past accomplishments to include in the proposal. However, the process described in the proposal for the identification of the restoration reach and the development of a series of LWD structures to achieve different habitat objectives clearly indicates that this project already has been employing certain elements of the adaptive management process. Project site selection was based on a thorough assessment of current habitat conditions in the Warm Springs River augmented with information of fish distribution and abundance. These data, in conjunction with published information from unmanaged watersheds with climate and vegetation similar to the Warm Springs River, were used to identify the reach within the Warm Springs River where habitat was degraded but with a high potential for response by the focal species. Designs for wood structures were, in part, based on observations of the architecture of wood accumulations in the unmanaged, headwaters reach of the WSR. The project sponsors also sought design advice from BPA engineers. An additional resource could be restoration practitioners on the Mt. Hood and Deschutes National Forests. Both of these National Forests have a long history of LWD placement and monitoring of physical response. Specific locations for wood structures in the restoration reach were determined using a LiDAR-based DEM coupled with on-the-ground verification. Finally, an estimate of the potential gain in abundance of spawning steelhead and Chinook salmon based on the predicted increase in gravel availability and a prediction of increased juvenile parr density based on increases in pool area and cover were provided. These estimates could form the basis of a monitoring program to assess the effectiveness of this project (more on RM&E below). At each stage of the project development the sponsors used available information or collected new data to improve the design of the project.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The relationship between this project and the other ongoing habitat restoration and fish monitoring projects on the Warm Springs Reservation was not described. It seems likely that some of the fish data presented in the proposal were collected by the fish monitoring program on the reservation. If so, there is a link between this project and the monitoring program, and this linkage could be very productive in the development of a monitoring plan for this project. The habitat RM&E effort associated with this project is only briefly mentioned. This project will be one of the projects evaluated under the new Action Effectiveness Monitoring Program. The ISRP recently reviewed the proposal for this monitoring program, and this project would be very appropriate for inclusion, given the availability of existing data and an ongoing program collecting fish population data. However, it is not possible to judge the technical adequacy of the monitoring effort that will be associated with this project until the monitoring design and methods are developed. The ISRP should review a revised version of the proposal that includes the details of the AEM effort and clearly describes the linkages between this project-scale monitoring and the fish population monitoring that is already occurring.

The proposal did include a discussion of probable, local flow responses to climate change. Models developed for drainages with similar hydro-geomorphic characteristics were used to predict potential changes in flow with expected changes in precipitation patterns and temperature. However, it is not entirely clear how this analysis is being incorporated into conservation and restoration planning for the area. Climate change also may affect general forest health and increase the frequency of fires. Some consideration of this factor in project design also would be worthwhile.

4. Deliverables, Work Elements, Metrics, and Methods

The process used for designing the project was very complete, and the methods employed to collect the information used in the design phase were appropriate. The work elements to be completed as part of this project were not completely specified in the proposal. Presumably, most of the work elements would be related to the placement of the wood structures. Some information on the timing and logistical details of implementing the project should have been included in the proposal.

A description of methods that will be employed in executing the RM&E component of this project should be included in a revised proposal (or a link to a description of AEM project that will assess this project). This project will be a pilot for the new AEM program. The proposal indicates that habitat monitoring will be conducted in years 1, 3, 5, 7 and 10 after treatment. The most recent stream surveys were completed in 2000, but it is not clear if additional pre-project data will be gathered. In addition to the planned surveys, evaluations should be conducted after any flood events with a return interval equal to or greater than 5 to 10 years. The sponsors also may consider continuing habitat monitoring for longer than 10 years given dependence of the treatments on flows sufficient to scour stream bed materials. If no flows of sufficient magnitude occur within the planned 10-year monitoring period, the effectiveness of the treatments could not be completely assessed. There is no mention of fish population monitoring response to restoration treatments. If information useful for this purpose will be collected by other monitoring programs, a description of this activity should be included in the proposal.

Specific comments on protocols and methods described in MonitoringMethods.org

The proposal did not reference MonitoringMethods.org protocols.

[199802800](#) - Trout Creek Watershed Restoration

Sponsor: Jefferson County Soil and Water Conservation District (SWCD)

Short Description: The primary goal of this project is to increase the abundance of ESA listed Middle Columbia River DPS summer steelhead. The Trout Creek steelhead account for 25-33% of the entire run of wild summer steelhead in the Lower Deschutes Subbasin. Continued habitat restoration work in the Trout Creek Watershed, including in-stream, riparian, and upland will continue to increase the viability of the population, eventually leading to de-listing of the MCR DPS.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

If a project management plan is not in place, one should be developed. The plan should include background information including a thorough discussion of limiting factors, specific objectives, and a strategy for addressing these factors. A means of selecting and prioritizing potential restoration sites should also be included. Ideally, the plan should provide specific information on the projects that will be undertaken and a timeline.

Comment:

This proposal is concisely written, and the projects that will be undertaken are well described. It is apparent that this is a successful program doing a good job and likely making a positive difference. The two major drawbacks to the proposal are a clear and comprehensive discussion of the RM&E program and a better documented strategic approach to prioritizing and completing work in a reasonable time frame. Additionally, adaptive management and effectiveness monitoring need to be modified to provide feedback information for program operation and project location and design.

The sponsors appear to be doing an excellent job of community and landowner outreach and engagement. It appears that some information materials, targeted for this audience, could be useful to show the projects that have been completed and what the results have been to date. Also, these materials should also identify what remains to be done and the role of landowners and the community in helping to achieve that.

In the future, the sponsors should consider more directly formalizing the relation between the District and ODFW on this long-term project, especially their respective roles regarding monitoring. They appear to be working well together but should resolve how best to monitor the progress across the watershed and whether to request additional funding for such an effort.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of this project is to enhance stream and riparian habitat to benefit ESA listed summer steelhead. Trout Creek steelhead make up a large percentage of the summer steelhead run in the Lower Deschutes River. As is usually the case in Columbia Basin watersheds, reduced watershed health and aquatic habitat degradation is a threat to sustainability of the fish population. This project is consistent with the Deschutes Subbasin Plan, the 2008 FCRPS Biological Opinion and the Oregon Middle Columbia (Mid-C) Steelhead Recovery Plan (2010).

This project is well justified. The proposed work is intended to serve as a demonstration project for what can be achieved through the restoration of private lands. The sponsors state that they have gained the trust of landowners and access to their land over the course of this project. This accomplishment is significant because it is likely that increased abundance of steelhead cannot be achieved without habitat enhancement on private lands. The project appears to be very cost effective in relation to other habitat enhancement projects in the Columbia Basin. PGE apparently provides substantial funding for this project.

It would be helpful to know how much private land is in the basin, on how much of this land projects have been implemented, and what are the locations of the private land. A map of the locations of past and future projects would provide this information. The sponsors state that there is a lot of high quality habitat in the basin. It also would be helpful to know the amount and location of this habitat, perhaps shown on a map.

It is not apparent if there is an overall action/management plan to guide restoration across the watershed. If there is such a plan specific for Trout Creek in place, the sponsors should have discussed what the priority restoration actions are, where they are located, and how the proposed work relates to the plan. Such a plan would provide objectives, direction, and justification for the proposed work. Evaluation of this project could then consist, in part, of a determination of whether the proposed work is meeting the plan's objectives. If a plan is not in place, one should be developed immediately.

Although the objective of this project is to increase abundance of summer steelhead, the project deals almost exclusively with riparian and aquatic habitat improvement. Hopefully habitat enhancement will lead to increased abundance of steelhead, but comprehensive fish monitoring is required to demonstrate this increase. Apparently, current monitoring is limited to redd counts by ODFW. Monitoring of juvenile abundance and productivity would be desirable but does not appear to be taking place.

Planning, funding, and implementation activities are closely coordinated. The restoration program is guided by a basinwide approach based on 1983 and 1998 ODFW surveys, a 2002 watershed assessment, and a 2005-2007 action plan. The sponsors also stated that this work "resulted in restoration actions that are concentrated in subbasins where actions are thought to maximize and increase in fish populations." Unfortunately these subbasins are not identified nor is the project action plan provided to show how past work has been focused in them. It

would be very useful to see these documents and discuss more on this potentially solid, watershed-wide approach. It would also be interesting to hear how well the sponsors feel this approach is working given that this approach has apparently been used for more than 10 years.

Objectives for the proposal are stated as goals and lack quantitative description of desired results and a time frame for the expected response to restoration treatments.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

There is a wide range of completed projects and some excellent accomplishments for Trout Creek. Results were primarily presented through photo points. The sponsors also provided quantitative summaries of general habitat changes following implementation of enhancement projects at several sites. Taken together, the photo points and quantitative information suggest that improvements in habitat and perhaps redd counts have occurred at project sites. It is unclear, however, whether the limited presentation of results is due to lack of monitoring or a lag in data analysis.

There is a good discussion of changes in restoration practices, for example instream treatment designs and materials, riparian planting practices, and materials and approaches used to avoid the use of push up dams that have resulted from past lessons learned. There is no discussion of programmatic changes in the overall restoration strategy, division of duties or in the approach to monitoring fish and habitat. The sponsors are using adaptive management in the sense of learning what works and what does not work with the flashiness of the system. For example, they have adapted by using more wood instead of j-hook structures because the latter are deemed ineffective at flashy high flows and have altered expectations for width/depth ratio based on the distinct conditions of their stream.

Although a number of very good photo sequences showing riparian and stream response are provided, there is no associated, quantitative habitat data to validate the visual changes in habitat other than increase in stream length and number of pool-riffle sequences. There is not fish data to show even local responses nor is there water temp data to show reach scale response. After many years of restoration, this type of information to quantitatively describe the results of past treatments is a major shortcoming.

There is also a thoughtful observation that "true restoration" will only be achieved if sustainable agricultural practices are adopted. This could also be said for sustainable forestry practices. It appears that this approach is a guiding principle in working with local landowners.

The history of the project since 1998 is well laid out. Accomplishments are presented mostly in terms of photos and redd counts, the latter conducted by ODFW. Coordination between the sponsors and ODFW seems well-established, although, it would have been useful to clearly identify what ODFW has committed to do on the project, and perhaps have developed a joint proposal to ensure collaborative dovetailing of habitat actions and fish/aquatic monitoring.

In sum, there is little or no monitoring to document an improved ecological situation for salmonids, other than what is willingly done by ODFW. It was not quantitatively indicated how well one structure type did versus another.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsors appear to be closely coordinating habitat restoration activities with the ODFW Trout Creek Project. ODFW has provided results from their fish monitoring program to the sponsors. More details about the collaborative effort would have been helpful. For example, how did the sponsors decide which parts of the basin they each would be working in? Are data being shared?

The sponsors state that their restoration projects will help ameliorate impacts of climate change on stream water temperature. This should be discussed in more detail as the importance of this issue is likely to increase over time.

The sponsors could have provided a better explanation of the RM&E plan including the objectives and sampling design. The sponsors state that a lack of funds limits the amount of RM&E that can be conducted. In this case, they should consider measuring only those habitat variables that are likely to show the greatest change in response to habitat restoration actions. They also should consider restricting monitoring activities to a few representative sites.

Limiting factors for fish were identified through EDT. It would be useful to know more about the fish monitoring especially its design and whether it is conducted at a scale that will allow status and trends or effectiveness monitoring to be meaningful. It appears that the only fish data that are being collected are redd counts. It is unfortunate that juvenile abundance and productivity are not being measured. It also appears that there is some uncertainty about how long fish monitoring will continue.

There was some discussion on climate change and the need for riparian restoration to respond to potentially increased stream heating and reduced flows. No mention was made about potentially important changes that will be needed in land and resource management on private land. Also, no mention was made of non-game fish and possible challenges of future increased water temperatures.

4. Deliverables, Work Elements, Metrics, and Methods

Most deliverables clearly describe the enhancement projects that will be undertaken. If properly implemented, these projects should lead to improvements in habitat conditions. It would be informative to know how the sites were selected and prioritized.

There is a long list of deliverables that appear to reflect important restoration treatments. Most of these are described in terms of completed actions, such as remove three culverts, not in

terms of the desired results, for example provide fish passage to x miles of habitat. The projects appear to use accepted methods that have shown positive results in Trout Creek in the past.

Specific comments on protocols and methods described in MonitoringMethods.org

The proposal states that ODFW does the monitoring but later includes deliverables for habitat monitoring. This is a bit confusing. It also appears that the habitat monitoring has not provided much information as none is summarized on the excellent photos sets and stream information. There was no discussion of ISEMP, CHAMP or AEM or how it may be incorporated into future program work.

199404200 - Trout Creek Operations and Maintenance (O&M)

Sponsor: Oregon Department of Fish and Wildlife (ODFW)

Short Description: The project goal is to increase ESA listed Mid Columbia summer steelhead smolt outmigration from the Trout Creek Basin. Accomplishing this goal will be done through continued development, design, and implementation of new habitat restoration projects that focus primarily on improvement to the riparian and instream habitat. Additionally, this project will continue to maintain and monitor the existing habitat restoration work, and will continue the ongoing monitoring of focal species in the watershed.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP does not request a response. However, prior to contracting the sponsors should evaluate monitoring data and provide a summary of conclusions. This should be done for each discrete area of monitoring and integrated findings provided for the full suite of past monitoring. A protocol for monitoring vegetative or riparian area should be specified. Also a protocol for monitoring the response to restoration by non-salmonids, such as reptiles and amphibians, should be described.

During contracting a comprehensive review of lessons learned is needed that includes: an examination of the strategic use of the watershed-scale assessment; the value of focusing restoration treatments into a subset of priority sub-watersheds; progress that has been made to fill key data gaps identified in the watershed assessment; findings on the need to move to longer term CREP agreements, given that the time frame for expected response has been changed to 25 years and CREP agreements are for 15 years.

During contracting a discussion is needed of how the current monitoring program is likely to be affected by ISEMP, CHAMP and AEM.

The project has shown much hard work and on the ground project completion. There is a need for a more organized and strategic approach to program organization and delivery.

Comment:

Overall, this is an effective project. It is refreshing that it both implements and monitors projects and promises to yield improved monitoring information based on PIT tagging. Additional monitoring by augmenting fisheries expertise to the project could increase benefits.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of this project is to enhance stream and riparian habitat to increase outmigration of ESA listed summer steelhead smolts in Trout Creek. Trout Creek steelhead make up a large percentage of the summer steelhead run in the Lower Deschutes River. As is usually the case in Mid-Columbia Basin watersheds, degradation of riparian and aquatic habitat is a threat to sustainability of the fish population. The project is consistent with the Deschutes Subbasin Plan, the 2008 FCRPS Biological Opinion and the Oregon Middle Columbia (Mid-C) Steelhead Recovery Plan (2010), among others. The project involves continued development, design, and implementation of habitat restoration projects that focus primarily on instream and riparian habitat improvement. Additionally, this project continues to maintain and monitor the existing habitat restoration work, and monitors focal species in the watershed. The long-term, watershed scale program has reportedly contributed to a "viable" rating for summer steelhead.

All the proposed work will be on private lands. The sponsors state that they have gained the trust of landowners and access to their land over the course of this project. This effort is significant because it is likely that increased abundance of steelhead cannot be achieved without habitat restoration on private lands. The project's work is consistent with each of the twelve strategic actions in the Oregon Middle Columbia Implementation Spreadsheet for the Deschutes Eastside Summer Steelhead Population. This is important because it places the Trout Creek project in the context of a larger strategic plan. Is there a management plan specific for Trout Creek, for example a Watershed Restoration Action Plan? If so, an overview the plan and its objectives would have been informative.

This project is unusual in that it proposes not only to implement habitat restoration actions (Objective 3) but also to monitor smolt out migration (Objective 1) and adult abundance (Objective 2). More specific objectives for smolt out-migration and adult abundance monitoring need to be established. There are some questions on this monitoring. Is fish monitoring intended primarily to assess trends in abundance or is it also intended to determine whether fish are responding to habitat enhancement actions, or both? What are the trends in fish abundance? Apparently juvenile distribution and abundance is not being assessed and monitored, which is unfortunate.

A substantial amount of fish and habitat data apparently has been collected, providing a data series that spans 14 years. The fish data that is being collected should allow the sponsors to estimate freshwater survival, one important measure of freshwater productivity, and smolt to adult returns, a measure of the impacts of out of basin factors on survival. In addition, the sponsors indicate that they have been collecting a considerable amount of habitat monitoring

data. It seems that this project provides the opportunity to determine basin scale cumulative effects of habitat enhancement actions to improve fish abundance and productivity.

The sponsors have more than 20 years of experience working in the watershed and know the system and landowners well. A watershed assessment was completed for the drainage that examined watershed processes and function, identified major data gaps, and reportedly prioritized each of six sub-watersheds for their importance for restoration. However, no details were given on findings of the assessment, how watersheds were prioritized, or whether the assessment was used to frame a watershed scale restoration strategy.

Objectives are qualitative and do not incorporate a time frame for accomplishment of expected results.

Can what happened in 1998 that led to high out-migration numbers be replicated? The population responds to high water flow years and high rainfall. Late summer rainfall is especially important. Are there any habitat features, for example water depth, that can effectively substitute for the high flows?

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Riparian and aquatic habitat restoration has been ongoing for 30 years in Trout Creek. There have been substantial accomplishments to improve habitat conditions, but there are few, cumulative and quantitative results provided either for improved habitat conditions or fish numbers. It appears that there is a long history of monitoring activities but a very limited evaluation and summary of findings. The project has been monitoring smolt out migration and adult abundance annually for about 14 years. Several tables of fish data were presented in the proposal, but there was little data analysis or interpretation. Results from only a few projects were presented and these consisted of photo point information and brief summaries of quantitative changes in a limited number of habitat variables. Again, there was little or no data analysis and interpretation. The sponsors made little attempt to relate changes in habitat conditions to changes in fish abundance or productivity. They apparently have collected a considerable amount of data on fish and habitat but, based on the results presented in this proposal, it seems that data analysis should be progressing at a more rapid rate. The sponsors should consider enlisting additional agency help in addressing this deficiency. Some analyses such as trends in smolts per redd might prove informative.

Management changes discussed by the sponsors are primarily focused at the project and/or treatment scale. There do not appear to be any planned major project wide changes in direction and restoration methodology. It is likely that a critical evaluation of general program organization, management, and overall performance could provide some insights for further improvement of program efficiency and effectiveness, particularly at a sub-watershed scale.

Additionally, after 30 years of work one would think that the amount of priority work remaining could be located, prioritized and given initial cost estimates. This proposal merely calls for

another 5 years of funding without discussion of how to complete priority actions in priority locations.

There are some good specific examples of changes to restoration activities that have resulted from lessons learned, but there is not a coherent program to incorporate an adaptive management approach to the program.

An ISRP review (2006) suggested a summary of lessons learned was needed. A limited summary is provided, but much of the information is actually personal observation and is not accompanied by clear statements as to the lessons learned or how these have been incorporated into the current program.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Although coordination with Jefferson SWCD seems excellent based on the site visit the sponsors could have provided more details about their working relationship with the closely related BPA-funded project, Trout Creek Watershed Restoration (1998-028-00). Both projects are engaged in habitat enhancement, although the Trout Creek Watershed Restoration is not monitoring fish abundance. If one of the goals of the proposed work is to evaluate fish response to habitat enhancement actions, then the two projects will have to work more closely, including sharing data.

Although it appears that the sponsors are collecting a considerable amount of habitat monitoring data, the actual RM&E plan is not clearly described. The sponsors should have provided the objectives and design of the RM&E program in some detail. The sponsors also should have indicated whether monitoring is occurring at the site, reach, tributary, or basin scale, and discussed the frequency of sampling and the measurements that are being made at each scale. They also should have discussed the status and plans for data analysis.

There is a limited discussion of emerging limiting factors including feral swine, noxious weeds and straying of hatchery fish. Broader-scale emerging issues such as climate change, water use and availability, and forest health are not mentioned.

4. Deliverables, Work Elements, Metrics, and Methods

The sponsors identify several new enhancement projects that they propose to begin. To determine the benefits to fish, it would be informative if the sponsors had estimated changes in aquatic habitat expected for each project such as how much spawning and rearing habitat could be created. It would have been helpful if they provided a map showing the locations of the smolt traps, adult counting facilities, redd surveys, and monitoring sites. These locations are important because they will determine the scale at which fish response to habitat enhancement actions can be assessed.

There is a long list of deliverables that are stated in general terms and do not offer a quantitative description of desired results.

There appears to be a consistent completion of planned work and a strong linkage to local landowners and the general community. Project staff appears to be effective at addressing habitat issues.

Specific comments on protocols and methods described in MonitoringMethods.org

A wide range of monitoring is conducted including smolt outmigrants, returning adults, spawning counts, habitat monitoring and riparian evaluation for agreement compliance. Data are summarized, but there appears to be limited evaluation and summary of findings for individual monitoring elements or for the combined suite of monitoring. This is unfortunate given the long term data sets that are in place.

There is no discussion of future involvement in ISEMP, CHaMP or AEM, although ISEMP methods are cited. It appears that much of the current monitoring program could be affected by these monitoring activities.

PIT arrays should help with monitoring. Resulting data should be analyzed for its benefits to assessing project success.

It is important to monitor juvenile fish densities in addition to smolts. There is more that could be done in this area.

K. John Day River

200001500 - Oxbow Conservation Area

Sponsor: Confederated Tribes of Warm Springs

Short Description: The Oxbow Conservation Area was purchased to aid in the recovery of Chinook salmon and summer steelhead in the Middle Fork John Day River. The property's habitat was degraded in the past 120 years due to dredge mining activities and intensive agricultural use. This Project's goal is to protect, manage, and restore habitat that supports culturally significant fish populations and other biota for the Confederated Tribes of Warm Springs and secure access to these resources for its tribal members.

ISRP response loop recommendation: Meets Scientific Review Criteria

Comment:

The sponsors provided an adequate response regarding the physical and biological monitoring related to this project, clarified the relationship between the various entities conducting monitoring on the Middle Fork John Day (project sponsors, ODFW, Middle Fork IMW), and described the data sharing that takes place among these entities. The sponsors' present data suggests a positive response in fish abundance following habitat enhancement, but only one year of post-project data are available. The data are from three reaches within the project. The sponsors plan to continue to collect post-project data.

It is important that there be effective monitoring and evaluation (M&E) of the effects of this very intensive habitat management project on invertebrates, fish, and riparian habitat within the manipulated areas. The sponsors need to be sure that the monitoring program's objectives and overall design moving forward are adequate. There needs to be quantitative evidence that the objectives are being attained within a reasonable time frame and that the target fish are the beneficiaries of the actions. The projects are experiments and should be treated as such; each action requires a hypothesis. The data may be collected by others, but the sponsors should use the results of the data analysis to evaluate what is working and what aspects need improvement or alteration.

The sponsors indicate that there is difficulty in detecting fish population responses, but it is not clear why this is so. Even snorkel counts or minnow traps give data for comparisons. The use of regional status and trend data is not sufficient for detecting whether or not local actions are being effective. It would be informative to see the data collected on Chinook spawning (collected by ODFW) and on other components by the IMW within the property.

While considerable monitoring data were presented in the proposal, in future proposals the sponsors should (1) strive to improve the organization of the presentation of monitoring results; (2) provide more detailed interpretation of the data, i.e., not just a table or graph but an explanation of what the data are implying; (3) provide a better description of the design of

the project monitoring program; and (4) draw general conclusions. This information is critical for the ISRP's evaluation of the success of the project. The sponsors indicate that more effort will be placed on analysis of monitoring data and that a monitoring report will be completed by 2016. This prospect is encouraging and signals a commitment by the sponsors to M&E.

Preliminary ISRP comment requesting a response:

This project has a history of favorable ISRP reviews and many strong components. However, the ISRP requests a response of the following items:

- 1) Provide data to show how the past actions are affecting fish abundance or production.
- 2) Provide details on how this project fits mechanistically with associated regional programs. In other words, which project is responsible for what activities and how is the information shared, integrated and used?
- 3) Provide more detail on the status of the RM&E program, the specific role of cooperators in RM&E on the Conservation Area, and progress on data analyses and reporting. Details are provided in the narrative of this review.

In addition, the ISRP offers the following recommendations to improve the project. The sponsors do not have to address these recommendations in their response.

- 1) Develop an overarching restoration model that can be used to guide and integrate the activities. The sponsors need an overall description of how the project and other related projects fit into an overall model of restoration.
- 2) Develop a more detailed accounting of specific monitoring actions and analyses. The work is very intensive in a small portion of the watershed. Sponsors need to identify some measures within the restoration areas that will show a response.
- 3) Develop quantitative objectives and timelines that eventually can be used to evaluate success. Some specific 1, 5, and 10-year monitoring benchmarks for progress should be established for this ambitious, intricate project. It is important to specify what kinds of responses the sponsors are anticipating over these time frames.
- 4) Provide evidence that the proposed modifications to the stream/mine tailings will produce positive results. This evidence may include data, literature review or an adequate rationale to suggest that this action will be successful.
- 5) Consider alternative actions. For example, would the benefits to fish be greater if the funds were used for other actions over a broader area of the watershed, for example, to control water temperatures?

6) Considering that most invasive species are here to stay, develop strategies that address the presence of hybrid communities, that increase riparian shade to naturally repel invasive plants, and that only institute control measures for species causing extensive ecological harm to the river, such as knotweed does to riparian areas west of the Cascades.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Oxbow Conservation Area was purchased in 2001 with the commendable goal to “protect, manage, and restore habitat in the Oxbow Conservation Area ... to aid in the recovery of Chinook salmon and summer steelhead in the Middle Fork John Day River that supports culturally significant fish populations and other biota for the Confederated Tribes of Warm Springs and secure access to these resources for its tribal members.” Protecting and enhancing habitat is anticipated to benefit ESA-listed spring Chinook and summer steelhead and help maintain a sustainable harvest of fish for tribal members. The project sets aside a substantial amount of floodplain, riparian, and upland habitat. Habitat has been severely degraded, so substantial habitat enhancement work is needed.

A comprehensive Habitat Management Plan for the Forrest and Oxbow Conservation Areas was developed in March 2010 (a link to the Plan was provided in the proposal). The Plan has well-defined objectives, general approaches for accomplishing the objectives, a prioritized set of projects related to each objective, and a timeline for completion. That Plan should provide the context, direction, and justification for the work outlined in this proposal. A critical element in this review is whether the work is progressing according to the Plan, whether the sponsors have encountered any difficulties, and how these difficulties will be dealt with. An overview of the Plan in the Problem Statement section of the proposal would have helped set the stage for the proposed work.

The proposal would have been improved significantly if its objectives, deliverables, and timeline for expected results for the project were more directly linked to the Plan, making clear how the proposed work directly contributes to accomplishment of the Plan’s objectives. The objectives in the proposal could have been more closely aligned with the objectives in the Habitat Management Plan. For example:

Objective 1: At some place in the proposal the sponsors should have defined high quality habitat and discussed how it is identified, how much of it is available, and where it is located within the Conservation Area.

Objective 2: This objective is very broad in scope and encompasses at least four objectives in the Plan.

Objective 3: The proposal narrative implies a broad commitment to RM&E. The ISRP concurs that monitoring should be an essential part of the proposed work.

Objective 4: The ISRP concurs that a managed grazing program that both protects riparian vegetation and provides economic benefits is worthwhile, and it can serve to demonstrate to neighboring landowners that conservation values are not necessarily inconsistent with properly managed livestock grazing. The Habitat Management Plan describes in some detail a Riparian Pilot Grazing Project to be developed by 2014. The sponsors should have explained how Objective 4 relates to this pilot project.

Objective 5: The sponsors have put a lot of effort into outreach and education. This is one of the strongest aspects of the proposed work.

Objective 6: A practical necessity.

It would also have been helpful if the proposal had provided more information specifically related to fish. For example, what life stages would most benefit by habitat restoration in the Conservation Area? How much habitat will be created for each life stage and where is this habitat located within the Area? The Habitat Management Plan does not explicitly define quantitative goals for fish abundance and production; however, it would be useful for the sponsors to estimate the abundances of juvenile and spawning fish that can be expected to result from habitat enhancement. Results from fish surveys in “high quality” habitat may be useful in developing this estimate.

It is also important for the sponsors to discuss how they identified and prioritized potential habitat enhancement sites. Was the prioritization based on expected benefits of each project for habitat and fish? If so, how were expected benefits determined?

In addressing these issues, it would also be beneficial if the project sponsors had provided more background and framed their proposed and ongoing activities in terms of an overarching ecological-based model to guide and integrate the restoration activities.

Like most restoration projects in the Basin, this project is small-scale from a landscape perspective. The funds and activities are targeted on a short stretch of the river which has received major perturbations in the past rather than less intense actions at larger and better integrated scales. Therefore, the project by itself may not measurably improve basin-wide salmon conditions abundance as measured in a basin-wide way. With their current data the sponsors may not be able to tie any juvenile improvement to the habitat project. The ISRP suggests that it is important to have a way to assess if investments made in the restoration actions are having a positive outcome on fish abundance or production. The ISRP is concerned that because monitoring is very limited, the adaptive management process will not work as efficiently. Monitoring, when it occurs, is apparently conducted mainly by other projects and partners. The IMW work will work nicely in conjunction with this effort. However, the sponsors could also do some additional basic monitoring, with a well-crafted design, such as some electro-shock runs or minnow traps a couple of times a year.

Although the project may have some significance to regional programs and cooperation with other projects is indicated, it is not clear how this project fits mechanistically with those programs. In other words, which project is responsible for what activities and how is the information shared, integrated and used?

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The sponsors have successfully implemented numerous specific projects. Photo points and some quantitative information on stream temperature suggest that improvement in riparian vegetation and stream habitat has occurred. However, it is difficult to evaluate the overall success of the project's efforts to date. While some quantitative information on habitat and fish was presented more explanation would be useful.

It would have been helpful if the sponsors had used the Habitat Management Plan as a framework for structuring a discussion of accomplishments and results. One of the crucial questions that reviewers need to consider is whether the work to date is achieving the objectives set forth in the Plan. Results presented in the proposal should clearly demonstrate the progress that is being made. Several habitat surveys were conducted by various agencies in the early 2000s. The sponsors suggest that these surveys can serve as a baseline which can be compared to current habitat conditions to assess the effectiveness of enhancement actions. This is a viable approach for demonstrating progress. Data should be clearly and concisely explained and general conclusions drawn about whether the project is achieving its overall goals and its future needs.

A strength of this proposal is its excellent outreach and education program. The sponsors have gone to great length in enlisting the participation and support of landowners and other members of the public and keeping them informed of the project's progress. The sponsors engage in many conservation-oriented programs and projects, including conservation education for children.

Past accomplishments and results are individually summarized in the proposal as follows:

1. Establish Vegetation
2. Install Large Wood Structures
3. Phase 1 Mine Tailings Rehabilitation
4. Phase 2 Mine Tailings Rehabilitation
5. Build Browse Exclosure Cages Around Phase 2 Riparian Planting Zone
6. Maintain Vegetation
7. Information Sign Updating, Access Regulation, Hunting Program
8. Project Outreach and Opportunities, Information Distribution
9. Fish, Weather, and Habitat Monitoring

The text describing the accomplishments and results reinforces the need for an overall model or strategic plan guiding the research to assure that the collective actions are having the desired effect on fish abundance, survivorship or production.

In addition, information provided on 1. The Middle Fork Intensively Monitored Watershed Program 2. Data Gathering Conducted by OCA Staff 3. Bureau of Reclamation Reach Assessment 4. Caged vs. Browsed CREP Planting Study suffers from insufficient integration and analysis of effectiveness in terms of the stated goal. Further, information is given on Complete Grazing Season, Facility Maintenance, Dredge Tailing Restoration Design, and Install Fences. While relevant to the stated goal to restore Chinook and steelhead, connections are not made as to whether the information and actions are improving fish abundance, survival or productivity.

The ISRP suggests that beaver should be considered as an active participant in the restoration. What efforts are being made to include that natural ecosystem engineer in the restoration process?

The project has been ongoing for 12 years so data should be presented to show whether the actions are having any effects on salmonid abundance or productivity. The management plan calls for status and trend and effectiveness monitoring so analysis of data should be presented.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships (to other projects) are not easily understood. The sponsors appear to have a close working relationship with the Oregon Department of Fish and Wildlife (ODFW) and the Bureau of Reclamation (BOR). The sponsors state that they use fish data collected by ODFW for project monitoring within the Conservation Area. It is not clear, however, whether these data are collected specifically for monitoring projects in the Conservation Area. The BOR provides technical assistance and assists with development of restoration project designs.

The Habitat Management Plan expresses a clear commitment to RM&E. The Habitat Management Plan broadly outlines the kinds of RM&E that will be undertaken in the Conservation Area including status and trends and effectiveness monitoring. Objective 3 and Deliverable 12 in the proposal explicitly call for RM&E. However the status of the RM&E program is unclear. The sponsors should provide an up-to-date summary of ongoing monitoring activities. Apparently several cooperators will be involved in conducting RM&E. The role of each of these cooperators needs to be clarified. For example, it appears that ODFW will be involved with monitoring fish populations. Is their monitoring program tailored to the objectives of CTUIR's management plan or is it a part of a larger subbasin-wide program where fish sampling sites happen to occur in the Conservation Area? The sponsors also should clarify the role of the Middle Fork IMW in RM&E. The proposal needs more detail on how the independent monitoring efforts such as the IMW are providing results. Will the IMW design provide evaluation of whether the mine tailing restoration work is having positive results?

The sponsors should discuss how monitoring data from different cooperators will be compiled, who will conduct the data analyses, and when the analyses will be brought up to date. It seems that data analysis and interpretation are lagging behind other proposed work.

It was good to see climate change listed as an emerging limiting factor. The sponsors are encouraged to use the newer climate-hydrology models to prepare forecasts for the John Day River in terms of flows and temperatures for the coming decades (see, for example, Donley et al. 2012. Strategic planning for instream flow restoration: a case study of potential climate change impacts in the central Columbia River basin. *Global Change Biology* doi: 10.1111/j.1365-2486.2012.02773). The results may be revealing and could help guide the restoration activities.

4. Deliverables, Work Elements, Metrics, and Methods

The Deliverables represent actions and activities that should lead to habitat improvement. They would be more meaningful if they were linked directly to elements of the Habitat Management Plan. The sponsors should provide the rationale for selection of the sites that will be enhanced.

DELV-1: Restore Mine Tailings Site. The restoration of the mine tailing work can act as a demonstration project. More evidence is needed that the proposed modifications will produce positive results. There are no data, literature review, or adequate rationale presented in the proposal to suggest that this action will be successful. DELV-2: Noxious Weed Control. The ISRP suggests that because many invasive species are here to stay, managers are faced with the emergence of dynamic hybrid communities going forward. It may be more effective to develop strategies that accepted the presence of some hybrid communities, increase riparian shade to naturally repel invasive plants, and only institute control measures for species causing extensive ecological harm to the river (for example, knotweed, to the west of the Cascades).

DELV-7: Grazing Program. This activity seems a bit peripheral to the goal of restoring fish abundance and should be carefully evaluated for relevance.

DELV-8: Reduce Forest Fuels. This activity seems a bit peripheral to the goal of restoring fish abundance and should be carefully evaluated.

DELV-11: Irrigation Ditch Efficiency. If the purpose of the project is to restore fish populations, why is water being diverted for pasture? This aspect should be carefully examined and justified, as it seems at odds with the stated goals of the project.

DELV-12: Monitor Fish and Habitat. This monitoring should include documenting hatchery strays on the spawning grounds.

DELV-14: Maintain Restoration Project. Timelines should be established beyond which the each restoration action becomes self-maintaining.

A professional publication (or two) in a refereed journal should be listed as a deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community

[200104101](#) - Forrest Ranch Conservation Area

Sponsor: Confederated Tribes of Warm Springs

Short Description: The Forrest Conservation Area was purchased to aid in the recovery of Chinook salmon and summer steelhead in the Mainstem and Middle Fork John Day River systems. Our mission is to protect, manage, and enhance habitat that support culturally significant fish populations for The Confederated Tribes of the Warm Springs Reservation of Oregon. The work is important in order to support sustainable harvest of fish populations and ensure access to these populations for the tribal membership.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP recommends that the project sponsor develop a long term plan for public engagement and submit it for ISRP review early in 2014.

Comment:

ISRP Request 1: Evidence of success in the social arena should be provided, as well as a plan to assess future success. The sponsors indicated that they have engaged in some social activities such as involving local landowners in stream habitat conservation efforts. They also helped sponsor a free fishing day for kids. However, the ISRP would like to see a more formalized plan for social engagement, a long term plan for engaging the public, with more formal milestones and deliverables. Such a plan is not provided in adequate detail in the proposal or the response. A goal of the project is to "Participate and cooperate with the community, agencies, and organizations to facilitate and promote education, recreation, natural resource planning, monitoring, and research of these properties and conservation activities." The entire project has a substantial social component. As such, the social aspects should have activities that can be quantified.

ISRP Request 2: The importance of this study in a broader landscape context should be described. The sponsors only partly addressed this request. They should consider, for example, how land use practices outside the project will influence watershed processes (e.g., occurrence and magnitude of floods) that could affect the project. They should also consider whether fish abundance in the watershed (e.g., redds or number of spawners) is simply following watershed-wide trends or whether abundance within the project area is trending higher. These comments are also relevant to the Oxbow Project. This issue should be addressed in future proposals.

ISRP Requests 3 and 4. The sponsors adequately addressed these requests.

Preliminary ISRP comment requesting a response:

This project has a history of favorable ISRP reviews and is an impressive demonstration project. However, the ISRP requests a response of the following items:

- 1) Evidence of success in the social arena should be provided, as well as a plan to assess future success.
- 2) The importance of this study in a broader landscape context should be described.
- 3) Provide details on how this project fits mechanistically with associated programs. In other words, which project is responsible for what activities and how is the information shared, integrated and used?
- 4) Additional information is needed on the approach to data management.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Forrest Conservation Area was purchased in 2002 with the goal of promoting “natural production and ecological functions to increase the larger focal species recovery effort of the John Day Subbasin.” More specifically, the project will protect and enhance habitat to benefit ESA-listed spring Chinook and summer steelhead and help maintain a sustainable harvest of fish for tribal members. The Project is a key component of the John Day Subbasin Plan as it addresses habitat protection and improvements, passage improvements, flow augmentations, upland improvements, education and outreach, and restoration of altered landscapes that help achieve the full natural production potential of the subbasin and the Columbia River Basin. The project sets aside a substantial amount of floodplain, riparian, and upland habitat. The habitat has been severely degraded and so substantial habitat enhancement is needed. The sponsors have well-defined goals and provided a good discussion of factors limiting fish production on the Conservation area.

A comprehensive Habitat Management Plan for the Forrest and Oxbow Conservation Areas was developed in March 2010 (a link to the Plan was provided in the proposal). The Plan has well defined objectives, general approaches for accomplishing the objectives, a prioritized set of projects related to each objective, and a timeline for completion. The Plan should provide the context, direction, and justification for the work outlined in this proposal. A critical element is whether the work is progressing according to the Plan, whether the sponsors have encountered any difficulties, and how these difficulties will be dealt with. The proposal would have been improved significantly if its objectives, deliverables, and results were more directly linked to the Plan, making clear how the proposed work directly contributes to accomplishment of the Plan’s objectives. An overview of the Plan in the Problem Statement section of the proposal would have helped set the stage for the proposed work.

It would have been helpful if the proposal provided more information on fish. For example, what life stages would be most benefitted by habitat restoration in the Conservation Area? How much habitat will be created for each life stage, and where is this habitat located within the Area? The Habitat Management Plan does not explicitly define quantitative goals for fish abundance and productivity; however, it would be useful for the sponsors to estimate the abundances of juvenile and spawning fish that can be expected to result from habitat enhancement. Results from fish surveys in “high quality” habitat may be useful in developing this estimate.

It also would be helpful if sponsors discussed how they identified and prioritized potential habitat enhancement sites. Was the prioritization based on expected benefits of each project for habitat and fish? If so, how were benefits determined?

The objectives in the proposal could have been more closely aligned with the objectives in the Habitat Management Plan.

Objective 1: At some place in the proposal the sponsors should have defined high quality habitat and discussed how it is identified, how much of it is available, and where it is located within the Conservation Area.

Objective 2: This objective is very broad in scope and encompasses at least four objectives in the Plan.

Objective 3: The proposal narrative implies a broad commitment to RM&E. The ISRP concurs that monitoring should be an essential part of the proposed work.

Objective 4: The ISRP concurs that a managed grazing program that both protects riparian vegetation and provides economic benefits is worthwhile, and it can serve to demonstrate to neighboring landowners that conservation values are not necessarily inconsistent with properly managed livestock grazing. The Habitat Management Plan describes in some detail a Riparian Pilot Grazing Project to be developed by 2014. The sponsors should have explained how Objective 4 relates to this pilot project.

Objective 5: The sponsors have put a lot of effort into outreach and education. This is one of the strongest aspects of the proposed work.

Objective 6: A practical necessity.

The proposal would be improved if quantitative goals had been provided. For example, how much can fish abundance and freshwater productivity be expected to increase over given time periods? Is it possible to develop these estimates using habitat data? It would be beneficial to establish some intermediate benchmarks for success at 1, 3, 5, 10, and 15 year intervals. For example, with riparian restoration - what will be the shorter term trophic effects on primary and secondary production?

The sponsors should consider how large disturbances might affect the ability of the project to meet its objectives. Will the restoration work lead to more resilient ecosystems, less flood damage, and vegetation that responds to fire?

The ISRP has the following concerns: 1) While there is considerable activity planned, there should be an overarching model to guide and integrate the activities. 2) The objectives should state quantitative goals and timelines for specific activities to be successful. 3) The monitoring is sparse and has no systematic structure. Monitoring is apparently mostly conducted by other projects and partners. 4) As a result of concerns 1-3, there is no way to determine if the investments made in the restoration actions are having a positive outcome on fish abundance, survivorship or production. The project may have some significance to regional programs but it is not clear how this project fits mechanistically with programs beyond the John Day catchment as well as within it. In other words, which project is responsible for what activities and how is the information shared, integrated and used? Certainly, there is considerable cooperation.

This is a demonstration project for showing harmony of grazing and conservation work. It is a good site for this. The sponsors could benefit from communication with others doing similar work in the Pacific Northwest. For example, the sponsors should contact the Nature Conservancy to share the results of grazing work at Sycan Marsh in the Klamath Basin.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The sponsors have implemented a number of projects intended to improve riparian conditions, quality and quantity of instream habitat, and fish passage. Although some quantitative information is presented most results are shown with high quality, effective photographs illustrating the kinds of enhancement activities that have taken place and habitat conditions pre-and post enhancement. It would have been helpful if the sponsors had used the Habitat Management Plan as a framework for structuring a discussion of accomplishments and results. One of the crucial questions that reviewers need to consider is whether the work to date is achieving the objectives set forth in the Plan. Results presented in the proposal should clearly demonstrate the progress that is being made. Several habitat surveys were conducted by various agencies in the early 2000s. The sponsors suggest that these surveys can serve as a baseline which can be compared to current habitat conditions to assess the effectiveness of enhancement actions. This is a viable approach for demonstrating progress. Data should be clearly and concisely explained and general conclusions drawn about whether the project is achieving its overall goals and its future needs.

A strength of this proposal is its excellent outreach and education program. The sponsors have gone to great length in enlisting the participation and support of landowners and other members of the public and keeping them informed of the project's progress. The sponsors engage in many conservation oriented programs and projects, including conservation education for children.

Management changes discussed by the sponsors are modification of ongoing enhancement projects that typically would be made in a project like this. There do not appear to be major project wide changes in direction and restoration methodology.

The ISRP is skeptical about the overall project being able to meet the goal by 2030 (see the stated vision in the proposal). There are no testable hypotheses (at least none are provided), the objectives are vague (not quantitative and no specific timelines), monitoring is inadequate and, therefore, the adaptive management process cannot work as intended. Without testable hypotheses and the monitoring data to test them, the Adaptive Management process cannot work efficiently. It is not clear if Structured Decision Making is being used.

The sponsors indicated that “The Forrest Conservation Area’s contracted deliverable history is 81%, which seems an average, reasonable percentage rate of success.” In addition to completion of deliverables, success should be measured ultimately by improvements in the fish population and secondarily in stream and riparian conditions.

In terms of past deliverables, the information provided was limited. For example, statements such as “The Tribes attempt to monitor the property and the restoration projects as much as possible given limited funds and time to do so” and “The Tribes are in the early phases of developing a web based data storage site to host all the data and make it accessible to interested parties.” Monitoring of restoration actions should be a core activity and data management should be well developed. Concerning data, how does the project interface with ISEMP or CHaMP? Further, redd counts are conducted for steelhead but what about Chinook and bull trout? How are lamprey monitored? How are the photo point images used? What data are generated?

P.29: What species is being stocked in the ponds for recreational fishing?

Further, beaver should be an active participant in the restoration. What efforts are being made to include that natural ecosystem engineer in the restoration process?

The project has been in place since 2002 but the few data provided appear to show no response from the fish.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships (to other projects) are not easily understood. The project expresses a clear commitment to RM&E. The sponsors appear to have a close working relationship with the Oregon Department of Fish and Wildlife (ODFW) and the Bureau of Reclamation (BOR). The sponsors state that they use fish data collected by ODFW for project monitoring within the Conservation Area. It is not clear, however, whether these data are collected specifically for monitoring purposes in the Conservation Area and so is suitable for assessment of project effectiveness, or whether it is part of a larger scale monitoring effort in which some of the sample sites happen to fall within the Area.

The Habitat Management Plan broadly outlines the kinds of RM&E that will be undertaken in the Conservation Area including status and trends and effectiveness monitoring. Objective 3 and Deliverable 12 in the proposal explicitly call for RM&E. The status of the RM&E program, however, is unclear. The sponsors should provide an up-to-date summary of ongoing monitoring activities. Apparently several cooperators will be involved in conducting RM&E. The role of each of these cooperators needs to be clarified. The sponsors also should clarify the role of the Middle Fork IMW in RM&E. The sponsors should discuss how monitoring data from different cooperators will be compiled, who will conduct the data analyses, and when the analyses will be brought up to date. It appears that data analysis and interpretation is lagging behind other proposed work.

It was beneficial to see climate change listed as an emerging limiting factor. The sponsors are encouraged to use the newer climate-hydrology models to prepare forecasts for the John Day River in terms of flows and temperatures for the coming decades (see, for example, Donley et al. 2012. Strategic planning for instream flow restoration: a case study of potential climate change impacts in the central Columbia River basin. *Global Change Biology* doi: 10.1111/j.1365-2486.2012.02773). The results may be revealing and could help guide the restoration activities.

4. Deliverables, Work Elements, Metrics, and Methods

With some exceptions the Deliverables are not specific regarding project locations and desired outcomes of restoration actions. Deliverable 3 pertains to conduct of RM&E, but few details of the RM&E plan are given. Methods and metrics for RM&E are cited in MonitoringMethods.org, but they would be more meaningful if they were in the context of an RM&E program. The sponsors should provide the rationale for selection of the sites that will be enhanced.

Operation of the nursery is a step in the right direction. However, its capacity to produce plants is relatively limited. The 12,000 plants per year equates to a community density of less than a hectare on a young native riparian stand (~15 years old). Nursery operations should be carefully examined with a focus on increasing capacity in the near future. The scale is small for the work they are doing. They offer the ability to collect materials from the specific restoration sites and local areas. They may want to expand their nursery aspect.

Planting in stages looked like a good strategy to allow stratification. They should monitor the success of this approach.

Most invasive species are here to stay. While some control may be attempted – usually at very high costs – the fact is that managers are faced with the emergence of dynamic hybrid communities going forward. It may be more effective to develop strategies that in some instances tolerate the presence of hybrid communities, increase riparian shade to naturally repel invasive plants, and only institute control measures for species causing extensive ecological harm to the river (for example, knotweed, west of the cascades). Has fire been considered as a control measure? It has been very effective in other fire dominated

communities (including riparian zones). See review: Pettit, N.E. and R.J. Naiman. 2007. Fire in the riparian zone: Characteristics and ecological consequences. *Ecosystems* 10:673-687.

A professional publication (or two) in a refereed journal should be listed as a deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community.

Specific comments on protocols and methods described in MonitoringMethods.org

P. 47: What type of data are you collecting and how are you documenting supporting metadata? *“This information is covered by the protocol(s) set up in monitoringmethods.org account linked to this geographical review. Data is documented with the metadata where possible.”* A more comprehensive response is needed for this question. Perhaps provide a Table showing how the metadata are linked to each deliverable.

200739700 - John Day Passage, Flow and Habitat Enhancement

Sponsor: Confederated Tribes of Warm Springs

Short Description: The primary goal of this project is to address limiting factors identified for anadromous fish and listed species in the John Day River Basin. Limiting factors identified in the 2008 FCRPS BiOp will be addressed through a basinwide implementation strategy based on local and regional plans, stakeholders, and technical advisory teams, and multi-agency partnerships.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

In contracting and future reviews, the project sponsor should describe how project prioritization will mesh with activities of ODFW and other management entities. The sponsor’s work and that of other agencies appear parallel in approach, but coordination could be improved. A past ISRP request for prioritization seems to not have been completed or coordinated with other basin entities. The sponsors need to ensure that their project works cooperatively with partners to develop priority restoration areas with no duplication of effort.

The ISRP should review the criteria that are used to review projects, the composition of the TAC, and the overall M&E plan as part of a review of the Implementation Strategy scheduled for completion in 2014.

Comment:

This proposal, largely conceptual in format, has two distinct aspects: habitat implementation and project prioritization and selection. It is intended to develop an implementation strategy,

including stakeholder and advisory committees, development of scientific scoring of biological integrity, and a feasibility scoring system to guide the selection and completion of suites of habitat restoration projects for 2014-2018. Overall, this project has a successful record of accomplishments, especially related to improving fish passage. The discussion of plans for restoration and desired elements of a restoration strategy including protect and maintain highest quality habitat areas, manage land to ensure ecological integrity and function and restore highest priority watersheds and habitat are presented but are not thoroughly incorporated into the proposal.

The project, as written, intends to be an umbrella project for fish habitat restoration in the John Day basin. However, it was not clearly indicated how much support the sponsor's strategy for the basin will have from other entities doing work in the subbasin and operating independently for decades. What is the overall plan for the basin? How does this proposed project mesh with other basin activities? What is the exact nature of the cooperation and how are the sponsors going to include all the managers, Oregon Department of Fish and Wildlife (ODFW), the soil and water conservation districts, and other stakeholders in their strategic planning? The sponsors should bring the TAC in early in the process to assist with a strategic plan for implementation and monitoring.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project is consistent with multiple tribal, federal, and state agency regional and subbasin recovery plans. The problem is clearly defined. The sponsors concisely discuss the major factors limiting fish production in the John Day subbasin and the kinds of restoration actions that should be taken to remediate them. Based on the discussion in Project History, it appears that significant progress has been made in the John Day subbasin in improving fish passage, habitat, and land management.

The sponsors provided a detailed description of a formalized Implementation Strategy that they are in the process of developing to prioritize restoration activities. This Strategy apparently was developed in response to a recommendation in the ISRP's 2006 project review. Development of the Strategy is the first objective in the proposal. The remainder of the objectives pertain primarily to protection of high quality habitats and restoration of degraded habitats prioritized by the Implementation Strategy and thus these objectives are contingent on successful completion of Objective 1, "Develop Strategy Document," which the sponsors say will be completed in 2014.

The ISRP commends the sponsors for developing what appears to be a rational, systematic procedure for project site selection and action. This approach could serve as a model for other restoration planning efforts in the subbasin, however many entities are working in the John Day Basin. Will they participate in the Strategy and follow the priority listing of projects? If so, how will they participate? There is a need to avoid duplication of effort in planning. The proposal states that "The Tribes would like to coordinate with basin partners and technical experts to leverage existing scientific data, physical information, and stakeholder input for the

development of a strategic, prioritized restoration implementation strategy". With the extensive planning efforts that have already been undertaken within the subbasin, including the Subbasin Plan and the Mid-Columbia Steelhead Conservation and Recovery Plan, it seems that much of what the Strategy proposes to do, that is determine fish use of stream reaches by life stage, limiting factor identification, site prioritization, appropriate remedial actions should have been completed some years ago. Why are partnerships still being built after 5 years? It seems they should have been already in place. It is not clear how well this proposed work is coordinated with ODFW, Soil and Water Conservation districts, and other basin entities. Why is prioritization only occurring now? It seems as though it should have been done prior to ongoing enhancement actions. The implementation phase of this work seems to be getting ahead of the coordination. It would have been helpful if the sponsors were more explicit about why their strategic approach is needed in lieu of other subbasin planning efforts. What will it provide that other planning documents have not?

As criteria for site selection, the sponsors may want to consider the locations of other restoration sites in the basin and proximity to high quality habitats.

The project objectives are actually goal statements and lack quantitative description of desired products or specified dates for completion. These need to be provided.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Restoration actions undertaken so far by this project are primarily passage improvement, juniper removal, riparian planting, LWD placement, and installation of cattle exclosures. Results consist primarily of descriptions of projects that have been undertaken to date. Few quantitative results were presented. The proposal could have been improved if the sponsors had discussed in more detail what sort of M&E program is currently in place, what kind of monitoring data has been collected, and whether the data have been analyzed and utilized.

The sponsors discuss extensively the Middle Fork John Day Intensively Monitored Watershed (IMW) project in which they are a cooperator. It is unclear, however, how this project is related to the work set forth in the current proposal. The sponsors should have clearly identified how they will make use of the results from the IMW project in their proposed work and what role it has in development of the sponsor's Implementation Strategy.

The sponsors consider development and implementation of the Strategy to represent adaptive management.

Restoration in the John Day has been ongoing for 30 years. Past ISRP comments (2006) suggested the need for clear criteria to prioritize projects, more M&E, development of an accomplishments report and review, and additional detail to be included in work elements. It appears that no retrospective analysis of past actions has been done. There is limited discussion of lessons learned and their application into program design or operation. A positive aspect is that there has been some upslope work that includes juniper treatment to improve streamflow.

Unfortunately, there was no mention of the extent of this treatment needed to actually result in measurable increases in flow.

There are no clearly established criteria for prioritizing projects and there is little detail provided regarding key designs or considerations for work elements. There has been additional staffing for effectiveness monitoring.

To understand project significance at the landscape scale, the sponsors need to conceptualize at a wider scale than the reach scale. This is because many important processes, potentially affecting habitat quantity and quality, operate at broader than the reach scale. A geomorphologist should be included on the TAC for the project.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There are a large number of projects pertaining to both fish and habitat on-going and planned in the John Day basin as well as IMW and other ISEMP projects. Many of these projects appear to be taking place in similar parts of the subbasin and some have different objectives than others. One of the major questions is how all of these projects coordinate their restoration and monitoring activities so as to be complementary and not duplicative, and maximize the probability that the projects, taken together, have a positive cumulative impact on fish and habitat. For example, is project site selection done cooperatively with all major entities involved? It seems that the proposed Implementation Strategy could be used cooperatively by all entities working in the subbasin. Are the monitoring efforts consistent among projects in terms of the monitoring design, data collected, and analyses conducted? The ISRP recognizes that answering these questions should not solely be the responsibility of the sponsors of this project but rather it should be a joint response by all cooperators in the subbasin.

The sponsors discuss climate change as a potential problem and maintain that their habitat restoration work will help to mitigate climate change impacts especially to the extent that the restoration actions reduce water temperatures. No potential effects on lamprey are discussed. Additionally, there is no discussion of forest health and potential effects of major fires or disease outbreaks on aquatic habitat.

4. Deliverables, Work Elements, Metrics, and Methods

The first five Deliverables pertain to development of the Implementation Strategy which will prioritize project locations and is scheduled to be completed in 2014. Many of the remaining Deliverables are nearly restatements of the Objectives. Specific project locations are not identified in the Deliverables. They will be selected based on the outcome of the Implementation Strategy process. This approach is reasonable and should not delay commencement of the projects beyond 2014.

The work in public education and outreach is a positive element and it appears that a wide range of activities have been developed and implemented in the past few years.

Specific comments on protocols and methods described in MonitoringMethods.org

There is limited discussion on specific monitoring changes since the last ISRP review. There is no mention of future needs to become involved in ISEMP and AEM.

200203500 - Riparian Buffers in Gilliam County

Sponsor: Gilliam County Soil and Water Conservation District (SWCD)

Short Description: Gilliam County SWCD will provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the lower John Day Subbasins. The main goal is to establish riparian buffers on at least 50 miles of stream (10 mi/yr). This project is important because it helps implement FCRPS 2008 BIOP RPA 35, and strategies to address limiting factors identified in subbasin plans and Mid-Columbia Steelhead Recovery Plan.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The sponsors provided adequate responses to all of the ISRP's qualifications of the original proposal, with the exception of one item. The exception, and the reason for the qualification on this version of the proposal, is that the ISRP believes the sponsors need a reasonable plan/strategy to monitor the effectiveness of the restoration actions. This can be accomplished in cooperation with others (e.g., ODFW and OWEB). Further, it appears that much of the baseline strategy could be extracted from the SVAP process elements and used in the development of the objective statements. This could establish a sound foundation for post project monitoring. The monitoring should include all fish species of concern (i.e., steelhead, Chinook, lamprey, bull trout), their food supplies (e.g., aquatic insects), and riparian responses to the conservation and restoration actions. It would be useful in future proposals for the SWCD to involve OWEB and their new staff person in planning a low cost assessment protocol. This work does not need to be expensive to implement. More information on monitoring progress and results should be provided in future reporting.

Comment:

See the qualifications statement above.

Preliminary ISRP comment requesting a response:

This is basically a good proposal, but the ISRP has some concerns. General issues that were identified by ISRP in 2006 do not appear to have been resolved. It seems that now is the time to bring this program up to standard by providing a response that includes:

- 1) identification of areas of linkage to other plans/efforts for conservation/restoration,
- 2) a clear method for the prioritization and focus of treatments,
- 3) a clear description of desired vegetative conditions that reflect a fully-functioning riparian area and
- 4) a more complete description of method for monitoring project and program effectiveness
- 5) a description of a strategy for improving enrollments in light of the recent low rate of enrollments and low miles protected.

Other concerns are articulated in the review and may have important implications for activities on the ground and for the eventual success of the project – these should be also addressed in a response.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of the proposal is for Gilliam County SWCD to “provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the lower John Day Sub basins.” They plan is to establish riparian buffers on at least 50 miles of stream (10 mi/yr). Gilliam County believes that this project is important because it helps implement FCRPS 2008 BIOP RPA 35, and strategies to address limiting factors identified in sub basin plans and Mid-C Steelhead Recovery Plan. As such, it supports other BPA funded projects in the John Day catchment. The staff involved appears to have adequate technical training and experience to accomplish the proposed activities.

The objectives are clearly stated and have quantitative goals and timelines. However, it is not clear how a goal of 24,900 adult steelhead in 25 years was determined. Further, there are no quantitative goals for Chinook, bull trout, or lamprey – all species of concern.

Riparian area restoration, particularly on private land, is key element to meet improved habitat conditions in the John Day catchment. SWCD has, or can obtain, technical expertise to address conditions and needs on private land has reported consistent accomplishments over the last several years.

Actual project objectives are generally qualitative regarding riparian and habitat outcomes to be achieved. They focus primarily on numbers of agreements and miles of stream per year.

There appears limited coordination, other than with the ODFW JDEP and Wheeler and Wasco County riparian buffer programs, with the variety of other restoration projects in the basin. This array of programs does not seem to be unified by an overarching strategy and accompanying list of geographic and treatment priorities.

The proposal notes that there are 7 priority locations for restoring natural riparian vegetation and 4 priority geographic locations for protecting high quality habitat. How these are used as a basis for work is unclear. The sponsors state "the SWCD has some programmatic constraints the CREP program limiting our ability to prioritize where buffer work occurs." This apparently relates to the fact that a conservation plan is first prepared for an area (scale not described for this) and then landowners must agree to participate. Overall, it appears that lack of defining how much work needs to occur, where it should occur, and the ability to focus that work remain major issues.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

It is not clear how effective past actions have been in terms of improving fish abundance and productivity, improving instream habitat, for example water temperature, or riparian condition. Limited data on temperature, EDT riparian function ranking, and miles of stream protected by year are provided in the proposal. None of these data specifically address fish. Further the temperature and riparian data appear to be one-time measurements; no temporal trends are provided. Data need to be provided on these and other related aspects of the restoration actions to reveal trends over time. Also, the number of stream miles protected by the program has declined in recent years, and are well below the 10 miles/year goal set for future years. How realistic is the goal for future years? An indication of landowners showing an inclination to adopt riparian protection would be useful.

Adaptive management could go beyond the project level where it is limited to site-specific adaptations for individual conservation plans. While each site may be somewhat unique, there are generalities that would apply to all sites; the adaptive management process could be better used to achieve overall program effectiveness. Hypotheses at the individual project scale or as a collection of sites could be used to rigorously test restoration actions and assumptions. Further, there is some discussion on adaptive management which discusses application of lessons learned for site specific project implementation. It is stated that these changes greatly increased success although no quantitative description is provided. A state-wide, programmatic change which allows treatment of all streams, not just those with anadromous fish, is mentioned and will be a benefit for dealing with water quality issues including elevated stream temperature.

The project has had consistent accomplishments over the last 10 years averaging 7 contracts, 11+ stream miles and 228 acres per year. Details on the ecological response to the work are much less clear despite implementation of an NRCS SVAP monitoring effort looking solely at vegetative response.

There seems limited progress in incorporating suggested changes in prioritization and effectiveness monitoring (ISRP, 2006).

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Gilliam County has developed a relationship with ODFW but the details of that relationship are not especially clear. As well, there is limited linkage to the wide array of other conservation and restoration work occurring in the basin.

It is refreshing to see climate change listed as an emerging limiting factor. The sponsors are encouraged to use the newer climate-hydrology models to prepare forecasts for the John Day River in terms of flows and temperatures for the coming decades (see, for example, Donley et al. 2012. Strategic planning for instream flow restoration: a case study of potential climate change impacts in the central Columbia River basin. *Global Change Biology* doi: 10.1111/j.1365-2486.2012.02773). The results may be revealing and could help guide the restoration activities. Possible program adjustments including wider buffers given more frequent high flow events and use of more drought tolerant plant species should be considered.

4. Deliverables, Work Elements, Metrics, and Methods

In general, deliverables are clearly spelled out although a number appear to be somewhat vague and relate to administration, coordination and oversight. Preparation of conservation plans is a major activity but there is no mention of what the plans should contain and whether they have evolved in response to lessons learned over the last several years. Also, metrics deal with treated areas such as acres and stream miles, rather than the actual, desired vegetative/ecological response that is desired.

Provisions should be made to quantify the number of returning adult steelhead each year and, as well, the use of the streams by adult Chinook, bull trout and lamprey and their juveniles. These data will be essential in evaluating the effectiveness of the restoration actions. Also, a couple questions about the scope of the restoration:

- 1) Beaver can be useful ecosystem-scale engineers in riparian rehabilitation. How are they being used in this project?
- 2) The riparian actions should restore benefits to wildlife, and should be quantified over time. What actions are being taken to acquire these data?
- 3) Does the fencing only exclude cattle or does it exclude native ungulates too? This will be important when active plantings are part of the restoration actions.

Manage and Administer Project (DELV-8): Why is this a deliverable when overhead is charged on the budget?

Specific comments on protocols and methods described in MonitoringMethods.org

Effectiveness monitoring remains weak for the project. An initial ODFW stream survey has been completed on 30 Mile Creek, where there are a number of treatments in various stages of implementation/completion. Follow up surveys are planned to evaluate changes that may have occurred. There are no target attributes or expected changes described and a follow up survey has not occurred. Additionally a standardized visual monitoring protocol (SVAP) has been initiated to evaluate vegetative response (Pre and post) treatment. Apparently only initial surveys have been completed. It seems likely that this method will offer a broad indication of vegetative response. There are no metrics regarding species diversity or density for the vegetation considered to be a desired condition for a recovered riparian area.

198402100 - John Day Habitat Enhancement

Sponsor: Oregon Department of Fish and Wildlife (ODFW)

Short Description: The John Day Fish Habitat Enhancement Program was developed as part of the implementation of the Northwest Power Planning Council's Fish and Wildlife Program (NPPC 1987). The John Day subbasin supports the largest remaining wild runs of spring Chinook salmon and summer steelhead in Northeast Oregon. The primary goal of the John Day Program is to improve ecological river functions on private lands for anadromous fish, thereby maximizing opportunities for freshwater productivity.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP's concerns, questions, and comments can be dealt with in contracting, project document development, and future reviews.

1) The sponsors should clarify the role of ISEMP's IMW projects in M&E. If the sponsors are relying on the IMWs to provide site and reach scale evaluations of the effectiveness of various kinds of habitat actions, they should be certain that the IMW project has reached the point where its results can be extrapolated to the sponsor's project within the current project period and, if not, when this can be expected to occur.

2) This project appears to be a solid program that is continuing important work. Some additional work to refine the program through strategic site selection, longer term agreements with landowners, and a more clearly stated plan for long term monitoring would improve effectiveness and efficiency and should be considered.

3) The sponsors should ensure that their project is closely coordinated with the Confederated Tribes of the Warm Springs' project, including identifying priority locations for restoration and

division of activities. They should identify plans to cooperate with BPA's Action Effectiveness Monitoring program.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The goal of this project is to enhance riparian and instream habitat through fencing, planting in riparian areas, non-native plant eradication, and improvements in passage. The work is intended to benefit recovery of ESA listed summer steelhead and spring Chinook salmon. The sponsors provided a thorough review of current knowledge of the effects of grazing on habitat and fish in the John Day basin. They also provided a program summary in response to the 2008 ISRP review which had a lengthy discussion of projects and accomplishments. The report was informative and provided evidence of ecological responses to riparian restoration.

The project appears to be well-coordinated with an array of other programs and projects in the John Day subbasin. It is consistent with the FCRPS BiOp, the Oregon Plan for Salmon and Watersheds, and the Grande Ronde Subbasin Plan.

The sponsors plan to develop relationships between a measure of freshwater productivity (the residuals of the relationship between smolts/redd or smolts/ number of redds) and habitat variables at the watershed scale to determine which variables are having the greatest and least impact on fish productivity. The sponsors assert that using residuals filters out the effects of density-dependence. The results of this analysis are intended to guide future habitat enhancement actions.

The sponsors are moving in the right direction in trying to sort out the effects of habitat variables and density-dependence on freshwater fish productivity. Using the residuals from the regression of smolts/redd (or spawner) against number of redds will remove the linear effect of number of redds. Another approach the sponsors should consider, which would provide more information, would be to use multiple regression with smolts /redd regressed against number of redds and habitat variables in the same model. The advantage in this approach is that it would determine how much correlation there is among the habitat variables *and* number of redds. Another consideration is that the sponsor's analytical approach is not able to determine which life stage, for example egg-fry or fry-parr survival, is being benefitted most by habitat enhancement. They should consider using life stage specific measures of productivity and survival.

The goal of the project is clear. It is intended to improve ecological river function on private lands. The sponsors present two rather general objectives, the first of which largely restates the project goal in slightly more specific terms. The objectives are stated in qualitative terms and lack a time frame for expected response. These objectives should be re-stated in more quantitative terms.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

A large number of enhancement projects have been implemented since the inception of this project. The program has a long history and reports "restoring" nearly 200 miles of stream. A little surprising is the fact that, although response times of habitat to enhancement actions are slow (15-30 years), current agreements with landowners expire after 15 years. It would be beneficial for habitat recovery if there was a movement toward longer-term agreements with landowners, given the investments made and longer expected response times for habitat recovery. Additionally, there was no mention of how enhancement sites were selected, and if and how that process has been improved over time to be more strategic and effective. It would seem that with the large number of potential stream miles needing treatment (about 50% based on rough estimates provided by ODFW) and the limits to the actual miles that can be treated, a strategic approach for treatment area selection would be critical.

Although not quantitative, a series of more than 250 photo points for 42 projects is discussed and examples provided. These show good visual characterization of riparian response with a reported 87% positive response. There was no mention if there had been an effort to stratify sites by channel and valley type or even stream order to see if there might have been informative relationships. Additionally temperature, bank stability, neotropical bird counts, and channel transects have been used and, although quantitative results appear limited, those reported in the proposal indicate some promising trends. It appears that currently only channel transects and bank cover measurements are being used, but there is no discussion of why other channel morphology parameters were not reported.

In their latest review of this project (ISRP 2008-8) the ISRP expressed serious concern that habitat results were not adequately reported and wondered if an M&E plan was even in place. To a degree this concern still exists. Although some fish data were analyzed quantitatively at the watershed scale, presumably as part of the Middle Fork John Day River Intensively Monitored Watershed (MFJDR IMW) project, little analysis and interpretation of habitat data are presented, and no RM&E protocols are identified in the proposal.

The sponsors provide a rationale implying that there may be little need for them to conduct comprehensive site specific M&E in the future. Apparently the effectiveness of the suite of habitat enhancement projects implemented in the upper Middle Fork, including those executed by this project, will be inferred from work being conducted by the MFJDR IMW. The IMW will determine freshwater productivity (smolts/redd) at a location downstream from multiple sites where habitat enhancement actions have been implemented. The IMW project thus is intended to evaluate the cumulative effectiveness of all upstream habitat enhancement actions. This type of watershed or "population" scale evaluation is appropriate and could yield valuable information on freshwater productivity of focal species. It would have been useful if the sponsors stated what proportions of these sites were implemented by their project.

The sponsors contend that site specific M&E can be compromised by fish movement into the treated sites from areas outside them. Fish movement has been considered as a confounding

factor in several studies evaluating fish response to habitat enhancement. Fish movement, however, could be viewed as a positive outcome of a restoration action. For example, if juvenile fish move into a newly created pool or into a fenced reach where habitat is recovering, they may have moved to these areas from less favorable habitat. The inference is that as a consequence of movement from less to more favorable habitat, fish survival and growth and subsequently freshwater productivity may improve. Movement, then, is a benefit to fitness and so can be viewed not as a confounding factor in evaluating effectiveness of a habitat project but as a positive outcome of the project.

In lieu of conducting site level effectiveness monitoring of habitat actions, the sponsors are relying on work being conducted by the Bridge Creek and Middle Fork John Day IMW to establish a “cause-effect relationship between habitat restoration and fish response” at the site or reach scale. Supposedly, the benefits for fish of particular kinds of site specific habitat enhancement actions, for example fencing and beaver dams, will be determined by this work. From the IMW results, the sponsors will infer effectiveness of their projects so alleviating their need to monitor each of them.

There is some justification for this approach as one of the purposes of ISEMP is to evaluate effectiveness of individual kinds of habitat restoration actions, recognizing that there is neither time, nor funds to evaluate individually the hundreds of habitat enhancement projects in the Columbia Basin. The sponsors, however, do not discuss whether ISEMP has reached the stage where their results can be applied to this project and when those results are expected. Nor is it clear that IMW results will be generalizable to all sites. There was no mention of future coordination or involvement with the Action Effectiveness Monitoring program. A base level implementation and compliance monitoring for each treatment type should be considered to augment IMW monitoring.

A variety of lessons learned and how they have changed project design and implementation is provided.

Evaluation of Results

This project began in 1984, and during this time has implemented an impressive number of habitat enhancement projects on private lands. The project appears to be well-managed and continues to produce expected products. It appears to enjoy good relationships with local landowners which should ensure its continued success.

Since its inception, the project has almost exclusively been dedicated to implementation of enhancement projects and has conducted only very limited effectiveness monitoring. Very little quantitative data pertaining to effectiveness monitoring was presented in the proposal and in its annual reports. Although M&E has been mentioned in all annual reports, the only monitoring information that was reported consisted primarily of informative photo points and limited data on stream temperature and channel morphology at selected restoration sites. The sponsor’s rationale for lack of M&E is that watershed-scale effectiveness monitoring and site

specific evaluation of particular kinds of enhancement actions is the purview of ISEMP's IMW projects thus alleviating the need for M&E by this project. Whether M&E should be the responsibility of the IMW's or the individual projects continues to be a concern for many habitat enhancement actions in the interior Columbia basin.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Program activities appear to be well coordinated with tribal, state, federal agencies, and private landowners. Of particular importance is the apparent positive coordination with land management agencies that are responsible for about 1/3 of the upper watershed but a disproportionate share of higher quality habitat. This project closely coordinates with ISEMP and will rely on results of ISEMP's work in Intensively Monitored Watersheds in the John Day to determine whether particular enhancement actions produce positive benefits for habitat and fish.

The sponsors provided a good review of possible climate change effects on fish in the Mid-Columbia. They maintain that the enhancement actions they are undertaking may help to detect and ameliorate these changes. There was a detailed discussion regarding the role of healthy riparian ecosystems as a hedge against climate change. There was no mention of improved connectivity as a similar important consideration. Additionally, there was no mention of issues like minimum stream flows or long term forest health, land use, and resource management changes that are, or could likely occur.

4. Deliverables, Work Elements, Metrics, and Methods

The Deliverables seem straightforward. There are no deliverables for M&E. Again, it appears that a very limited M&E program mostly involving photo points is in place.

Specific comments on protocols and methods described in MonitoringMethods.org

A variety of past monitoring activities were discussed and some results from them were discussed. Examples of periodic before and after photos for multiple years were provided. These examples showed clear visual tracking of vegetation response to habitat enhancement. It appears that monitoring activities have consisted of photo points and bank cover and channel transect monitoring at a few sites. There was no discussion of why these particular measures were selected. There should be more emphasis on monitoring to understand why some plantings and other activities work or do not work in particular situations.

[200003100](#) - Enhance Habitat in the North Fork John Day River

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: This project protects, enhances, and restores functional floodplain, channel and watershed processes to provide sustainable and healthy habitat and water quality for aquatic species in the John Day River Subbasin. This project will achieve biological objectives and strategies established in the John Day River Subbasin Plan, address limiting factors in the FCRPS BiOp and Fish Accords and support physical and ecological conditions for the CTUIR First Foods Framework and the Umatilla River Vision.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

There are potentially many good aspects to the proposal, but the proposal's narrative and the responses to several of the ISRP's qualifications are unclear. The main qualifications are that the sponsors need to better explain the proposal rationale and to enlist the collaboration of specialists to aid in project implementation and evaluation. It is also important that relevant RM&E efforts outside this project are well coordinated with project activities listed in this proposal. More specifically, the sponsors need to address several issues that arose from their responses to the ISRP's questions on the original proposal:

Response No. 2: The goal is much broader than the stated objectives of the project. The goal should be revised to reflect a balance with the objectives, or vice versa. As presented the objectives are not comprehensive enough to attain the goal.

Response No. 3: The objectives should be stated in quantitative terms and time lines provided. As stated, the Deliverables are generally fine, but since the Objectives are not stated quantitatively, these need to be so. Quantitatively recasting the deliverables as environmental benefits or improvements expected to be realized after the individual projects are completed is essential to evaluate the project success.

Response No. 5: The ISRP would still like to see the monitoring results collected since 2007. Please provide appropriate metrics and data to show that the restoration actions are making progress.

Response No. 7: What is being done to control or eradicate non-native fishes? If this is an important issue with respect to the recovery of native salmonids, as it seems to be, it should be a program component.

Response No. 9: The response does not address the question about how fish monitoring data are used to evaluate the effectiveness of habitat projects and only partially addresses specific collaborations between projects. The ISRP needs more fully developed responses to these questions in order to evaluate the proposal. As well, the ISRP expects that considerable ongoing collaboration will occur among the various programs.

Response No. 10: The ISRP would appreciate clarification to the following issue: The sponsors state that they will reconcile their monitoring plan with other habitat monitoring plans such as CTUIR's Fisheries Habitat Monitoring Plan, CHaMP and ISEMP, but more description is needed on what will be done.

The ISRP is unsure what the response to No. 11 means. Please provide a revised response for consideration by the ISRP.

Response No. 15: The details of cost-sharing, who will do the work among the partners, and timelines for completion, are not provided under Response No. 3. Please provide them.

Response No. 16: Issues of data management, as requested in the ISRP qualification, are not addressed under Response No. 5. They should be described in a response.

Responses to these qualifications should be submitted for ISRP review by the end of 2013.

Comment:

See the ISRP's qualifications statement above.

Preliminary ISRP comment requesting a response:

This is a very ambitious project that should proceed in prioritized stages or program phases. CTUIR should prioritize actions and implement them as a means to develop expertise and better achieve success. Further, the sponsors should consider establishing a scientific advisory committee to assist with the staging of project phases and prioritization of activities.

The sponsors need to address the following issues in a response:

The status and direction of the RM&E program needs clarification. Are the sponsors modifying the program and, if so, how? What changes will be made and why? What is the status of data analysis? Is data analysis ongoing and, if so, when can results be expected? What is the relationship between this project's RM&E and CTUIR's Biomonitoring Plan and Fisheries Habitat Management Plan? How is the RM&E for this project similar to and different from these plans? If the sponsors are modifying their RM&E, what specific elements of the two plans will be incorporated?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The project is consistent with a number of regional plans including the John Day Subbasin Plan, the Mid-Columbia Steelhead Recovery Plan, the FCRPS BiOp, and the Fish Accords Agreement. The North Fork John Day supports the largest populations of ESA-listed spring Chinook salmon and summer steelhead, and maintains some of the highest quality habitat in the subbasin. In

general, the technical background adequately reviews limiting factors and fish population abundances in the study area.

Nevertheless, this was a difficult proposal to understand and evaluate, for three main reasons:

The proposal was poorly written in terms of clarity of ideas and actions, extensive use of vague words to describe outcomes, and use of acronyms without definition. Proofreading was also needed. The document should be carefully edited. In a number of instances statements in the same paragraph appear to contradict each other.

The goal of the project was not clearly stated. For example, in the Executive Summary the goal/purpose of the project varies in three separate paragraphs. In the first instance, it is stated as “This project protects, enhances, and restores functional floodplain, channel and watershed processes to provide sustainable and healthy habitat and water quality for aquatic species in the John Day River Subbasin.” In the second instance it is stated as “The purpose of this project is to protect and enhance habitat for improved natural production of indigenous, Mid-Columbia River (MCR) Evolutionary Significant Unit (ESU) summer steelhead (*Oncorhynchus mykiss*), listed as threatened under the Federal Endangered Species Act (ESA), and spring Chinook salmon (*Oncorhynchus tshawytscha*) within the North Fork of the John Day River Basin.” In the third instance it is stated as “The goal of the CTUIR North Fork John Day Habitat Enhancement Project (the Project) is to protect, enhance, and restore channel, riparian, and floodplain function and function relating these locations to upland adjacent upland areas using a ‘ridge top to ridge top’ approach to provide sustainable and healthy habitat and water quality for aquatic species in the North Fork John Day River Subbasin.” Although related in spirit, these are not the same. As such, it was very difficult to equate objectives and evaluate activities in the proposal to the stated goal.

Ten Objectives are provided but, for several, there are no deliverables (OBJ 4, 7, 8, 9, and 10). The topics related to the Objectives are discussed in the text, and they are listed as important concerns, but it is not clear how they will be addressed.

There is no overarching model or form of Structured Decision Making to guide the activities or set priorities, and this hampers taking a comprehensive approach to restoration. The activities, while individually important, are not treated as an integrated network of sites and actions chosen for their effectiveness at meeting clearly stated goals. Further, many sites are not monitored to determine if the actions have been effective, thereby undermining the Adaptive Management process.

A coherent discussion of the strategy for selecting and prioritizing restoration sites would have improved the proposal. In particular, since the NFJD supports significant areas of high quality habitat, it would be helpful to know how the project sites are located relative to these habitats and whether the location of these areas is considered in site selection.

The objectives appear sufficient to address the major limiting factors in the North Fork John Day.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

A number of habitat enhancement projects have been initiated in the North Fork John Day since the project's inception. While the sponsors summarized habitat enhancement actions for a number of projects, discussed the outcomes of these actions to date, and provided pre-and post-project photographs, few quantitative results were presented. Has the monitoring data been analyzed and, if not, what are the plans for data analysis? The project needs to establish a comprehensive model or institute Structured Decision Making, as well as monitoring, to guide actions and evaluate outcomes.

During the 12-year project history, the CTUIR has helped administer and implement 29 efforts, developed 26 stock water sites to help protect 9.7 miles of stream channel, and entered 1600 acres of riparian, floodplain, and upland areas into Conservation Agreements. Additional cooperative work constructed 24.75 miles of riparian exclusion fence outside of the Conservation Agreements, replaced 5 passage barriers, provided weed control on over 300 acres, and redistributed 276,640 cubic yards of mine tailings. Additional work to develop efforts which did not mature included a fence construction, a watershed analysis, and a range inventory in the Desolation GA, aspen plantings with associated fencing along Upper Owens Creek (Lower Camas Creek GA), guzzler development above Rudio Creek (Lower NFJD GA), and road stabilization above Ukiah, Oregon (Lower Camas Creek GA) where landowners backed off of cooperative efforts, and one boundary fence and culvert replacement in the Desolation Creek GA dropped due to a shortfall in available funding. This equates to ~2.4 efforts annually, ~3 miles of stream protection, and ~133 acres of conservation.

Due to the lack of consistent monitoring, it is not clear that the individual or collective actions are having positive effects on focal species or environmental concerns. Further, without a general model or Structured Decision Making, it is not clear that the efforts are targeted at sites with a strong potential for aiding species' recovery or ameliorating environmental concerns.

Several topics, which the ISRP suspects are locally important, are only lightly touched upon in the proposal. These are invasive non-native plants in riparian areas, impacts of non-native fishes on native populations, use of agricultural chemicals (toxics), browsing by native ungulates in restored areas, and strategies concerning beaver. These should be addressed in a substantive way in the proposed actions.

The ISRP is surprised and concerned that climate change models and scenarios are not consulted when planning activities. After all, on-the-ground activities need to be resilient to future environmental changes; there are several "user friendly" techniques available.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsors could have provided a more detailed discussion of the relationship between their project and others that are ongoing in the North Fork John Day. For example, how are fish monitoring data collected by Project 1998-016-00: "Escapement and Productivity of Spring Chinook and Steelhead" used to evaluate the effectiveness of the habitat projects? In addition, the sponsors could have discussed in more detail the coordination with ODFW's John Day Habitat Enhancement project (1984-021-00). For example, what sort of collaboration between the projects is occurring? Are sites being selected in a complementary way so as to optimize the potential benefits of habitat enhancement actions?

The status of the RM&E program, especially of effectiveness monitoring, and whether there are plans to modify the program, as the proposal implies, needs clarification. A concise overview of the M&E plan would be helpful including whether data collection at project sites and data analysis is currently being undertaken. The sponsors state that they will "reconcile" their monitoring plan with other habitat monitoring plans such as CTUIR's Fisheries Habitat Monitoring Plan, CHaMP and ISEMP but it is not clear what they mean by "reconcile." The sponsors present a lengthy discussion of CTUIR's Biomonitoring Plan. How does this Plan relate to current project monitoring? Will elements of the Biomonitoring Plan be incorporated into a revised M&E plan for this project? Clarification of the status and direction of the project's monitoring program is needed.

The sponsors recognize climate, non-native plants, predation, and toxic chemicals as emerging limiting factors – and this is good to see. However, in reality, these are not emerging limiting factors but ones that are already present at significant levels. As such, they should be addressed directly by program actions.

There are ongoing program relationships with landowners, the U.S. Forest Service, local counties, and others. It is a small community, and the ISRP suspects there is ongoing communication at several levels. Our deeper concern is at a larger spatial scale. There are several other entities in the region proposing similar restoration actions. Efforts should be made by all entities, and coordinated by the Council, BPA and other funding agencies, to see that working relationships are established at the larger spatial scale. This will encourage local learning and build regional adaptive capacity.

4. Deliverables, Work Elements, Metrics, and Methods

Although the sponsors refer to monitoring methods and metrics in MonitoringMethods.org, the extent of this project's monitoring in the North Fork, especially effectiveness monitoring, is unclear.

There are no deliverables for 5 of the 10 Objectives; this is mentioned above. The Objectives need to be recast as quantitative statements to identify specifically and quantitatively what will

be achieved and provide realistic timelines. The deliverables need to reflect this quantitative approach.

Many of the deliverables, as stated, are generally fine. However, there are numerous specific questions about details of cost-sharing, who will do the work among the partners, and timelines for completion.

Data management: It appears that there is some in-house data management and perhaps some cooperation with partners, but the levels of sophistication and analyses are far from clear. These aspects should be fully articulated in a revision to this proposal.

Specific comments on protocols and methods described in MonitoringMethods.org

No comments at this time.

[200203400](#) - Riparian Buffers in Wheeler County

Sponsor: Wheeler County Soil and Water Conservation District (SWCD)

Short Description: Wheeler SWCD will provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the John Day Subbasin. The main goal is to establish riparian buffers on at least 50 miles of stream (10 mi/yr). This project is important because it helps implement FCRPS 2008 BIOP RPA 35, and strategies to address limiting factors identified in subbasin plans and Mid-C Steelhead Recovery Plan.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The sponsors provided adequate responses to all of the ISRP's qualifications of the original proposal, with the exception of one item. The exception, and the reason for the qualification on this version of the proposal, is that the ISRP believes that the sponsors need to provide a reasonable plan/strategy to monitor the effectiveness of the restoration actions. This can be accomplished in cooperation with others (e.g., ODFW and OWEB). Further, it appears that much of the baseline strategy could be extracted from the SVAP process elements and used in the objective statements. This could establish a sound foundation for post project monitoring. The monitoring should include all fish species of concern (i.e., steelhead, Chinook, lamprey, bull trout), their food supplies (e.g., aquatic insects) and riparian responses to the conservation and restoration actions. It would be useful in future proposals for the SWCD to involve OWEB and their new staff person in planning a low cost assessment protocol. This work does not need to be expensive to implement. More information on monitoring progress and results should be provided in future reporting.

Comment:

See the qualifications statement above.

Preliminary ISRP comment requesting a response:

This is basically a good proposal, but the ISRP has some concerns. The following issues should be addressed in a response:

- 1) What is the strategy for improving enrollments in light of the recent low rate of enrollment and low miles protected?
- 2) Beaver can be useful ecosystem-scale engineers in riparian rehabilitation. How are they being used in this project?
- 3) The riparian actions should restore benefits to wildlife and should be quantified over time. What actions are being taken to acquire these data?
- 4) Does the fencing only exclude cattle or does it exclude native ungulates too? This will be important when active plantings are part of the restoration actions.
- 5) What provisions are being made to quantify the number of returning adult steelhead each year and the use of the streams by adult Chinook, bull trout and lamprey and their juveniles?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of the proposal is for Wheeler County SWCD to “provide technical assistance working with landowners and partner agencies to plan and implement riparian buffers to improve anadromous fish habitat in the lower John Day Subbasins.” They plan to establish riparian buffers on at least 50 miles of stream (10 mi/yr). Wheeler County believes that this project is important because it helps implement FCRPS 2008 BIOP RPA 35 and strategies to address limiting factors identified in subbasin plans and the Mid-C Steelhead Recovery Plan. As such, it supports other BPA funded projects in the John Day catchment. The staff involved appears to have adequate technical training and experience to accomplish the proposed activities.

The objectives are clearly stated and have quantitative goals and timelines. However, it is not clear how a goal of 24,900 adult steelhead in 25 years was determined. Further, there are no quantitative goals for Chinook, bull trout, or lamprey, which are all species of concern.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

It is not clear how effective past actions have been in terms of improving fish abundance/productivity, instream habitat, or riparian condition. Few data are provided in the

proposal – only temperature, EDT Riparian function ranking, and miles of stream protected by year – and none specifically address fish. Further the temperature and riparian data appear to be one-time measurements; no temporal trends are provided. Data need to be provided on these and other related aspects of the restoration actions to reveal trends over time. Also, the number of stream miles protected by the program has declined in recent years and are well below the 10 miles/year goal set for future years. How realistic is the goal for future years? An indication of landowners showing an inclination to adopt riparian protection would be useful.

Adaptive management could go beyond the project level where it is limited to site-specific adaptations for individual conservation plans. While each site may be somewhat unique, there are generalities that would apply to all sites; the adaptive management process could be better used to achieve overall program effectiveness. Hypotheses at the individual project scale or as a collection of sites could be used to rigorously test restoration actions and assumptions.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Wheeler County has developed a relationship with ODFW, but the details of that relationship are not especially clear.

It is refreshing to see climate change listed as an emerging limiting factor. The sponsors are encouraged to use the newer climate-hydrology models to prepare forecasts for the John Day River in terms of flows and temperatures for the coming decades (see, for example, Donley et al. 2012. Strategic planning for instream flow restoration: a case study of potential climate change impacts in the central Columbia River Basin. Global Change Biology doi: 10.1111/j.1365-2486.2012.02773). The results may be revealing and could help guide the restoration activities.

4. Deliverables, Work Elements, Metrics, and Methods

All seem adequate to meet the Objectives. However, provisions should be made to quantify the number of returning adult steelhead each year and, as well, the use of the streams by adult Chinook, bull trout and lamprey and their juveniles. These data will be essential in evaluating the effectiveness of the restoration actions.

A couple questions about the scope of the restoration:

- 1) Beaver can be useful ecosystem-scale engineers in riparian rehabilitation. How are they being used in this project?
- 2) The riparian actions should restore benefits to wildlife, and should be quantified over time. What actions are being taken to acquire these data?
- 3) Does the fencing only exclude cattle or does it exclude native ungulates too? This will be important when active plantings are part of the restoration actions.

Manage & Administer Project (DELV-8): Why is this a deliverable when overhead is charged on the budget?

Specific comments on protocols and methods described in MonitoringMethods.org

No comments at this time.

L. Umatilla River

[198710002](#) - Umatilla Anadromous Fish Habitat-Oregon Department of Fish and Wildlife (ODFW)

Sponsor: Oregon Department of Fish and Wildlife (ODFW)

Short Description: The Umatilla Anadromous Fish Habitat Program was developed following a directive by the Northwest Power Planning Council's Fish and Wildlife Program (NPPC 1987), which calls for the rehabilitation of Umatilla River salmon and steelhead populations (Section 703)(c)(1). ODFW is implementing fish habitat improvement projects as part of its mission statement: "To protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations."

ISRP response loop recommendation: Meets Scientific Review Criteria

Comment:

ODFW has provided a thoughtful and reasonably complete response to the ISRP's questions. In particular, it is now apparent that more flexibility exists in project prioritization and lead responsibility assignment than existed when ODFW and CTUIR basically maintained largely separate geographic responsibilities. We view the evolving relationship between the two entities as a healthy indication of improved collaboration.

In 2010, ODFW, along with the CTUIR and other key partners in the basin, formed the Umatilla Basin Restoration Team. Participation in the team has led to greater coordination, resource sharing, and a reduction in duplication of restoration efforts between ODFW and CTUIR. Participation in the Basin Restoration Team has also promoted some data sharing between ODFW and the CTUIR. Yearly prioritization of projects continues to be guided by the Umatilla/Willow Subbasin Plan. Effectiveness monitoring of the ODFW's Anadromous Fish Habitat projects in the Umatilla falls under the purview of other associated projects. The sponsors, however, state they will continue to work with BPA to determine if any of their proposed projects may be candidates for inclusion in the AEM program.

ODFW and CTUIR do not use shared databases but claim that data are being shared among members of the Umatilla Basin Restoration Team. A formalized arrangement should be put into place so that responsibilities of each party for data sharing, custody, response to data requests, are clear. The recent document on Data Management from BPA discusses some of the issues that need to be addressed.

Evaluation of Results

The Umatilla subbasin is a good example of a river system that has achieved real progress in cooperation between management entities in identifying and implementing restoration actions, In particular, the working relationship between ODFW and CTUIR has led to a wide variety of

habitat improvements in areas that have been highly altered. The ISRP continues to believe that biological effectiveness monitoring in the Umatilla has lagged somewhat behind the progress made in on-the-ground implementation. We feel the highest current RM&E priority is to understand factors that limit survival in the mainstem Umatilla River and what can be done to remedy problems.

Preliminary ISRP comment requesting a response:

This is a worthwhile project that is implementing important restoration actions primarily in the mid- and lower Umatilla subbasin. The ISRP requests additional clarification of the relationship between this project's activities and those of the tribal Umatilla anadromous fish habitat project (1987-100-01).

- 1) What methods are used to ensure coordination and resource sharing?
- 2) How is duplication of effort avoided?
- 3) How are restoration priorities established from year to year?
- 4) Have any provisions been made for data co-management?
- 5) What will be this project's role in long-term biological effectiveness monitoring?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The significance to regional programs and technical background were adequately explained. This project continues a long-term ODFW program of restoring fish habitat in the Umatilla subbasin with emphasis on two important anadromous salmonid spawning and rearing tributaries – Birch Creek and Meacham Creek. The objectives of this proposal are to continue the maintenance of existing restoration sites involving dam removal, bank stabilization, riparian revegetation, noxious weed control, riparian fencing, and to continue the effort to improve fish passage, instream habitat, flow augmentation, and water quality including primarily stream temperature and sediment. The project's objectives are consistent with the goals of the Fish and Wildlife Program, recovery plans for listed fishes, and the Umatilla Five year Action Plan.

Restoration activities have been guided by several regional plans, the Umatilla/Willow subbasin plan, the Mid-Columbia River Conservation and Recovery Plan for Oregon Steelhead, and an expired five-year action plan developed for the project that was designed to recover and maintain habitat in the Umatilla subbasin.

The project has two objectives, to restore and enhance riparian areas and stream ecosystems in Birch Creek and to maintain existing fish habitat improvement projects in Birch and Meacham Creeks. It provides ODFW with a way to restore degraded habitat, create cooperative

agreements with local landowners, maintain existing restoration actions, and engage in outreach and education. Consequently it is an important regional program.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

According to the proposal, this is an implementation project that involves very little RM&E; therefore, accomplishments and results are presented as units of habitat improved (34 projects along 25 miles of stream protecting 449 acres of riparian and instream habitat) rather than estimates of increased fish productivity. In general, the descriptions of previous habitat restoration actions were clear, and the proposal suggests that future actions will be more of the same. Although the proposal lacked some specificity about what would be done over the next four years, it did state that the primary objective would be to remove another irrigation dam and to maintain a number of existing restoration sites. The before-and-after photographs were helpful, but they mostly dealt with irrigation dam removal and not with other types of activities.

Thirty-three cooperative agreements have been established between private landowners and project personnel. These arrangements allow the project to lease and protect lands and carry out restoration actions on private lands. They typically last from 10 to 25 years. While the agreements are in place the project makes annual inspections and performs maintenance as needed. After expiration, the private landowners are expected to maintain the restoration actions that took place on their lands. Currently there are 16 active and 17 expired cooperative agreements.

Since its inception, the project has made a number of adaptive management changes. Placement of riparian fencing was changed to account for impacts of flooding. Additionally, the types of plants used to restore riparian vegetation have changed over time. Originally rooted stock was planted soon after a project was completed. Now, they allow natural adjustments to restored habitat to occur before planting, and cuttings of willow and cottonwood rather than rooted plants are predominately used. Rooted plants are still utilized; however, they are now grown in deeper pots to create longer root systems to reduce watering and maintenance after planting.

The project sponsors acknowledged that more effectiveness monitoring was needed, but lack of funding has hindered the development of an adequate monitoring program.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The description of deliverables and work elements suggests that there is broad overlap between this project and the Umatilla habitat restoration project administered by the CTUIR. The relationships between the ODFW and CTUIR efforts that involve coordination, resource sharing, and identification of priorities need to be clearer. How do these two projects, which address a variety of fish habitat problems in the Umatilla River and tributaries, work together to maximize efficiencies? The site visit was helpful, but we still have questions about information exchange between the two projects.

The section on emerging limiting factors focuses on climate change impacts but does not describe what steps might be taken to make the stream and riparian ecosystems more resilient. Some acknowledgment of the spread of invasive species including which ones are likely to pose future problems would also be helpful.

Project personnel work with the CTUIR, USACE, Umatilla Basin Watershed Council, Umatilla Soil and Water Conservation District, BOR, Oregon Water Resources Department, OWEB, and Blue Mountain Habitat Restoration Council and private landowners in the Birch and Meacham Creek subbasins. They also serve on the Umatilla watershed restoration team which meets quarterly to coordinate habitat restoration actions with local partners in the Umatilla basin.

Increased air and stream temperatures, reduced snow pack levels, snow to rain transition, earlier and higher peak stream flows, lower summer through fall stream flows, increased periods of drought, more frequent and extreme storms, changes in ocean conditions, and more severe fire events all brought about by climate change were identified as the major emerging limiting factors.

4. Deliverables, Work Elements, Metrics, and Methods

The project has nine deliverables that include establishing cooperative agreements with landowners, writing and procuring grants to implement restoration projects, removing fish migration barriers, constructing riparian fencing and re-vegetating protected areas, stabilizing stream banks and channels, maintaining restored habitat and fencing, collecting temperature and stream flow data, and education and outreach. Project selection appears to be opportunistic to a certain extent as cooperative agreements with private landowners must be in place before a restoration action can occur. Proposed projects are, however, reviewed by CTUIR, Soil and Water Conservation District, BOR, U.S. Forest Service, ODFW, and the USFWS staff. No formal process for selection was described.

More information is needed on the procedures used to identify restoration priorities and sharing of duties with CTUIR. Do these two projects use the same methods to identify candidate restoration sites and habitat improvement techniques? Although the proposal states that the project does not monitor and evaluate effectiveness, more information is needed on how effectiveness monitoring will be coordinated if and when additional funding becomes available. In particular, what will be ODFW's role in managing the monitoring program? The ISRP understands that an integrated effectiveness monitoring program has taken shape more slowly than hoped, but this proposal, as well as others in the Umatilla subbasin, should be proactive in being ready to implement effectiveness monitoring as funding becomes available. This includes identifying locations where no restoration will occur, and which will serve as unenhanced reference sites.

Recently, three M&E projects have begun. Smolt monitoring is now occurring in Birch and Meacham Creeks as well as in the upper Umatilla River. Little habitat restoration has apparently occurred in the headwaters of the Umatilla River, so it will be possible to compare smolt

production from watersheds with varying amounts of restoration activity. Steelhead redd surveys are now also occurring using a GRTS approach. Visual inspections of existing restoration projects are made annually and repairs are made as needed. It would be helpful however, if additional data were collected. For example in areas with riparian fencing some measure of plant cover, species present, solar radiation over the streambed, insect production or other metrics should be routinely collected over time to track how the habitat has responded. In general, some form of action effectiveness monitoring should be taking place.

Specific comments on protocols and methods described in MonitoringMethods.org

According to the proposal no RM&E will occur; however, the proposal also states that the project monitors stream temperatures at 9 locations and streamflows at 2 permanent gauging stations. Whether this monitoring is consistent with MonitoringMethods.org was not clear.

198710001 - Umatilla Anadromous Fish Habitat-Umatilla Tribe

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: This project will protect, enhance, and restore functional floodplain, channel and watershed processes to provide sustainable and healthy habitat and water quality for aquatic species in the Umatilla River Subbasin. This project will achieve biological objectives and strategies established in the Umatilla Subbasin Plan, address limiting factors in the FCRPS BiOp and Fish Accords and support physical and ecological conditions for the CTUIR First Foods Framework and the Umatilla River Vision.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The response states that project sponsors are unable to engage in additional RM&E, as the ISRP suggested, without additional support. If that is the case, two qualifications are required to ensure that the project meets scientific criteria:

1) Monitoring plans for each project site should be clearly referenced in the BPA statement of work/contract. If any biological effectiveness monitoring will take place at a site through the efforts of other programs (for example, ISEMP, AEM, or the CTUIR effectiveness monitoring project), there should be a description of how such monitoring information will be utilized in this project. If monitoring will be limited to design assessment monitoring, it should be clear that the restoration site will not include biological effectiveness monitoring or inclusion in the CHaMP habitat status and trends monitoring program.

2) The project sponsors should be strongly encouraged to add additional sites to the AEM or ISEMP networks. The ISRP is very impressed with the monitoring taking place at Meacham Creek. However, restoration actions at some other Umatilla sites address limiting factors for

which the Meacham Creek work is not particularly applicable, and therefore the Meacham Creek restoration monitoring should not be used as a surrogate for all other habitat improvement projects in the subbasin. Adding other restoration sites to the AEM or ISEMP network will expand monitoring coverage to a greater range of environmental issues in the Umatilla River system.

Comment:

The sponsors state that this project is not tasked with implementing action effectiveness monitoring. Instead monitoring will be performed by projects that are referenced in the “Relationship to Other Projects” portion of their proposal. They will, however, work with BPA and Council Staff to determine whether their proposed restoration actions could be considered for use in a future AEM or ISEMP monitoring programs.

Comments on sponsor responses to specific ISRP questions:

1) Fish population sampling by species. For example, bull trout are not listed as a focal or secondary focal species but this threatened species is apparently present in the upper Umatilla system. Is any of the restoration work specifically targeted at bull trout or lamprey?

The response asserts that the restoration efforts are comprehensive and will benefit all native aquatic species, although the emphasis is clearly on anadromous salmonids. Statements about limiting factors, while plausible, should be backed up with field data, i.e., evidence that clearly shows an improvement in some aspect of native fish life cycles when a limiting factor is addressed. The Meacham Creek restoration efforts, for example, will likely benefit native fishes and freshwater mussels. Hopefully, monitoring will demonstrate improvements in these resources in addition to Chinook and steelhead.

The hypothesis that restoration actions, which are designed to address such factors as water temperatures, high sediment loads, and channel simplification, will benefit multiple species should be tested. For example, will before and after assessments or other types of monitoring be performed to document expected changes in abundance of salmonids, lamprey, and mussels in response to improvements in water quality and physical habitat at restoration sites?

2) How will long-term sustainability of the restoration work be monitored? Some of the improvement projects such as dam removals need little follow-up, but other types of work such as riparian re-vegetation, in-stream structure placement, and bioengineered side channels deserve post-treatment monitoring.

The response indicates that “design assessment monitoring” can take place for up to 3-5 years for “large” projects. Based on the response, we interpret this to mean that project staff members check on the implementation of the restoration action to ensure that the work was implemented as designed and has not been rendered ineffective by some unforeseen factor. While this is very useful information, it is somewhat different from answering the question “did

the project achieve the desired ecological benefits that were intended?” which was why we suggested additional effectiveness monitoring. The ISRP was also hoping that at least some of the project sites would be monitored to determine if periodic maintenance or repairs would be required to maintain desired ecological functions. The response to the question about riparian improvement was excellent, and we encourage vegetation transect monitoring for a time sufficient to show that riparian plantings have not experienced excessive browse damage.

We were encouraged to hear that CHaMP sampling protocols have been established in Meacham Creek, and we urge the sponsors to seek additional CHaMP, ISEMP, or AEM sites on other projects.

3) What is being done to identify production bottlenecks that may be hindering the anticipated response to habitat improvements? Are there other factors that are not currently being monitored that could be included in future monitoring efforts? How can new hypotheses be tested?

It was somewhat unclear how monitoring the production of juvenile steelhead from the Upper Umatilla River, Meacham Creek, and Birch Creek would provide a direct measure of habitat restoration effectiveness unless there was a corresponding (and relatively accurate) estimate of spawning adults in these tributaries, which would enable measurement of changes in smolts-per-adult over time. Hopefully both returning adults and emigrating smolts will be enumerated.

The mainstem Umatilla research should remain a priority. PIT-tagging emigrating steelhead or Chinook at tributary junctions may allow overall estimates of passage survival to Three-Mile Dam, but the actual causes of mortality (e.g., water quality problems, predation, winter habitat deficiencies) cannot be known without developing testable hypotheses that address specific potentially limiting factors. The response does suggest this, but what those testable hypotheses might be and how they would be addressed through monitoring has apparently not yet been described in detail. The CTUIR’s biomonitoring program is mentioned, but additional information in the response would have been helpful.

A collaborative study to identify factors limiting salmonid production in the Umatilla was recently started by the CTUIR and ODFW. The production of juvenile steelhead in Meacham and Birch Creeks and in the Upper Umatilla is being measured. Fish are receiving PIT tags and the survival of these fish to Three Mile Falls Dam is being estimated. Identification of factors that are influencing survival would be accomplished by correlating selected factors with survival. An efficient approach would be to directly investigate the importance of the factors hypothesized to influence survival, e.g. water temperature, predation, stream flow and turbidity, and the abundance of over-wintering habitat. In the case of predation, surveys could be conducted to determine the abundance of potential avian and fish predators and their diets during different times of the year by location. The abundance of juvenile steelhead would also need to be measured at each location during each time period. Additionally, such factors as stream temperature, flow, velocity and turbidity on species-specific predation rates would need to be considered before estimating the potential impact of each predator species on juvenile

steelhead. Directed research of this type would help identify where and what might be reducing juvenile steelhead survival in the mainstem Umatilla River. We realize that the project sponsors have stated that they are not able to conduct such monitoring as part of this project; however, we strongly encourage them to work with partners who are engaged in effectiveness monitoring so that key questions about limiting factors can be answered.

4) An assessment of how these habitat improvements will provide buffering to shocks to the system, for example climate change may increase the variability in precipitation over years. How will the habitat actions deal with a wetter than normal year or a drier than normal year?

The response makes a persuasive case for restoring floodplains to help buffer streams from unusual environmental variability. The response also states, with reference to Meacham Creek, "Restoration of floodplain processes shall be duplicated throughout the Umatilla Subbasin." However, it seems unlikely that floodplain restoration will be significantly enlarged in agricultural lands to the extent seen along Meacham Creek. What can be done along streams where full floodplain restoration is not feasible?

The potential of hyporheic flow to help lessen the impact of high temperatures was adequately discussed, but it was not completely clear how the information from the hyporheic studies would translate into management actions.

Evaluation of Results

The project sponsors have demonstrated an excellent track record of getting things done and working with landowners in a subbasin where receptivity to ecological restoration is uneven. We hold the Meacham Creek restoration effort and accompanying effectiveness monitoring near the gold standard in assessing tributary habitat improvements. However, we are also concerned that some other types of restoration work included in this project may not be receiving the monitoring attention they deserve. Because the CTUIR staff does not possess the resources to carry out the biological effectiveness monitoring that is needed, we strongly encourage continued collaboration with other projects that are engaged in such monitoring in the Umatilla subbasin and also that a few of the restoration sites be considered as candidates for inclusion in the AEM and ISEMP programs.

Preliminary ISRP comment requesting a response:

The proposal contains abundant detail, and the ISRP compliments project sponsors on submitting a thorough description of the project. A little more information is needed on the effectiveness monitoring components. Specifically, we would like additional information on:

1) Fish population sampling by species. For example, bull trout are not listed as a focal or secondary focal species but this threatened species is apparently present in the upper Umatilla system. Is any of the restoration work specifically targeted at bull trout or lamprey?

2) How will long-term sustainability of the restoration work be monitored? Some of the improvement projects such as dam removals need little follow-up, but other types of work such as riparian revegetation, instream structure placement, and bioengineered side channels deserve post-treatment monitoring.

3) What is being done to identify production bottlenecks that may be hindering the anticipated response to habitat improvements? Are there other factors that are not currently being monitored that could be included in future monitoring efforts? How can new hypotheses be tested?

4) An assessment of how these habitat improvements will provide buffering to shocks to the system, for example climate change may increase the variability in precipitation over years. How will the habitat actions deal with a wetter than normal year or a drier than normal year?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is a large project that involves a suite of habitat restoration efforts in the Umatilla subbasin. Many of the activities have been underway for a decade or more; for example, the Meacham Creek floodplain restoration work was in progress when the ISRP last visited the area six years ago. The significance to regional programs, technical background, and project objectives were, in general, explained in considerable detail. The emphasis of the project on re-establishing natural watershed processes is commendable and is consistent with regional plans that call for establishing healthy, sustainable habitats and fish populations.

The Umatilla subbasin is divided into two areas: agriculturally-dominated lowlands and forested headwaters. In this proposal, priority is given to restoration activities in a headwater stream (Meacham Creek), a transitional stream (Birch Creek), and the lower Umatilla River mainstem (agricultural lands). Each stream has its own set of environmental challenges, but they all share a few potentially limiting factors such as stream temperature in common. Likewise, the portfolio of restoration activities in the proposal addresses a variety of restoration issues and is more limited to one or two problems. The ISRP agrees that diversifying restoration actions is more likely to improve the overall spawning and rearing environment of the Umatilla River and its tributaries than focusing on a limited subset of problems.

All actions are predicated on habitat being limiting, but it was not clear which feature of the habitat is limiting, for example is it water temperature, gravel for spawning/eggs/fry, juvenile habitat? In some cases, such as a barrier removal to allow access to spawning areas or fish ladders to improve access to spawning areas, these actions seem immediately justified, but other actions such as noxious weed removal, while appearing to be worthwhile so that native plants can reestablish, need a clearer link to what habitat features are being improved; that is, non-native plants still provide cover.

The project prioritizes where restoration should occur, develops conservation agreements with private landowners, engages in fish passage and habitat restoration, maintains existing habitat

restoration actions, develops and evaluates effectiveness monitoring tools and also performs effectiveness monitoring. And project staff members participate in public processes to review proposed developments in the Umatilla that may adversely impact existing floodplain habitat.

Project activities are guided by the Umatilla River/Willow Creek Subbasin Plan, a five-year action plan co-developed with ODFW, Umatilla River Vision, Conservation and Recovery Plan for Oregon Steelhead Populations in the Middle Columbia Distinct Population Segment, a Bull Trout Recovery Plan, Meacham Creek Watershed Analysis and Action Plan, and the Umatilla and Meacham Watershed Assessment.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The proposal goes into great detail about previous restoration activities, and their progress reports contain many documents authored by one of their principal contractors, TetraTech. Project sponsors state that monitoring, in general, is not focused on individual restoration actions but rather on gaining a basinwide perspective. While this objective is worthwhile, much of the evidence in the results section of the proposal describes project-specific improvements, and we were given limited information about basinwide conditions although the temperature data were an exception. Some of the actions are innovative and have been worth the monitoring effort. The attempt to reconnect hyporheic flow pathways with the stream channel to provide natural nutrient inputs and thermal refugia is a good example.

Because the proposal was so long and there was considerable redundancy in some of the sections, it was a little unclear how the results of the different restoration activities have been incorporated into management changes. Evidence for adaptive management is clear with regard to securing water rights and decommissioning irrigation dams, but the proposal did not provide much detail about how the monitoring program had been altered in response to new findings or questions. In fairness to project sponsors, however, the biological monitoring portion of the project is just now ramping up.

There have been extensive habitat improvements in the past, but these have yet failed to show any evidence of improvements in outcomes. Given the high variation in the natural response over time, this is not surprising. Many habitat actions may not increase the mean responses, but reduce the variability in response; for example, good habitat is better able to buffer populations against disturbances. In future years, rather than reporting on changes in the mean response, some exploration should be undertaken about the resiliency of the system to changes brought about by improvement to habitats.

Most of the project's activities have taken place in the Meacham Creek watershed. The most significant one was renovation of over a mile of simple stream channel into a braided system. To accomplish this over 2,800 feet of levee was removed and complex pools and large woody debris were added. The project has also completed extensive riparian fencing, planted thousands of native plants, monitored stream temperatures, completed CHaMP based surveys in Meacham Creek and classified stream segments in the basin using standard and statistically

derived methods. In addition, the project is developing two new tools to assess habitat restoration actions. One relies on macroinvertebrates and is being developed by Oregon State University. The other employs hyporheic water temperatures and turnover rates and is being developed by Montana State University.

The sponsors hypothesize that high mortality during the juvenile out-migration period may be largely responsible for the inability to demonstrate positive fish responses to tributary restoration. The project is using adaptive management, and results from previous restoration actions are guiding new efforts. For example, new channel restoration efforts are now incorporating designs that promote hyporheic exchange by removing levees and spur dikes to control water temperature. Furthermore, data from a fish use survey were used to identify high use areas and the attributes of these locations are now being replicated in their habitat restoration projects.

This project is a good example of a serious effort to address a variety of habitat improvement issues over an entire subbasin. The missing link in the effectiveness monitoring program is lack of knowledge of mainstem Umatilla River survival. With this added component, the project should be able to demonstrate long-term improvement in abundance and resiliency of target species.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The habitat restoration project is a part of a larger four-part program designed to recover salmonids in the Umatilla subbasin. Other parts include a hatchery program, flow restoration, and fish passage remediation. Project staff coordinate and participate with many agencies, including the Umatilla Basin Restoration Team, ODFW, U.S. Forest Service, Umatilla Soil and Water Conservation District, Umatilla Basin Watershed Council, Freshwater Trust, OWEB, Oregon State University, Montana State University, and Union Pacific Railroad.

Climate change was recognized as an emerging limiting factor. Changes in runoff timing, water quantity, water temperature regimes, and snowpack could have profound effects. Elevated stream temperatures and reduced water flows could also reduce the availability of cool water habitats. Channel restoration efforts that produce sinuous multithreaded channels, however, are expected to provide significant temperature buffering. The current plan is to use such designs and build some resiliency into their restored habitats.

Some thought should also be given on how to measure the resiliency of the system to environmental shocks. This system may be better served by improving connections with floodplains that have no impact on available habitat for most years but serve as a buffer for severe rain storms events.

From the graphs of the number of naturally produced steelhead smolts (Fig. 6; Fig. 13) and egg-to-smolt survival (Fig. 7; Fig. 14) it appears that productivity of anadromous salmonids in the Umatilla River system may be declining in spite of the extensive investment in habitat

restoration. This suggests that there might be an unrecognized environmental factor limiting production. It would be helpful for the proposal to suggest hypotheses about why biological performance, of summer steelhead at least, has declined, as well as steps that could be taken to test these hypotheses. This could include factors that are currently receiving little attention, such as a buildup of fish predators in the system.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables and work elements were described in detail, and metrics and methods were referenced to CHaMP and monitoringmethods.org protocols well enough to get a clear picture of what will be done.

The ISRP hopes that the partnership with ODFW will result in increased biological monitoring. Because the amount and diversity of habitat improvements is high, the Umatilla River system is an ideal location to examine the relationship between restoration and fish response. Some suggestions include: (1) expanding the food web studies. Once per year sampling is not enough to gage restoration effectiveness; (2) monitor the persistence of habitat improvements, such as riparian plantings; (3) install some PIT-tag detectors in selected tributaries (Meacham Creek, Birch Creek, and perhaps Butter Creek) to study seasonal fish movements and smolt timing. Because these streams get very warm, it would be useful to see where juveniles go to avoid high temperatures and when they leave the tributaries as smolts; and (4) surveys of upstream use of streams opened up by irrigation dam removals.

Project sponsors state that many habitat improvement sites will be studied using a BACI approach. If this is the preferred approach, identification of suitable unenhanced reference sites will be critical to measuring restoration success. It would be helpful if the proposal showed the location of reference locations and explained why they are suitable controls for treated areas. Project staff could also consider using a "staircase" approach to monitoring results, in which one or two streams are designated as unenhanced reference watersheds and restoration is applied to other streams in a sequential manner. In effect, this is what has been happening.

We also suggest that additional monitoring be focused on juvenile survival and growth. The declining egg-to-smolt survival trend is illuminating, but it would be very helpful if the life history stage suffering the greatest mortality increases were known in better detail. Are limiting factors more apparent in summer than winter, for example? Information on fish growth rates and condition can also reveal when food resources could be limiting, and if restoration is improving trophic productivity.

Specific comments on protocols and methods described in MonitoringMethods.org

Macroinvertebrates are highly variable in space and time. For example, collecting samples 500 meters away from a specific location and a week later can give completely different answers. This proposal revisits the same sites at the same time during the year. We suggest expanding the sampling around the target time to account for shifts in emergence of invertebrates. It may

be preferable to try and match the sampling to events in the life history of the fish, for example which invertebrates are present when smolts start their outmigration to provide food?

[198802200](#) - Umatilla Fish Passage Operations

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: Project Goal: Assist in fisheries restoration efforts by increasing survival of migrating juvenile and adult salmon and steelhead in both the Umatilla and Walla Walla Basins by coordination and operation of passage facilities, flow enhancement measures, trapping facilities, and transport equipment to provide adequate passage conditions. In addition, the project is responsible for collecting broodstock for the Umatilla production program and adult return data for the Umatilla River.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a straightforward project that is needed for the operation and maintenance of fish passage facilities. Two qualifications should be addressed in contracting and in future reviews:

- 1) There should be a clear procedure describing how observations on fish passage mentioned in the proposal will be incorporated into management actions. The project sponsors should look for opportunities to use trap/haul and fish passage facilities to monitor juvenile migration. In addition, progress reports should explain how O&M procedures have changed as a result of learning from past operations.
- 2) Collection of adult salmon and steelhead selected for use as broodstock should continue to follow HSRG guidelines for the Umatilla and Walla Walla subbasins.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project conducts trap and haul and fish passage facility maintenance and operations in the Umatilla and Walla Walla Rivers. It provides the personnel and equipment for capturing hatchery broodstock for propagating Chinook, steelhead, and coho at hatcheries in the two subbasins. As the proposal states, it is not itself a habitat restoration project but is a member of a suite of projects that are attempting to restore natural production to both river systems.

The significance to regional programs, technical background, and objectives of the project are described in a straightforward way. The project's actions have evolved over the years and now include various fish passage O&M activities as well as trap and haul. In addition, some activities have been transferred to other projects.

Project personnel monitor flow and passage conditions, provide oversight for the operation and maintenance of fish passage and trapping facilities, maintain fish hauling equipment, offer technical input and coordinate passage improvement efforts and produce annual operating plans. The project also provides the broodstock for the Umatilla Hatchery programs. The two objectives are to increase the survival of migrating adult and juvenile salmonids and to collect and disseminate adult return information for the Umatilla River.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Agricultural activities in the Umatilla and Walla Walla subbasins have created significant fish passage issues for adult and juvenile salmonids. In the lower Umatilla, modern fish screens were installed at the five major irrigation canals, juvenile bypasses and adult ladders were constructed, and adult and juvenile trapping facilities were built so that fish could be transported around river reaches during low flow periods. In the Walla Walla, irrigation diversions have been removed, fish passage facilities have been constructed, trap and haul efforts have been initiated, and minimum instream flow requirements have been established. This project is responsible for trapping fall Chinook, spring Chinook, coho, and summer steelhead broodstock for the artificial propagation programs in the Umatilla River.

Currently, principal activities include river flow regulation and enhancement, facility maintenance, broodstock collection, and overall coordination of the fish passage programs in the Walla Walla and Umatilla basins. Some adaptive management has occurred, as initially there was an emphasis on trap and haul. Now natural volitional up- and down-stream migration is preferred over transportation where natural migration results in higher overall survival rates.

Accomplishments of the project were described in qualitative terms; data on returning numbers of adults trapped and hauled or smolts counted at Threemile Dam were not presented. The proposal mentions observations made during fish migration seasons, but does not give any examples of what kind of observations are recorded or how the observations are used to guide management. The proposal also did not describe if any changes had been made to the trapping and hauling procedures, adult release points, or other techniques as a result of learning from past actions.

Because this project has been in place for about 25 years, it would have been helpful to identify efficiency improvements in O&M that have been implemented since the project's inception.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project is closely linked to the Umatilla Basin Project Power Repay and the Umatilla Fish Passage Facilities O&M projects. Coordination with BOR's Umatilla Basin Project, the Oregon Department of Water Resources, and local irrigation districts occurs in the Umatilla subbasin. In the Walla Walla subbasin, the project is closely associated with the Walla Walla River Juvenile and Adult Passage Improvements project. In the Walla Walla, the project interacts with ODFW, WDFW, USACE, Oregon Department of Water Resources, the Washington Department of

Ecology, and local irrigation districts. Relationships with other projects in the two subbasins are adequately described.

The proposal does not address emerging limiting factors, but it would be helpful to know if trap and haul mortality has changed over the years, or if they have noticed any unusual sources of anadromous salmonid mortality at any of the new fish passage facilities. When low flows occur, poor water quality leads to poor survival and an increase in trapping and hauling fish. Such years may be a consequence of climate change.

4. Deliverables, Work Elements, Metrics, and Methods

Nine deliverables were described. They included: inspection of river conditions and facility operations, coordinating the Umatilla passage program, transportation of adult and juvenile fish, maintaining and operating fish hauling equipment, collecting and disseminating adult fish counts, providing broodstock for the Umatilla Hatchery programs, out-planting adults for natural production, and performing technical reviews of fish passage improvement efforts. Some of the methods used for data collection are fairly well described while others, for example determining adult fish condition, needed more detail.

One aspect of the work that needs additional description is how a random sample of returning adults is selected for broodstock (see p. 4 of the proposal). Are fish for broodstock selected over the entire run time? Are fish selected randomly with respect to sex, size and age, for example are jacks included in broodstock? If the run is small, are hatchery needs satisfied before surplus fish are allowed to spawn naturally, or does the hatchery simply get a fixed proportion of the escapement? It would have been helpful to address these questions in the proposal.

Specific comments on protocols and methods described in MonitoringMethods.org

One Protocol entitled Umatilla 3 Mile Falls Fish Passage Operation was listed. It has six monitoring methods. The video enumeration of adults, salmonid processing at migrant traps, fork length and mid-orbital to hypural length methods are fairly well described. The hypural plate method, however, should be refined. As it currently exists, no clear instruction is provided for identifying the posterior edge of the hypural plate. This can be consistently found by laying a fish on its side and bending the caudal fin up toward the head. A visible crease occurs at the trailing edge of the hypural plate. The methods used to determine fish abundance and condition could use some additional explanation.

[198902700](#) - Umatilla Basin Power Repay

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: The Umatilla Basin Power Repay project is a congressionally mandated Act (Umatilla Basin Act, Report 100-488, Senate Bill S.16(3), August 1988) whereas the Bonneville Power Administration pays pumping costs associated with providing Umatilla Irrigation Districts water from the Columbia River for forgoing irrigation withdrawals on the Umatilla River during critical time periods for salmonid migration. The effort is further described in the ISRP's Umatilla Initiative document (Umatilla Initiative Review 2007-15; www.nwcouncil.org/media/32843/isrp2007_15.pdf).

ISRP recommendation: Not Applicable

Comment:

This is a contextual project (not requiring ISRP technical review) that is an important part of the overall Umatilla subbasin initiative to maintain Umatilla River flows. This project helps alleviate a significant limiting factor in the Umatilla subbasin. Benefits derived from the project are calculated and presented in the Umatilla River Fish Passage Operations Project. The CTUIR Pacific Lamprey Research and Restoration project may also quantify some of the benefits produced by this project.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

In the early 1980s, the CTUIR and ODFW began implementing the Umatilla Fisheries Restoration Plan, which was instituted to supplement steelhead and re-establish salmon in the Umatilla River. The plan had three parts, to construct and maintain fish passage facilities, provide trap and haul operations, and implement flow enhancement. The Power Repay project is directly linked to the flow enhancement portion of the restoration plan as it reimburses the Umatilla Electric Cooperative and Pacific Power and Light Company for pumping Columbia River water into Umatilla Irrigation districts. The project is regionally significant because it provides flow enhancement to maximize passage conditions during critical adult and juvenile migration periods. Without flow augmentation the fisheries restoration program would be compromised, as low flows remain an important limiting factor for anadromous salmonids and lamprey in the Umatilla subbasin.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Prior to the project, considerable water was removed from the Umatilla River for irrigation purposes. During the spring and fall little or no flow would occur in the reaches below Westland Dam (rm 27.5) and Threemile Dam (rm 4). These conditions prevented adults from migrating upstream and also stranded out-migrating juveniles. This project pays the costs associated with pumping water from the Columbia River to three irrigation districts, the West Extension Irrigation District, Hermiston Irrigation District, and the Stanfield Irrigation District. Initially

water was pumped from August through June 30 (Phase I). In Phase II of the project, water will be pumped year around to facilitate lamprey recovery efforts in the Umatilla.

The flow enhancement produced by the project has led to a 90% reduction in the number of juveniles and adults trapped and hauled on an annual basis.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The Power Repay project along with the Umatilla River Fish Passage Operations, and Umatilla Fish Passage Facilities O&M are parts of the Umatilla River fish passage effort. The Bureau of Reclamation, Oregon Department of Water Resources, ODFW, local irrigation districts and Umatilla Electric Cooperative and Pacific Power and Light Company are all associated with the project in various capacities. No emerging limiting factors were mentioned, although clearly any factors affecting irrigation water use and water availability in the basin will affect the project.

[198343600](#) - Umatilla Passage Operations and Maintenance (O&M)

Sponsor: Westland Irrigation District

Short Description: The Umatilla Passage O&M Project is part of an integrated plan for the restoration of fish species in the Umatilla basin that was reviewed by the ISRP in 2007. This specific project's role in the integrated plan is solely O&M of existing fish passage and hatchery acclimation facilities located on the mainstem Umatilla River. Habitat restoration is not implemented under this project.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a straightforward project to maintain and repair fish passage facilities at five irrigation diversions and to maintain five acclimation ponds. As part of a larger suite of habitat restoration projects in the Umatilla subbasin it meets scientific criteria. The qualification is that project staff should work with other Umatilla habitat projects to develop ways of monitoring migrant mortality at the passage facilities to verify that the maintenance actions are meeting objectives. This qualification should be addressed in contracting and in future reviews. In addition, opportunities to use the screening facilities for monitoring downstream migrants through tag recoveries should be considered if the ability to detect marked individuals is in place.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Although this project does not engage in habitat restoration *per se*, it serves as part of a suite of projects that aim to improve habitat and fish access to the Umatilla River and its tributaries. As the project title implies, the objectives are to maintain fish passage facilities, primarily in the lower river (irrigation diversions), but the project also maintains hatchery salmon acclimation ponds in the Umatilla River subbasin. The maintenance of fish passage facilities is carried out by the Westland Irrigation District, while project oversight is provided by the Umatilla Fish Passage Operations project. The technical background and significance to regional programs were adequately explained. River conditions, for example discharge, debris load, and bedload transport, can affect fish passage and screening efficiencies. Maintaining and operating passage facilities according to established criteria are important regional functions.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Inadequate up- and downstream passage was identified as the primary cause for the extirpation of Chinook and coho salmon and decline of summer steelhead in the Umatilla subbasin. In the 1980s, ODFW and CTUIR began implementing the Umatilla Fisheries Restoration Plan. An important part of this plan was to construct fish passage facilities on BOR and irrigation dams. Once built, these structures needed to be maintained. Project personnel remove rocks and debris from fish ladders, screens, by-pass outlets, and forebays. They ensure that gates and screens meet passage criteria, repair screens, and maintain trash racks. Additionally, the project assists the Umatilla Hatchery Satellite Facilities O&M project maintain juvenile acclimation sites. Project personnel do not initiate changes to maintenance activities; all such changes originate from the biological staff of the Fish Passage Operations project.

The history and accomplishments of the project were adequately explained. Results were described in general terms as maintenance and repairs on fishways and pipes. Although the proposal states that improvements in Chinook and steelhead passage and survival have occurred as a result of these maintenance actions, no biological data were presented. Likewise, the proposal states that adjustments to maintenance activities have occurred following feedback from the biological staff of the Fish Passage Operation project, but no specific examples were given. An example or two would have helped illustrate project results and adaptive management.

Because this is an operation and maintenance project that performs no RM&E, there was no evaluation of results. However, the ISRP believes that O&M projects such as this one can assist RM&E projects by providing infrastructure for tag detection and other monitoring activities.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project is closely linked to the Umatilla Fish Passage Operations, Umatilla Basin Power Repay, Umatilla Hatchery Satellite Facilities O&M, Umatilla Basin Natural Production M&E, and Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River Basin projects. Project personnel work closely with CTUIR and ODFW. Biological oversight is provided by staff from the Umatilla/Walla Walla Fish Operations project. No emerging limiting factors were listed.

The relationship of the fish passage O&M work to other habitat-related projects in the Umatilla subbasin was adequately described. No emerging limiting factors were identified, and the project does not involve tagging fish to estimate passage survival at the irrigation diversions, although this function could be added at some point in the future.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables and work elements were clearly explained. However, the proposal gave somewhat more detail about the fish passage O&M methods than the acclimation pond maintenance methods, for example, how are the ponds cleaned when not in use?

Two deliverables were identified. One was to preserve passage at Umatilla water diversion sites by maintaining fencing, removing debris, cleaning trash racks, adjusting flow gates, and performing annual repairs as needed. The other deliverable was to help maintain hatchery acclimation sites by performing repairs as needed to intake structures, screens, spawning areas, and other hatchery infrastructure. No scientific data are collected, although there are anecdotal records of fishes recovered during the cleaning operations.

General Comment

The project sponsors are providing support for other projects in an effective manner. Collaboration with sponsors of other projects appears to be excellent.

M. Walla Walla River

200721700 - Walla Walla River Passage Operations and Maintenance (O&M)

Sponsor: Gardena Farms Irrigation District #13

Short Description: The primary goal of this project is to increase adult returns of spring Chinook salmon, summer steelhead, and bull trout to the Walla Walla River annually by increasing the survival of migrating juvenile and adult salmonids.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

The maintenance of the passage and screening facilities on the Walla Walla River will contribute to improved survival of adult and juvenile salmonids in this system. The proposal does a good job describing the maintenance problems and the methods being used to correct problems. Like other passage structure projects, the sponsors should look into the opportunity to use the facilities for juvenile migrant enumeration.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of this proposal is to obtain support to maintain four fish-passage and diversion screen installations in the Walla Walla River. The issues with fish passage at these sites and a summary of the history of the installation and improvements of the screens and ladders was adequately described. The objective of this project is to manage and maintain these installations. These facilities have had a positive impact on adult and juvenile survival of migrating salmonids and their maintenance will be critical to recovery of steelhead and the success of the spring Chinook re-introduction effort.

While maintaining these facilities, the sponsors also cooperate with ongoing M&E efforts including helping the USFWS preserve its PIT tag arrays. Also when passage facilities are shut down for routine maintenance they perform fish salvage operations. For example, Brook and Pacific Lamprey juveniles are often recovered in mud deposits adjacent to irrigation screens. These fish are returned back to the river. A variety of material including large woody debris needs to be removed from the passage and diversion facilities. The sponsors use guidelines in the BiOp to determine what can be removed from the river what should be returned. An ongoing challenge is budgeting for equipment replacement.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Since their construction the Hudson Bay District Improvement Company (HBDIC) and Gardena Farms Irrigation District (GFID) have operated and maintained the fish ladders and diversions located at the Little Walla Walla River, Nursery Bridge, Gardena, and Garden City/Lowden. Silt and other debris move throughout the Walla Walla River. This project removes debris from dam forebays and tailraces, fish ladder entrances, slots, and exits. It also cleans diversion

channels, screens and bypass structures. During the irrigation season, project personnel make daily visits to these facilities inspecting them for damage and debris loads to ensure that flows and water levels meet operating criteria. Standard maintenance is also performed and flow and water level data are recorded. The project does engage in adaptive management as flow and water use conditions affect maintenance cycles. In addition operating criteria and infrastructure at the sites are changed as needed to facilitate fish passage.

Evaluation of Results

Inadequate upstream and downstream passage was largely responsible for the extirpation of spring Chinook and decline in abundance of summer steelhead in the Walla Walla subbasin. The subbasin plan for the Walla Walla identified fish passage improvement as a critical factor for salmon and steelhead restoration. In the mid 1990s the CTUIR requested that outdated fish screening and passage facilities in the Walla Walla subbasin be replaced. Shortly thereafter, BPA, Walla Walla Irrigation Districts, NOAA Fisheries, WDFW, ODFW, WDOE, and the CTUIR met to establish easement agreements, develop, review and modify plans for passage facilities, and inspect on-site work. From 1999 to 2003 four significant fish passage facilities were built in the Walla Walla subbasin. Two of them, the Little Walla Walla River Diversion and Passage facility and Nursery Bridge fish ladder are operated and maintained by the Hudson Bay District Improvement Company (HBDIC). The Gardena Farms Irrigation District (GFID) operates and maintains the remaining two projects, the Gardena or Burlingame fish ladder and the Garden City/Lowden #2 diversion. Flow conditions, water withdrawals for irrigation and other factors can affect up- and downstream passage through these structures. For the past 10 to 14 years the GFID and HBDIC irrigation districts have been maintaining and operating these facilities.

The successful re-introduction of spring Chinook salmon by the CTUIR into the Walla Walla subbasin indicates that both upstream and downstream passage has been significantly improved. Spring Chinook had been extirpated from the Walla Walla River since 1925. Their disappearance was due to the construction of the Nine Mile (Reese) Dam in 1905 which caused the Walla Walla River to run dry each summer. In 2001, an agreement was reached among three irrigation districts, the Umatilla Tribe, and federal agencies that allowed year-around water flows to occur in the Walla Walla River. The spring Chinook reintroduction program began in 2000 and the first adults returned in 2004. Since then returns of spring Chinook into the upper Walla Walla River and Mill Creek have increased from 200 adults in 2004 to 1,135 in 2009 (CRITFC web page). This program has benefitted from the flow agreement and the operation and maintenance of the four fish passage facilities performed by the HBDIC and GFID.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project personnel work closely with Walla Walla Fish Passage Operations staff to coordinate canal startups and shutdowns, fish removal operations, screen inspections, annual heavy equipment use, and debris removal from fish ladders, screens, and diversion channels. WDFW and ODFW are also consulted and involved with the approval of annual operation and maintenance plans. NOAA Fisheries, WDOE, the Walla Walla Basin Watershed Council, Walla

Walla Habitat Conservation Plan, and Walla Walla Watershed management Partnership also interact with project staff.

The project focuses on O&M at four existing fish passage and screening facilities. Monitoring for these facilities is limited to maintaining a log of operational and maintenance issues encountered during each site visit. These records provide information useful in improving project operation. This type of monitoring is adequate for the project objectives.

No emerging limiting factors were listed. However climate change may produce more frequent extreme storm events which could impact the operation and maintenance of the project's fish passage structures. Have any risk analyses been performed to estimate how the structures might perform under extreme conditions? For example, will extreme precipitation events put the structures at risk? Perhaps some floodplains above the barriers can be established to increase storage? Similarly in the case of low precipitation events, will there be enough water in the entire system for the fish passage devices to work? Another potential emerging limiting factor is the projected lifetime of fish passage and irrigation diversion structures. Are regular reviews undertaken to determine when or if existing structures should be updated? If updates are required how will planning, design, and implementation costs be covered?

4. Deliverables, Work Elements, Metrics, and Methods

The project has one deliverable, to operate and maintain BPA's Walla Walla fish passage facilities per NOAA guidelines. To accomplish that, regular daily visits and inspections are conducted along with routine annual maintenance work. Water flow and height data are collected at each site and recorded in site-specific log books. The work elements are all related to the maintenance and repair of the facilities. They are adequately described and appropriate.

Specific comments on protocols and methods described in MonitoringMethods.org

No RM&E protocols were listed.

[199604601](#) - Walla Walla River Basin Fish Habitat Enhancement

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: This project will protect, enhance, and restore functional floodplain, channel and watershed processes to provide sustainable and healthy habitat and water quality for aquatic species in the Walla Walla River Subbasin. This project will achieve biological objectives and strategies established in the Walla Walla Subbasin Plan, address limiting factors in the FCRPS BiOp and Fish Accords and support physical and ecological conditions for the CTUIR First Foods Framework and Umatilla River Vision

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The issues can be dealt with in contracting and future project reviews.

1) Further information on how and when action effectiveness will be monitored and evaluated is needed.

2) Some additional discussion on how restoration actions are prioritized is needed. For example, how do local partners affect the Riverine Ecosystem Planning Approach used by the sponsors to identify where restoration actions should be focused? Additionally, explanations for how selected project activities fit into the larger subbasin landscape would be useful as they would help justify why the habitat restoration actions proposed were chosen.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project will protect and restore habitat to benefit spring Chinook and ESA-listed summer steelhead, and bull trout mainly by improving connectivity and complexity in riparian habitat areas. It addresses the objectives of the Walla Walla Subbasin Plan, the Upper Walla Walla River Habitat Restoration Action Plan, the FCRPS 2008 BiOp, and the Snake River Salmon and Bull Trout Recovery Plans. The sponsors provide an adequate discussion of the primary limiting factors in the subbasin. The objectives address the limiting factors and the proposed work appears to be justified. The significance to regional programs, technical background, and objectives were for the most part adequately described.

Annual reports for the project indicate that representative portions of previously completed projects have been monitored using modified protocols from a variety of sources. Both physical and biological parameters were measured. Recently, the sponsors worked with Stillwater Sciences and built a habitat effectiveness bio-monitoring procedure. The bio-monitoring method uses both BACI and BA designs to evaluate adult and juvenile salmonid abundance. Additional details about this approach were provided during the site visit. A physical habitat assessment monitoring plan is also being produced. In this case, the sponsors are working with

USGS and NOAA Fisheries personnel. Explanations on how and when these two new tools will be used to assess the effectiveness of the work being proposed are needed as the status and future plans for RM&E for the project are unclear.

The sponsors participate in a number of local working groups including the Mill Creek, Oregon Solutions, Priority Projects, and Lower Walla Walla working groups and are also active members in the Snake River Salmon Recovery Board and the Regional Technical Team. Some discussion of how local partners affect the Riverine Ecosystem Planning approach employed by the sponsors to prioritize habitat restoration areas is needed. Once projects have been identified, the River Restoration Analysis Tool (RiverRat) that was developed by the USFWS and NMFS is used to plan, design, and implement selected projects.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

An impressive number of projects have been implemented including conservation easements, land purchases, and passage improvements. Since its inception the project has completed 13 habitat restoration projects and is currently working on an additional four projects. Ten of these increased habitat complexity by replanting native vegetation, installing fencing, reconnecting the floodplain to the stream and enhancing riparian areas. An additional four projects were directed toward improving fish passage and three others were largely instituted to protect existing habitat from development. The sponsors provided short summaries of results and photo points for each ongoing project. These summaries were instructive, but more information would have been helpful. What percentage of the Walla Walla River system accessible to anadromous salmonids, for instance, has been affected by restoration projects? What is the distribution of existing and planned projects, and can they be connected to build a linked network of functioning stream and riparian environments? Additional quantitative information, especially on fish response, would have also improved the discussion.

The sponsor's state that with additional funding provided through the Accords Agreement they were able to improve their restoration planning process. This is a positive step and is adaptive because it undoubtedly draws on past planning and implementation experience. A number of other adaptive management actions have also occurred. Originally restoration efforts were not directly linked to primary limiting factors, now they are. Additionally, tools like LiDAR, FLIR, topographic and bathymetric surveys, physical habitat surveys, riparian inventories, hyporheic assessments, and hydraulic modeling are now being used to plan and design projects. Project Administration has also changed, now before a project is started a five-step process is put in place that establishes goals, time lines, organizes planning teams, and ensures that proper permits are obtained. Finally, the knowledge gained from ongoing habitat restoration activities is being applied to new projects, not just in the Walla Walla subbasin but in the John Day, Umatilla, and Grande Ronde as well.

Evaluation of Results

For over 180 years the Walla Walla River basin has been impacted by anthropogenic impacts that have ranged from dam construction, dewatering due to irrigation, channel simplification, levee construction, logging and splash dam use, and over grazing. These impacts caused the extirpation of spring Chinook in 1925 and in the late 1990's Walla Walla River summer steelhead and bull trout were listed as threatened by the ESA. Prior to the establishment of the 2008 Accords, the CTUIR had performed a number of localized restoration actions. After the Accords were established funds were available for larger projects. Once this occurred, lengthy assessment and design phases were started. Pre-project metrics that are being measured include: acres of riparian forest, percentage of floodplain available to the stream under various flows, percentage of streambed that can be used for spawning and rearing, and total stream length vs. valley length. After a project is completed these metrics are measured again, typically once every three to five years.

Additionally, the tribe instituted its First Foods paradigm and coupled this with its River Vision plan. This approach has been used to guide all subsequent restoration actions. In response to concerns raised by the ISRP in previous reviews, the sponsors developed a bio-monitoring and a physical habitat assessment plan. Both were recently completed, and the ISRP has reviewed the bio-monitoring plan. It is hoped that these M&E plans will be used to assess the effectiveness of the proposed projects.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The sponsors list a number of agencies and organizations with whom they are coordinating, but they do not describe in any detail the nature of the coordination. For example, do the projects share data or participate together in planning, implementing, or monitoring projects?

Two emerging limiting factors were identified, climate change and aquatic and terrestrial invasive species. Climate models predict that winter precipitation will shift from snow to rain and that will cause lower summer flows to occur. Additionally higher peak flows and warmer water temperatures are expected. The middle and lower parts of the Walla Walla River will be most impacted by these changes. Currently the hydrograph and water temperatures in these parts of the river are primarily controlled by irrigation withdrawals. Climate change will likely alter irrigation needs, and this may worsen the impacts of irrigation on flow and temperature. As water temperatures warm, invasive predaceous fish species are expected to expand into areas that presently have cool waters. Terrestrial noxious weeds may also expand.

No specific actions to deal with expanding non-native predator populations or altered water use patterns are mentioned. Instead, the approach taken to meet these emerging challenges is to expand habitat resilience by increasing natural and self-sustaining processes in floodplain and riparian habitats. The degree of resiliency each project might provide is best determined by biological and physical habitat monitoring efforts designed to measure habitat diversity, connectivity, and fish use among other attributes. Thus the implementation and consistent use

of such monitoring programs should be regarded as key component for each proposed habitat restoration action.

4. Deliverables, Work Elements, Metrics, and Methods

The project has eight deliverables. Seven of them are explicit habitat restoration projects that address one or more of the project's five objectives. For example, five of the projects, Kentch, Middle Walla Walla Fish Passage, Tualum Levee setback, Bolan-Kelly, and South Fork Touchet River Habitat Enhancement address the objective of making the stream channel more complex. Four of the above projects are also being performed to connect streams to their floodplains and to enhance riparian zones, another project objective. Fish passage enhancement and improvement in water quality are two additional objectives that are being met by several of the proposed projects. The non-project deliverable is to contribute cost-share funds to in-basin habitat work being led by other partners. Overall, the deliverables are described only in general terms, nearly all are in the early planning stage. While many of them are relatively straightforward, it is difficult to assess their technical merit without more site-specific details. It is clear that a lot of planning will be required before most of the actions can be implemented.

The ISRP also wishes that implementation of an effectiveness monitoring program across the subbasin and its neighbors would move at a faster pace. We called for an integrated action effectiveness monitoring program at our last review and project sponsors agreed that one was needed. We continue to believe that monitoring action effectiveness remains one of the most pressing needs in both the Walla Walla and Umatilla subbasins, and we hope that one can be completed and implemented soon.

Specific comments on protocols and methods described in MonitoringMethods.org

One RM&E protocol, Umatilla Subbasin Fish Habitat Restoration Monitoring Plan, was cited. It has twenty methods some of which are fairly well developed while others are lacking explanations for how a procedure should occur. The protocol and methods cited appear to be appropriate for the types of data that will be collected.

[200902600](#) - Walla Walla Juvenile and Adult Passage Improvements

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: Provide safe passage for migrating juvenile and adult salmonids in the Walla Walla Subbasin by constructing and maintaining passage facilities at irrigation diversion dams and canals and other passage barriers.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

Studies to quantitatively measure the action effectiveness of specific passage projects need to be developed and implemented.

The ISRP's qualification and comments can be dealt with in contracting and future project reviews. The ISRP is not requesting a response.

Comment:

The sponsors and their local partners worked with three engineering firms to develop fish passage solutions for a six-mile long section of Mill Creek. This portion of the stream flows through the town of Walla Walla. For two miles, it passes through a concrete flume and approximately 800 feet of the flume is roofed over by parking lots and other structures. An additional 3.2 miles of the stream contains 263 concrete sills or channel stabilizers that are six feet wide and stretch across the stream. Some twelve different types of stream reaches were identified in this six-mile section, each with its own fish passage challenges. A physical model of parts of the flume was built and dye studies were performed to estimate how flow patterns and water velocities would react to physical modifications. In addition, a fish energetics model plus field calibrated HEC RAS and spreadsheet models were used to calculate hydraulics. Fish passage ability through the six mile section of Mill Creek at different flow rates and fish sizes by species was estimated via modeling. These results were used to help design modifications to the six-mile section of Mill Creek that would enhance fish passage. Cost estimates for each type of modification were also produced. Additionally, on-the-ground alterations using the suggested designs were made to a portion of the flume and also on a few concrete sills.

The purpose of two of the project's deliverables is to continue to alter the flume and sills using the same type of modifications that were employed in the pilot work. We suggest that the sponsors install PIT tag detectors and other possible sensors in some of the modified portions of the flume to determine if resting areas and other portions of the modified structures are performing as expected. Corrections or alterations to existing designs that are based on model outputs cannot be made without empirical passage assessments. If the sponsors have pre-treatment fish passage success data under different flow regimes it may also be possible to perform BA or BACI analyses on the cumulative effects of all changes made in the six mile section of Mill Creek.

During the ISRP field visit it was also mentioned that the roofed portion of the Mill Creek flume was in poor condition. We hope that the sponsors and their partners can work with the City of Walla Walla to see if the roof can be removed and that during this process the stream channel in this part of the flume can be redesigned to enhance fish passage.

The Nursery Bridge Dam is another significant fish passage challenge in the Walla Walla subbasin. Currently high velocities at the dam are causing the streambed to undercut areas directly below the dam and are also reducing the effectiveness the dam's fish ladder. One of the project's deliverables calls for installing rough material immediately below the dam to reduce water velocities and simultaneously help with entry into the fish ladder. The river channel at the dam is restricted and water flows can also be impacted by irrigation withdrawals. The sponsors and their partners appear to have a holistic plan for this site which calls for widening the river channel below the dam which would reduce water velocities and installing three or more aquifer recharge sites to provide flows during the irrigation season. This appears to be a good approach to solving a significant fish passage problem and we hope that timely progress can be made on completing this plan.

Overall the project is making an important contribution to fish recovery in the Walla Walla Basin. The proposal, however, would have benefitted from additional detail about work elements, deliverables, past project activities, and information about project effectiveness.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Inadequate passage at irrigation diversion dams, canals and other passage barriers were identified as top imminent threats to salmonids in the Walla Walla subbasin plan. The objective of this project is to provide safe passage for migrating juvenile and adult salmonids by constructing and maintaining fish passage facilities. The sponsors state that important passage work has been accomplished in the subbasin but that additional problems still exist. Forums such as the Walla Walla Technical Work Group and Mill Creek Working Group identified and helped plan the work being proposed. Projects were prioritized based on their expected impacts on migrating fish. That is mainstem structures that all fish must pass and large irrigation diversion screens were considered high priority projects. In the current proposal, six out of the eight proposed passage projects will help anadromous fish reach portions of upper Mill Creek. The significance of this project to the fish resources of the Walla Walla Basin is clear. The project addresses a mortality factor identified as a key limiting factor in most of the restoration plans that have been developed for this watershed.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Results and accomplishments of the project are presented as a list of actions that have been completed. For example, under this project two decommissioned irrigation diversion dams have been removed, six new fish ladders have been installed at low head dams, modern fish screens have been installed at seven irrigation diversions, three irrigation ditch consolidations have been completed which helped reduce the number of passage facilities needed, and

alterations to a concrete channel located in lower Mill Creek were made. However, there is insufficient information provided to convey the relative significance of these projects. More detailed information on project accomplishments should be included in the proposal.

Radio telemetry studies on spring Chinook from 2004-2008 were performed to document adult passage in the Walla Walla River. Results from this work were used to make improvements to passage facilities at Hofer, Mill Creek, Gose Street, and the Nursery Bridge Dam. So there is some element of adaptive management incorporated into the project. However, the lack of project-specific effectiveness evaluations limits the availability of information that is required to adaptively improve project effectiveness. For example, even though a project might meet NOAA fish passage standards was there some specific feature at the site that required some modifications? Is there a central site where past experience is stored so that future learning can take place? Some enhancement in project-level effectiveness monitoring would be worth considering.

Evaluation of Results

The Walla Walla River has been heavily diverted for irrigation purposes. Two major irrigation diversions, one at river mile 36 and another at river mile 47 along with numerous smaller diversions exist in the subbasin. These structures played a significant role in the extirpation of spring Chinook and in the reduction of summer steelhead and Bull Trout abundance. Migrating juveniles were lost down irrigation canals and injured by impingement on inappropriate fish screens. Adults were prevented from making upstream migrations either by a complete absence of water or by impassable barriers. Numerous passage improvements have been made. The effectiveness of individual projects, however, has not been evaluated. Visual inspections are made to see if adults or juveniles show any reluctance to moving through specific passage structures but are not done in a quantifiable manner. However, the sponsors have performed studies that show mean travel time of spring Chinook from McNary Dam to the Nursery Bridge Dam has decreased from 30 days in 2000 to 18 days. SAR values for spring Chinook have also gone up a bit since 2004 and the successful re-introduction of spring Chinook into the South Fork of the Walla Walla and into Mill Creek indicate biological benefits have been derived from the passage work that has occurred in the subbasin.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The Walla Walla Juvenile and Adult Passage Improvement project is directly linked to the Walla Walla Fish Operations and Maintenance and the Walla Walla Basinwide Tributary Passage and Flow projects. The juvenile and adult passage project provides support for the installation of screens and passage structures at irrigation diversion sites, dams, and other sites where fish passage has been impaired. The operation and maintenance project handles the O&M for these installations while the basinwide tributary passage project focuses on flow augmentation. These projects have made significant progress towards addressing fish impacts related to the irrigation system in the Walla Walla Basin.

Project identification is done by the Walla Walla Technical Work Group, the Mill Creek Working Group, and other interested entities. Private engineering firms design and construct passage improvements, and these plans are reviewed by the sponsors (CTUIR) along with WDFW, ODFW, NMFS, and the USFWS. PNNL personnel are engaged by the project to inspect newly completed projects to determine if they are operating under accepted NMFS criteria. The project also provides cost share funds for fish passage projects led by the Army Corps of Engineers, Snake River Salmon Recovery Board, NOAA, Milton-Freewater Water Control District, and the Walla Walla Basin Watershed Council.

Additionally, the project is linked to the Walla Walla Basin Monitoring and Evaluation Project (BPA Project Number 2000-039-00) which performs basinwide assessments of fish response to habitat improvement efforts. This Monitoring and Evaluation project appears to be collecting comprehensive data on steelhead and spring Chinook populations in the river and some of the results from this study are presented. VSP parameters appear to be trending upwards. However, it is not possible to determine the role improved passage survival is playing in this trend. Assessments of effectiveness of the screens and passage structures installed under this program appear to be limited to behavior displayed by radio-tagged adult fish near passage structures and casual observations of fish behavior around project sites. A more rigorous assessment of the efficacy of the structures should be considered.

No emerging limiting factors were presented. It is clear however, that climate change and possible shifts in irrigation water use will impact fish passage. How to accommodate these changes in flow regimes and water temperature will need to be considered in future fish passage planning, design, and construction.

4. Deliverables, Work Elements, Metrics, and Methods

Ten project deliverables are presented. Eight of them are for specific fish passage projects. Many of these have been designed and are ready for construction. One of the remaining deliverables is for cost-sharing. In this case funds from the project will be provided to other subbasin groups that are performing fish passage work. Previous examples of cost sharing include projects on the Touchet, Garrison Creek, Spring Creek, and at Gose Street. The final deliverable pays PNNL personnel to perform post-project evaluations to ensure that newly completed projects meet NOAA fish passage criteria. The work elements and deliverables for this project seem appropriate. They are primarily related to the construction of new screens or fish ladders or modification of existing facilities. However, the detail about each work element and deliverable was quite brief. Additional detail or links to information about each planned project would have been useful in reviewing the proposal.

Specific comments on protocols and methods described in [MonitoringMethods.org](#)

No RM&E protocols were listed in the proposal.

[200739600](#) - Walla Walla Basinwide Tributary Passage and Flow

Sponsor: Walla Walla Basin Watershed Council

Short Description: Provide safe passage for migrating juvenile and adult salmonids in the Walla Walla Subbasin by addressing fish passage issues and other passage barriers, utilizing aquifer recharge to improve the alluvial aquifer in order to sustain river, tributary and spring flows, and implementing water efficiency projects such as irrigation ditch piping that will result in more water being left instream for fish passage.

ISRP recommendation: Meets Scientific Review Criteria

Comments:

This project is clearly addressing a factor that is limiting fish production in the Walla Walla Basin: limited instream flow. There is very good evidence that they have made significant progress in addressing this issue. For example, the project has performed useful fish passage and habitat restoration in the Walla Walla subbasin and has identified additional sites where irrigation efficiencies, aquifer recharge actions, fish passage improvements and restoration of floodplain processes should occur. The project has a strong RM&E component and is using the information generated to modify restoration plans. In future proposals, the project sponsors should include additional information on project relationships in the Walla Walla Basin. A little more detail on how fish movement and presence/absence data will be collected would have been helpful. Also, some additional information on the bank stabilization deliverable below the Nursery Bridge grade control structures should have been included in the proposal.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project is significant regionally as seasonal lack of instream flow impacts listed fishes in the Walla Walla River. The activities proposed are consistent with the Walla Walla Subbasin Plan, the priority actions listed in the Bi-State Habitat Conservation Process, and in the Draft Bull Trout and Steelhead Recovery Plans. The project has three goals, to restore up- and downstream passage for juvenile and adult salmonids; to recharge aquifers to sustain and augment river, tributary, and spring flows; and to implement irrigation efficiency programs to increase stream flows. Ten objectives, including improving water quality, providing additional instream flows, promoting water conservation, protecting conserved water via Oregon and Washington Water Trust laws, monitoring and management of hydrologic data, expanding the size and duration of cold water refugia, and improving base river flows through floodplains are being used to address these goals. The objectives are appropriate for this project. They all focus on restoring appropriate flow conditions and water quality throughout the Walla Walla River watershed.

The history of the water projects on the Walla Walla is described sufficiently. Efforts to enhance flow in the river have been ongoing for over a decade with some notable successes. Previously dewatered reaches now have year-round flow. The extensive hydrology monitoring network

enabled the identification of declining groundwater levels (partly due to increased efficiency of the irrigation system). Reduced ground water levels have eliminated many springs, which had made an important contribution to summer base flow and provided thermal refuge. They have been experimenting with various methods of enhancing groundwater storage in the basin and have had some success.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The Walla Walla Basin Watershed Council (WWBWC) and partners developed a water monitoring network in 2001 to understand the role that ditches and irrigation practices had in aquifer maintenance in the subbasin. Results from this monitoring work have guided future restoration actions. For example, during the past eight years the WWBWC has worked with multiple partners to develop aquifer recharge projects, for example the Hulette Johnson, Hall-Wentland, and Stiller Pond sites and the Anspach and Trumbull projects. Also the WWBWC recently completed a Walla Walla Basin Aquifer Recharge Plan. Additionally, the WWBWC collects groundwater and surface water data and distributes it to basin partners and local, state, and federal agencies. Some of these data were used to develop the TMDL for water temperature in Oregon's part of the Walla Walla River.

A thorough discussion of project history is provided in the proposal along with links to other project related documents. The project has been using adaptive management processes to improve its program of flow enhancement. Initially the project focused on areas where immediate short-term savings in water would occur. Now, projects are taking place in areas where water savings can improve stream flow later on. Experiments were performed that evaluated the effectiveness of four water distribution systems in an aquifer recharge area. One distribution system that was identified as being the most effective is now being used in other aquifer recharge projects. Additionally, the newly completed Walla Walla River Alternatives Analysis and Conceptual Design Milton-Freewater Levee and Habitat analysis is being used to identify opportunities for fish passage and fish habitat improvements. The analysis includes some HEC-RAS modeling which performs channel flow determinations and floodplain identification.

Evaluation of Results

Prior to this proposal submission, the Walla Walla Basin Watershed Council, Walla Walla Conservation District, Gardena Farms Irrigation District, CTUIR, and WDFW had projects funded by this project. Previous work involved establishing over 100 monitoring wells, 60 stream flow gauges, the production of a hydrologic data base called AQUARIS, the creation of 124 miles of Conservation Reserve Enhancement Program (CREP) riparian buffers, the installation of over 300 fish screens by ODFW and WDFW, removal of 15 significant fish barriers, over 18.6 miles of ditch piping in Oregon, 85 on-farm water efficiency projects, aquifer recharge research and implementation, the enactment of soil retention practices on 80% of the steep wheat land in Columbia County (WA), and the completion of the Walla Walla Basin Aquifer Recharge Strategic Plan. This work has helped restore fish passage, instream flows, and recharge shallow aquifers.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project is linked to the Walla Walla River Basin Fish Habitat Enhancement, Walla Walla River Juvenile and Adult Passage Improvements, Walla Walla River Basin Monitoring and Evaluation, Walla Walla River Hatchery Operations and Maintenance, and Umatilla Fish Passage Operations projects. Partners include ODFW, WDFW, CTUIR, OWRD, WDOE, OSU, USDA, Hudson Bay District Improvement Company, Walla Walla Irrigation District and Fruitvale Water Users Association, ODEQ, Walla Walla County Conservation District, and private landowners. However, how this project and the other projects mentioned above coordinate with one another is incompletely described. Some additional discussion of how this project interacts with the habitat restoration and fish monitoring efforts in the watershed would have been useful.

The sponsors have established a very thorough hydrological monitoring system in the watershed. Detailed data on river and stream flow, groundwater level, water temperature and water chemistry are being collected. The proposal also demonstrates that these data are being used to inform restoration project designs. There is a good data storage system in place and the data are available online. Maintaining this system is critical to ensure compliance with water agreements.

Climate change was recognized as an emerging limiting factor. A climate change projection specifically for the Walla Walla Basin has been produced and results indicate that there will be an increase in cold-season flows and a decrease in late spring-summer stream flows. They are planning for such changes by shunting higher winter flows into aquifer recharge areas so that summer flows can be augmented from the recharged aquifers. Additionally, new piping is being installed to reduce seepage and improve irrigation efficiencies, so this emerging limiting factor is being addressed. There was no discussion, however, of how future development or changes in agriculture could influence water availability. Some consideration of these factors should be included in the project. Additionally, it is not clear if the hydrological model has been used to forecast what happens under extreme events? For example, suppose that drought conditions occur in two or more consecutive years, can the model be used to forecast water availability under this circumstance? And if so, have plans been made on how water will be allocated to irrigators as well as for fish passage?

4. Deliverables, Work Elements, Metrics, and Methods

The project has seventeen deliverables; fourteen of them are directed toward specific projects in the Walla Walla subbasin. The general goals of the specific projects are to improve irrigation efficiency and fish passage, restore floodplain processes, and start aquifer recharge programs. In several instances, engineered drawings or other plans have already been developed for these projects. The remaining three deliverables have more general goals. In one case, the objective is to monitor irrigation flows via telemetry and use automation to open and close valves or gates to improve water management. In another instance the sponsors wish to establish water right “maps” in project areas so that easements or other arrangements can be made to protect instream flow enhancements. The project has also used hydrologic mapping and monitoring to

help determine where restoration projects should occur. The sponsors wish to continue this work to monitor status and trends in water temperatures and flow. Additionally, these data will be connected to fish presence and movement information to see how fish react to water flow and temperature improvements. Some information on how fish movement and presence/absence data are collected should have been included in the proposal.

The deliverables are mostly appropriate for the objectives of this project, and the work elements are described adequately. The deliverable for channel stabilization below the Nursery Bridge grade control structures, however, does not contain enough detail on the nature of the bank stability issue or the measures that are planned to address the problem. More detail on this deliverable should be included.

Specific comments on protocols and methods described in MonitoringMethods.org

Three major RM&E protocols are listed and all were developed by project personnel. Most are largely complete and are appropriate for the types of data being collected.

N. Tucannon River

199401806 - Tucannon Stream and Riparian Restoration

Sponsor: Columbia Conservation District (SWCD)

Short Description: Restore habitat functions to improve limiting factors identified for Tucannon River ESA listed species in the 2008 FCRPS BiOp in coordination and cooperation with Tucannon River Programmatic Project and is a critical component in addressing the diverse habitat deficiencies within the basin.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This proposal generally described the actions to be supported by this project quite well. The ISRP comments provide suggestions that the project sponsors should consider as the project proceeds. The habitat restoration process being implemented in the Tucannon River watershed is among the most technically-advanced in the Columbia Basin. A comprehensive evaluation of current habitat conditions and fish distribution by life stage was used to establish project priorities. As projects are implemented, a very complete RM&E program with the inclusion of the Tucannon as a CHaMP site will provide information on the physical and biological response. The proposal's only shortcomings were a lack of detail on work elements and an incomplete description of the adaptive management process to be used.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project is one of a set of projects focused on improving salmon and steelhead habitat in the Tucannon River. The significance of this project is emphasized by the fact that the Tucannon River supports the only population of spring Chinook for the Lower Snake River major population group. Therefore, increase in this population is essential if this major population group is to recover.

The introduction to the proposal describes the process that has been used to assess the current status of habitat and fish populations in the watershed and how these data were then used to identify the locations for restoration projects with the highest probability of positively influencing the fish. The proposal presents a well-organized plan for implementing stream and riparian improvements. The project selection process that has been used in this watershed is one of the most technically-sound in the Columbia Basin.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The history and accomplishments of this project are described in the proposal. Perhaps the most impressive past accomplishment is the very complete assessment of the current condition of the watershed that was completed prior to selecting restoration projects. The geomorphic assessment, VSP parameter monitoring, sediment and temperature measurements provide a

very clear picture of how the fish are using this watershed and the factors that are impacting the fish within each reach. This information was then used very effectively in project prioritization.

The dramatic improvement in stream temperature since the implementation of riparian protections was impressive. Some additional presentation of monitoring results for other parameters would have been useful. Much work on sediment control has been undertaken, but it was difficult to assess the effectiveness of these actions from the information included in the proposal. There was mention that positive trends in streambed sediment also have been observed, but these data were not presented.

This project has yet to implement many projects, so the extent to which they will modify their habitat restoration plans adaptively remains to be seen. The extensive evaluation of habitat conditions that was utilized to establish restoration project priorities, however, indicates that the sponsors of this project understand how to collect, analyze, and apply data to their management decisions. Similarly, the modification of restoration plans in response to a major forest fire in the watershed indicates the capability to adaptively modify restoration plans. Therefore, they should be able to implement a very effective adaptive management process. The project sponsors should consider developing a formal adaptive management process to ensure that restoration planning progressively becomes more effective as responses to previous actions are assessed.

Some additional presentation of results of habitat monitoring conducted to date would have been useful, especially the sediment monitoring. However, the proposal and the links provided did provide a relatively complete description of how past monitoring results are being used.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

This project is one component of a program for habitat restoration in the Tucannon River. This project will focus on implementation of restoration actions. A process for prioritizing restoration projects was developed as part of another project. The RM&E effort for habitat will be covered by the CHaMP process, and a BPA-supported project is collecting the VSP parameters for Chinook and steelhead to compliment the habitat assessments. These projects appear to be well coordinated.

The RM&E process for habitat restoration in the Tucannon is very well developed. The Tucannon has been selected as one of the sites where CHaMP will be established. The CHaMP assessment will provide data on 45 randomly-selected sites annually. Four additional sites will be added each year at locations where projects have been implemented. The additional sites will ensure that habitat responses to restoration actions will be adequately assessed. Coupled with the steelhead and Chinook monitoring in the watershed, the RM&E program should provide a very clear picture of how habitat conditions and fish populations change over time as the habitat restoration program is executed in this watershed.

There was little discussion of emerging limiting factors in the proposal. Clearly, climate change and development within the watershed are issues that will need to be incorporated into restoration planning. The promising response in water temperature that has been observed over the last several decades indicates that actions that can help to mitigate for impacts from climate change are being implemented. However, a discussion of how these factors are being considered in the design of the restoration program for the Tucannon should have been included in the proposal.

4. Deliverables, Work Elements, Metrics, and Methods

There was very little specific information on Work Elements included in the proposal. A general list of the types of actions that will be used to restore habitat function was provided. But there was no indepth discussion of restoration designs for specific locations. Given the systematic and comprehensive approach that was used to identify and prioritize projects, it seems highly likely that detailed study plans for the priority sites have been developed. A link to these plans would have aided in the ISRP assessment of this project.

Specific comments on protocols and methods described in MonitoringMethods.org

The project uses CHaMP protocols for habitat monitoring.

[199401807](#) - Garfield County Fall Chinook and Steelhead Habitat Improvement

Sponsor: Pomeroy Conservation District

Short Description: This proposal is the continued effort of the farmers and ranchers of Garfield County to reduce erosion and the resulting sedimentation into the Salmonid bearing streams by aiding more producers into the conversion from conventional tillage practices to a reduced tillage and eventually to a Direct Seed program and over time with the use of cover crops to protect the land year round.

ISRP response loop recommendation: Does Not Meet Scientific Review Criteria

Comment:

The response from the project sponsors addressed a few of the ISRP's concerns but did not deal with some of the major concerns. In particular, the responses to our concerns about prioritization of projects, relationships with other projects in the county, and adaptive management were not sufficient. In addition, the apparent reluctance to present any of the temperature and sediment monitoring data collected by this project in the past is puzzling. These data could provide clear evidence that the project has made progress in addressing its major objectives. Without this information it is not possible to determine if the projects implemented to date have had a positive influence.

Priority areas for project implementation need to be identified. This type of assessment should form the foundation of a habitat restoration program. The response to ISRP concerns on this issue indicates that the sponsors feel that any project anywhere in the county has the potential to benefit aquatic system health in some way. This contention may be true, but there will be locations where execution of a project will have the greatest benefits for fish. Targeting actions to these locations could greatly enhance the effectiveness of this program. A priority for the sponsors of this proposal should be the development of a project prioritization process. The inability to identify high-priority projects was the greatest weakness of this project proposal.

The project sponsors responded to the ISRP concern about the lack of RM&E and a formal adaptive management design by stating that monitoring is not a component of this project. However, they do indicate that temperature and sediment monitoring have occurred as part of this project, so some level of monitoring has been included in this project in the past. The response did not include any results from these monitoring efforts in the proposal. The sponsors indicated that they were unable to include the temperature information because the database was too large. The entire database does not have to be incorporated into the proposal to provide some indication that the riparian projects that have been implemented to date are having a positive influence of water temperature. A single graph displaying average summer water temperatures over the monitoring period at a subset of the monitored sites would have provided some concrete indication of whether or not the restoration efforts were having the desired effect. The fact that steelhead now spawn in Pataha Creek and that this stream has been re-designated from a minor spawning area to a major spawning area was offered as evidence that water temperature is declining. However, increased steelhead spawning may have nothing to do with water temperature. Barrier removal may be the action that has caused this response. Data from both the sediment and temperature monitoring should have been used in the proposal to demonstrate that the project is making progress against objectives.

The ISRP's concern about lack of coordination between activities on Pataha Creek supported through this project and the large Tucannon habitat program and Tucannon monitoring project was not considered a serious issue by the project sponsors for two reasons: 1) Pataha Creek enters into the Tucannon 10 miles from its mouth, below the area that is the focus of the Tucannon program, and 2) Pataha Creek does not support Chinook, the focal species for the Tucannon program. Nonetheless, it seems obvious that, as both these projects are addressing habitat concerns in the same watershed, some degree of collaboration, or at least close communication, would be beneficial. At a minimum, some discussion of the relevance of the fish data being collected by the Tucannon monitoring effort for assessing biological response to the projects being implemented on Pataha Creek should have been included in the proposal.

The ISRP question concerning the need for annual reconnaissance flights to survey for fish passage barriers was adequately clarified. The sponsors have decided that annual flights are unnecessary as some of the barriers they thought were limiting fish movement (tumbleweed accumulations in the channel) were only temporary and did not present a migration blockage. The response also indicates that their barrier assessment is incomplete; barrier assessments on

some private lands have not been conducted. Apparently, the locations for which landowner permission can be secured will be surveyed on foot. This approach seems reasonable.

The concern about lack of landowner participation in the no-till program was partially addressed. The response indicates that the no-till funding provided through this project was simply being used to provide farmers an opportunity to try a no-till approach with limited financial risk. They indicate that many of the program participants ultimately employ no till on part or all of their land. They also clarified that landowner concerns about increased regulatory focus if they participated in the program was specifically related to certain funding sources to reduce livestock impacts on water quality. The sponsors are developing alternative mechanisms for addressing these issues that minimizes landowner concerns about regulatory exposure. But the response did not provide any detail about the results of experimental trials on the effectiveness of the cultivation practices being supported through this program. The proposal indicates that no-till practices "can lower fertilizer application rates and reduce herbicide use over time." Is there any concrete evidence that the nutrient or agricultural chemical delivery to streams been reduced?

Evaluation of Results

The proposal did not incorporate information on program actions completed to date in the body of their proposal, but the response directed reviewers to annual reports that do contain some of this information. However, results of temperature and sediment monitoring were not provided and the relationship of this project with biological monitoring efforts occurring under other projects in Garfield County, notably in the Tucannon River, was not described. This program can make an important contribution to habitat recovery in the county as it has access to multiple funding mechanisms. However, the lack of a process for identifying priority actions in the county and the apparent absence of an adaptive management program are limiting effectiveness.

Preliminary ISRP comment requesting a response:

This proposal lacked sufficient information to enable a technical review. The proposal should be resubmitted for ISRP review after addressing the concerns detailed in the comments below.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project proposes to employ several techniques to improve steelhead habitat in four creeks in Garfield County, Washington. The significance of this work to regional programs is not well described in the proposal. The authors do provide evidence that these streams either support steelhead or have some potential to support these fish if habitat conditions are improved. But there is no specific information provided that indicates to what extent the deliverables associated with this project would contribute to habitat improvement. There also is very little discussion of the integration of this effort with the large Tucannon River restoration program. This proposal does not discuss the Tucannon effort nor was there any mention of this project in

the Tucannon habitat proposal that was included in this review process. The components of this project related to Pataha Creek would benefit from a closer alignment with the Tucannon restoration effort.

The technical background for this project is incomplete. There is some indication given in the proposal that stream temperature data have been collected since 1993 and have shown improvement as restoration actions have been implemented. The temperature information was not included in the proposal. Any information about past and current habitat conditions on the project creeks would have been helpful in establishing the need for this project.

The project has generic goals such as reduce sediment flow into waterways and remove barriers, but little explanation is provided as to how these goals will be accomplished. Reduction in sediment delivery to the project streams is likely an appropriate objective but without supporting information on the current habitat conditions in these streams, judging the significance of the sediment problem relative to other possible limiting factors is not possible. Increased participation in no-till agriculture is viewed as one mechanism to reduce sediment delivery to streams. However, the proposal indicates many challenges with the existing no-till cost-share project. There is no indication in the proposal of steps that will be taken to address the current reluctance of farmers to participate in the program. The objective dealing with barrier assessment is somewhat puzzling. The proposal suggests that barriers form frequently enough to require annual surveillance flights. Barrier surveys in other watersheds are usually done very infrequently, assuming that barriers are long-term features that do not appear and disappear rapidly. There also was a statement in the proposal about barriers being formed by windblown debris. The process by which barriers are formed in these systems should have been described more fully to justify the annual reconnaissance flights.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The history of this project was briefly described, focusing on the changes in agricultural practices over the last 20 years and how these changes have affected the nature of the cost-share program in the county. The proposal also provides a high-level description of some of the riparian protections that have been implemented over this time. However, little information was provided about changes that have been observed in stream habitat as a result of efforts to date. Some mention was made about improvements in stream temperature and streambed embeddedness, but no data were provided to support these observations.

Although this project has been in existence, in some form, since 1993, there does not appear to be any plan that has identified the specific areas within the project watersheds where the implementation of sediment controls, riparian protections, or barrier removal would be most beneficial to the focal species. Improvement of habitat conditions could be much more effective if restoration and protection actions were focused on the most critical sites. Even though landowner participation in the programs supported through this project is voluntary, with some understanding of the most ecologically significant sites, a targeted effort might be made to encourage key landowners to participate in the program.

A troubling aspect of the description of the history of this project is the apparent decrease in participation by farmers in the cost-share program for no-till agriculture. This decline in participation was attributed to the fact that farmers can apply for cost share only a limited number of times and many have reached this limit and the fear that accepting cost share will expose the landowner to additional regulatory scrutiny. As one of the primary deliverables of this project is to increase the acres in the county utilizing no-till practices, the reluctance of landowners to participate would appear to be a serious barrier to project success. What steps are being taken to encourage greater participation in the cost-share program?

The adaptive management component of this proposal was very brief and really did not describe a process for adaptively improving the effectiveness of restoration actions over time. In fact, there was no description of an RM&E component associated with this project, without which adaptive management is not possible.

In sum, results of past restoration efforts from this study were incompletely described. Given that this project has been in existence since 1993, a substantial amount of information on the habitat response to project actions should be available. This information should be included in the proposal.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

As mentioned above, the proposal does not describe the relationship of this project to other projects occurring in Garfield County. The most obvious oversight in this regard is the failure to discuss relationships with the major restoration effort occurring in the Tucannon River. Given that the Tucannon will be one of the CHaMP sites, there could be a significant amount of information on habitat condition generated that would be useful in evaluating the response to the actions undertaken by this project.

The proposal acknowledges that climate change may be an issue of some significance in the project area but concludes that as there is nothing that can be done to increase late summer flow, there are no available actions to help mitigate impacts. There are actions, other than increased late summer flow, that might help address impacts from climate change. For example, the proposal does indicate that there have been improvements in stream temperature since project inception. Elevated temperatures are an expected product of climate change. Actions to reduce temperature, therefore, represent one possible option for addressing climate change impacts. A more careful consideration of the options for addressing the effects of climate change should have been included in the proposal. Also, given the rapid changes that have occurred in farming and ranching practices over the life of this project, it seems reasonable to assume that practices will continue to evolve. What types of changes might be anticipated and what might be the environmental consequences of these potential changes in management?

No RM&E component for this study is described in the proposal. However, there is mention of the collection of temperature data and the project has purchased ISCO water samplers,

suggesting that sediment concentrations in stream water are being monitored. Some description of how these data are being analyzed and used to improve project effectiveness needs to be included in the proposal. In addition, there are some monitoring efforts occurring in the county that will provide information useful for assessing the effectiveness of actions undertaken by this project. Most notable in this regard is the initiation of CHaMP monitoring on the Tucannon River. Although it may not be feasible to incorporate a comprehensive monitoring and research effort into this project, the proposal should include some description of how the project sponsors will utilize information being generated by the other assessment efforts occurring in the region.

The proposal describes a program to be funded under this project entitled “improve soil health.” The details of this program are not provided, but it appears that it will represent a new approach to no-till farming with a focus on restoring soil health sufficiently to reduce the need for fertilizer and other agrochemicals. A significant research effort to determine its effectiveness of this new approach to agriculture would seem to be critical. No RM&E for this new program was included in the proposal.

4. Deliverables, Work Elements, Metrics, and Methods

A more thorough description of the work elements that will be used to achieve the deliverables should be included in the proposal. There are two deliverables for this project: reduce sedimentation in the project creeks and conduct an annual assessment for fish barriers. However, the work elements that will be used to achieve these deliverables are only described very briefly. As noted earlier, efforts to reduce sediment production could be made much more effective by prioritizing the sites within the four project watersheds where sediment production and delivery to the drainage network is most problematic. Apparently, no such prioritization plan has been developed. The deliverables on barrier removal require a substantial amount of further explanation. In fact, it is not clear that barrier removal is an appropriate component of this project. An organization with more expertise in fisheries science may be better suited for barrier identification, assessment, and development of plans for removal. If the deliverable related to barrier assessment remains in this project, additional explanation of the issue being addressed and the methods to be used to assess barriers is required, especially some rationale as to why annual reassessments are considered necessary.

Specific comments on protocols and methods described in MonitoringMethods.org

Monitoring was not discussed in the proposal.

[201007700](#) - Tucannon River Programmatic Habitat Project

Sponsor: Snake River Salmon Recovery Board

Short Description: Restore stream channel processes and improve habitat function to address the limiting factors identified for Tucannon River spring Chinook in the 2008 FCRPS BiOp.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a well-designed habitat restoration program and the proposal, on the whole, was well written. The project prioritizations are based on a thorough understanding of current habitat conditions and the factors that are limiting spring Chinook productivity.

Four areas of the proposal would have benefitted from additional detail. These qualifications can be addressed in contracting and responses to these concerns provided in future reviews and reports. A response is not requested.

1) What is the landscape strategy for implementing these restoration actions? If such a strategy has been developed, but is part of a different project, more information should be given on how the projects fit together and are coordinated.

2) The ISRP is pleased that the project sponsors will be conducting surveys using CHaMP protocols, but how will ISEMP's biological effectiveness monitoring take place, who will do the work, and how will results of fish response studies be incorporated into revised restoration actions?

3) Project-scale biological monitoring does not appear to be part of this project. Will ISEMP/IMW projects elsewhere provide an assessment of the project-scale effectiveness of the types of projects being implemented under this program? If not, this project should include some of project-scale biological assessment.

4) The project sponsors should consider some assessment of how factors such as climate change or increase in human population could compromise the effectiveness of the restoration effort.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal seeks support to implement 28 reach scale restoration projects in the 30-mile section of the Tucannon River where the majority of spring Chinook salmon spawning and rearing takes place. The groups working in this watershed have also identified the life stage for spring Chinook that is limiting productivity: egg to parr survival. The projects are designed to

address habitat problems that are impacting survival of this life-history stage. The ISRP has previously reviewed the process used by the authors of this proposal to identify the highest priority projects in the watershed. This selection process is based on a thorough geomorphic assessment of all reaches accessible to anadromous fish in the basin and information from the fish research that is occurring; the approach is technically sound. This information is reviewed by a regional technical team that selects and prioritizes project sites and implementation sequencing. Overall, the project is well integrated into regional programs. The technical background was adequately described.

The project objectives are consistent with priorities identified in various restoration plans for this watershed. However, it is not clear how the numeric targets provided in the objectives (for example, two pieces or more of LWD per channel width) were derived. The meaning of the target for riparian function is unclear (“Increase riparian function to 75% of maximum” - maximum what?). Apparently, these targets were included in the Tucannon Subbasin Plan, which is ten years old. Does any of the new information that has been collected suggest that these targets should be modified or varied from reach to reach depending on site conditions?

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

History and past accomplishments of this study are well described in the proposal and links are provided to documents containing detailed information. The project has played a significant role in protecting Tucannon River riparian areas through the CREP program. The project has also been involved in a variety of conservation activities typical of the region, for example road improvements, riparian revegetation, fish screening, and water right acquisition. The results given in the proposal were primarily descriptive and were loosely related to increased salmonid productivity. As the ISEMP results become more available, this should improve.

The project has changed its focus adaptively over the last several years. Initially, restoration efforts were focused on reducing water temperature and sediment levels. Significant progress has been made on both of these concerns. To identify the next tier of factors limiting spring Chinook productivity, a geomorphic assessment was completed for all reaches accessible to anadromous fishes. This assessment was the basis for identifying key areas for restoration and the habitat improvements at those reaches that would make the greatest contribution to increased egg-parr survival. The RM&E effort associated with this project and the existence of the Technical Review Team should enable the improvement over time in the identification of critical habitat needs.

Results from monitoring and assessment efforts in the basin were briefly discussed in the proposal and more detailed information was available through links provided.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The relationship between this project and the projects that will be involved in implementing priority habitat actions is clearly described. This linkage was not explained well in some of the

supporting proposals. The association among the projects addressing habitat deficiencies prioritized for treatment in the Tucannon Program should be clear in all of the related project proposals.

The RM&E program associated with this project is very complete. It includes CHaMP assessment of trends in habitat condition supplemented with four additional sites located at habitat restoration installations. There is a good working relationship with CHaMP. In addition, WDFW operates a fish-in/fish-out monitoring program on the Tucannon that provides an indication of watershed-scale changes in anadromous fish populations. An element that may be lacking in the RM&E program is an assessment of fish response to the restoration projects. These projects have been selected to improve survival of the egg-parr life history of spring Chinook. Adding some evaluations of the actual effect of the projects on this metric would be very valuable for assessing the effectiveness of the selected projects. Because this project will not involve fish monitoring, no tagging will occur. The CHaMP protocols include macroinvertebrate sampling, but the proposal does not confirm that such sampling will occur. It also was not clear whether ISEMP biological effectiveness monitoring would take place at all 28 restoration reaches.

It was not clear from the proposal whether emerging limiting factors such as climate change or the expansion of invasive aquatic and riparian species could be adequately accommodated with existing habitat models. The project sponsors should consider a more comprehensive assessment of emerging limiting factors in prioritizing future habitat projects.

4. Deliverables, Work Elements, Metrics, and Methods

Most of the deliverables and work elements were adequately described. The proposal also provides links to project plans that provide details for those projects that are currently being implemented or will be initiated in 2013-14. Additional information needed was whether a landscape-based strategy had been developed specific to the Tucannon River. That is, has there been an effort to plan the location and sequencing of restoration actions that builds a connected network of restored sites instead of a disconnected collection of sites with significant environmental problems in between them that keep focal species from making full use of the restoration?

Specific comments on protocols and methods described in [MonitoringMethods.org](#)

This proposal was very well tied into the monitoring methods protocols.

[200820200](#) - Protect and Restore Tucannon Watershed

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: This project will protect, enhance, and restore functional floodplain, channel and watershed processes to provide sustainable and healthy habitat and water quality for aquatic species in the Tucannon River Subbasin. This project will achieve biological objectives and strategies established in the Tucannon Subbasin Plan, address limiting factors in the FCRPS BiOp and Fish Accords and support physical and ecological conditions for the CTUIR First Foods Framework and the Umatilla River Vision.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This project includes a subset of the habitat projects to be implemented under the Tucannon Habitat restoration program. The proposal was a bit confusing as initially it appeared that the objective of this project was a habitat restoration program to identify and prioritize restoration actions. This objective completely overlaps with those in another project proposal (Tucannon Habitat Restoration Program; GEOREV-1987-100-01). However, the work elements and deliverables section clearly indicates that the purpose of this project is to implement habitat restoration actions. These actions have been identified through the Tucannon Habitat Program as priorities for the restoration of Spring Chinook and steelhead in this watershed. Therefore, this project is an important component of the restoration effort for the Tucannon. But the proposal would have greatly benefitted from a more thorough description of the manner in which this project is aligned with the Tucannon Habitat Program and the other habitat restoration efforts occurring in this watershed. Description of the process being used to coordinate RM&E efforts in the Tucannon also should be included in the proposal as this proposal suggested some deficiencies in the current approach. These concerns can be addressed in future reports or proposals for this project.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The significance of the habitat restoration actions described in the proposal is well established through the project prioritization process that has been developed for the Tucannon. The sponsors are part of the Tucannon Habitat Program, which implements a process to prioritize and plan habitat restoration activities in the basin. Therefore, the proposed projects address factors that are limiting salmon and steelhead production in stream reaches with potential to support high levels of productivity for these species.

This project has six objectives, to: 1) improve fish passage and migration conditions for salmonids, 2) restore river channel functions, 3) increase instream habitat complexity, 4) reconnect floodplains to the main river channel, 5) improve water quality, and 6) establish multi-tiered levels of vegetation in riparian areas. These objectives are all well supported by the

habitat assessments that have been conducted in the watershed and are appropriate for this project.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Although there has been monitoring ongoing in the Tucannon, this proposal does not review the results from this work. Previous projects have been successfully completed. These projects increased stream sinuosity, floodplain connectivity, removed passage barriers, installed large woody debris, boulders and spawning gravel, planted native grasses, sedges, trees and saplings, and removed or suppressed noxious weeds. Pre- and post-project evaluations have been performed and show that these projects have increased stream width, depth, length, the presence of undercut banks, shade, wood, and root wads and decreased erosion. Methods have included fencing of riparian areas and restoration of riparian vegetation. More complete presentation of existing habitat-monitoring information would have been useful in the proposal review process.

There is some evidence presented that restoration methods have evolved as a result of past experiences, suggesting some capacity to adapt. Recent changes include shifting restoration actions from steelhead habitat to spring Chinook habitat. "Softer" restoration approaches are now being employed, such as using large woody debris and natural materials whenever possible. Another change has been to "work in the dry" by de-watering stream reaches before construction begins. This approach is being applied to minimize habitat disturbances in project areas. Plastic tarps were used to control weeds; these have now been replaced by biodegradable coir fabric. To reduce grazing and beaver impacts, the sponsors are using organic repellants and planting birch and red alders as opposed to willows and cottonwoods. However, there was no formal process for adaptive management described in the proposal. To ensure maximum benefit from the RM&E program, such a process should be developed.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The relationships between this project and other projects in the Tucannon, some of which are pursuing objectives similar to those of this project, are inadequately described. The sponsors are part of the Tucannon Coordination Committee. Parts of this proposal that address project prioritization and program administration appear to overlap considerably with GEOREV-1987-100-01. However, the work elements appear to be focused on the implementation of projects. The relationship of this project to the other habitat improvement and monitoring efforts on the Tucannon requires some additional clarification.

The other proposals for the Tucannon all represent the RM&E efforts as very comprehensive. Surprisingly, this proposal suggests that the current monitoring is not sufficient to evaluate projects being implemented by the CTUIR. The reasons for this concern were not fully explained. It is a bit worrisome that the proposal states "There has been some limited coordination with Washington Department of Fisheries Research Monitoring and Evaluation (RM&E) Project in which they collected baseline data regarding pre-implementation status of

juvenile salmonids in Russel Springs Creek. The CTUIR RM&E is transitioning into conducting biological monitoring in the Tucannon Basin starting in 2013 due to incomplete coverage by state entities and lack of shared data." It is unclear why data are not being shared among organizations involved in the various Tucannon projects. If this is truly a serious issue, it could compromise the value of the entire monitoring plan for this watershed. Another concern is that the lack of coordination among monitoring efforts will lead to duplication in effort. It would seem that the Tucannon Coordinating Committee would be the appropriate organization to coordinate monitoring efforts for the Tucannon. A more thorough discussion of the concerns with the current monitoring effort should be included in this proposal.

The proposal indicates that the deficiencies in the current monitoring process are being addressed through the development of two, new RM&E plans, a physical habitat monitoring plan and a biomonitoring plan. These plans should have been included in this proposal. The plans should include a thorough description of the coordination with other monitoring efforts in the Tucannon.

Two emerging issues were identified in the proposal: climate change and invasive species. The sponsors list expected impacts due to climate change and propose several actions to alleviate possible consequences. They include continuing to connect floodplains to main channels to increase hyporheic flows and reduce water temperatures and maintaining their tree planting activities to increase stream shading. They propose to control noxious weeds by using biodegradable tarps and plan on limiting the occurrence of invasive animal species by creating proper conditions for salmonids.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables list 17 individual habitat projects, organized into 6 habitat project types, that they would like to implement by 2018. These habitat projects have been identified as priorities through the Tucannon project ranking process. They are designed to increase stream sinuosity and channel complexity, remove barriers to fish passage, and increase holding areas for adult and juvenile spring Chinook. The work elements appear to be appropriate for the projects being proposed.

Specific comments on protocols and methods described in MonitoringMethods.org

Two protocols, the Umatilla Subbasin Fish Habitat Restoration Monitoring Plan and the CHaMP protocol will be used. Both are described. But no information is presented on the monitoring at the two sites (Russel Creek/Pataha) to measure responses of fish populations to the habitat changes. Both of these sites will be assessed using a Before/After protocol because control sites could not be identified -- more information on why control sites are not available is needed. No information was presented on how the fish metrics will be measured.

O. Yakima River

200739800 - Yakima Basinwide Tributary Passage and Flow

Sponsor: South Central Washington Resource Conservation and Development

Short Description: The Yakima Tributary Access & Habitat Program (YTAHP) will continue to restore salmon and steelhead populations, through screening irrigation diversions to prevent fish entrainment; providing passage at barriers; and improving instream and riparian habitat. Since 2003, YTAHP has implemented 133 projects, screened 190 cfs and added 217 miles of rearing and spawning habitat. Over the next 5 years YTAHP plans to implement over 70 projects that meet our objectives to restore salmonid populations.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This project is well done, especially with their efforts to build and maintain a team of partners from many agencies and groups. As an example of the type of effort, members of the team meet monthly to ensure that all members are aware of impending work, accomplishments, identify special needs, and discuss emerging issues. Additionally, the team has had discussions about their efforts in light of climate change and has discussed options. We commend the personnel on their work and suggest this project could be used as an example for other projects.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The sponsors clearly described the significance of their efforts relative to regional programs such as the 2009 Fish and Wildlife Program, the 2008 BiOp, and the Yakima Subbasin Plan.

The sponsors also strongly made the point that tributary rearing is, for a number of reasons, a life history pattern more beneficial to salmon and steelhead than is mainstem rearing provided the habitat is of high quality and the out-migrants are not entrained in irrigation systems. The ISRP was pleased to see the sponsor's use of literature citations to support the association between project activities and potential benefits to fish. This could serve as an example for other habitat projects to follow on the use of simple fish metrics to demonstrate benefits as well as the use of literature citations. This approach helps connect the project work to expected benefits for fishery resources.

The five objectives were clearly presented and reasonable.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The ISRP appreciated the lengthy, extensive presentation of accomplishments. There are detailed discussions of monitoring and assessing benefits to anadromous and resident fishes. The proposal provided good detail and photos for the several examples of completed projects

highlighted in this proposal. Since 2003, YTAHP has implemented 133 projects, screened 190 cfs, and added 217 miles of rearing and spawning habitat.

The review team offers the following as an example of the team's use of coordinated adaptive management. When an ISRP team member asked the sponsors about their efforts to prioritize and respond to changes, he was told that field personnel rely heavily on Technical Working Groups (TWG) to help prioritize actions. Currently, TWG are most involved during the engineering phase to help ensure that what happens on the ground will meet needs of the fish and habitat, but because of good working relationships, TWGs are often used.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

One of the strengths of this project is its relationship to other entities in the region. The presentation of emerging limiting factors is well done.

4. Deliverables, Work Elements, Metrics, and Methods

The sponsors describe 51 deliverables. The ISRP team was pleased to read the detailed description of work planned and believed this is an indication of team organization. The ISRP also interpreted these descriptions as an indication that there is some acceptance of the program by private landowners.

The ISRP would have appreciated some degree of prioritization among the numerous individual sites to be screened or to receive other project actions. It is not clear that all 51 projects can be completed in the funding cycle.

Specific comments on protocols and methods described in MonitoringMethods.org

The ISRP appreciated the sponsor's inclusion of fish metrics, such as redds, before and after past actions.

[199200900](#) - Yakima Phase II Fish Screens Operations and Maintenance (O&M) with Washington Department of Fish and Wildlife (WDFW)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Short Description: This proposal provides for continuation of funding for the existing comprehensive operation and maintenance program by the BOR and WDFW of BPA owned Yakima basin Phase II Fish Screen facilities. This program provides preventive routine, emergency, and long term/overhaul maintenance and operational adjustments on Phase II fish screening facilities owned by BPA. The objectives of this project are to assure optimal facility performance thereby ensuring protection for all fish species.

ISRP response loop recommendation: Meets Scientific Review Criteria - In Part

Qualifications:

The portion of the proposal to update Glead and Nelson screens is not justified biologically, based on the information provided. That is not to say the screen improvements are not biologically justified, but more information would be needed. The sponsors need to show information about the number of fish that are impacted by screens needing work. For instance, if the sponsors are targeting a screen for re-constructing or re-furbishing, they should monitor the existing screen to demonstrate biological data (primarily fish) associated with problems at the screen location.

Comment:

See the qualifications statement above.

Preliminary ISRP comment requesting a response:

Responses to the following issues are requested:

- 1) A more critical appraisal of the need for screen location and function from a fish perspective is needed.
- 2) Provide some basic quantitative biological information to justify the effectiveness of the screens.
- 3) Provide an approximate estimate of how many smolts might encounter the Glead screen given that the primary flow and velocity are in the main channel.
- 4) How many screens must be replaced with appropriate 3/32" mesh screens?
- 5) Is funding for screen changes necessary if Nelson Dam modifications are not made?

There seems to be a history of not refurbishing several of these fish screens, and the sponsors indicated that maintenance is reaching the critical stage. Replacement costs exceed costs of regular refurbishment, and there is expertise available to get the refurbishment work done. A more critical appraisal of the need for screen location and function from a fish perspective, not an engineering perspective, is needed and requested. The appraisal should include a justification of the need for a screen in a particular location and a discussion of the biological benefits potentially associated with the refurbishment, as elaborated in the comments below.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal provides preventive routine, emergency, and long term/overhaul maintenance and operational adjustments on Phase II fish screening facilities owned by BPA. The objectives of this project are to assure optimal facility performance thereby ensuring protection for all fish species. Regional significance and technical background are adequately described. The proposal provides an adequate description of the significance of the project O&M for fish screens to regional programs, including the BiOp and subbasin plans.

It appears that two, and possibly three, issues are brought up in the introductory material: 1) funding for Gleed Phase II facility to deal with debris, 2) the Nelson dam facilities consolidation, and 3) additional facilities identified as needing screens in 1990 but never installed and not mentioned again in the proposal. Gleed and Nelson are listed below as deliverables.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This project does not have a monitoring and evaluation component, although Objective 3 does mention the contribution of this effort to overall biological criteria and evaluation of fish screens as part of the fish screen oversight committee. The ISRP previously requested information showing that the screens were effective. However, the proposal provides no quantitative information on screen effectiveness or salvage rates, which the proposal states are documented for example by the numbers of fish recovered as the channels are dewatered. The proposal refers to PNNL studies of fish screens showing their effectiveness but provided no results. The sponsors should provide some basic biological effectiveness information from recent investigations as a means to further justify their proposal.

Adaptive management was mentioned only to the extent that the “sponsors address issues when identified.” No examples of significant changes in O&M procedures were described in the proposal. It was not clear why the sponsor has not already responded to new fish screen mesh size criteria (3/32”). It is not clear if funding for this change is needed. Is there a need to screen additional water diversions in the basin?

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal did not identify emerging limiting factors such as climate change, and how this might affect some deliverables. For instance a discussion of changes in river channel in

response to flood events and how this impacts screen operations would be a useful approach to the climate change.

4. Deliverables, Work Elements, Metrics, and Methods

The ISRP has questions about several deliverables identified below.

Deliverable 2: How many smolts might encounter the Glead screen given that the primary flow and velocity, and presumably nearly all smolts, are in the main channel about 30 meters away from the screen.

Deliverable 3 is to refurbish screens. How many screens must be replaced with appropriate mesh screens?

Deliverable 4: The proposal mentions that screen changes at Nelson Dam cannot be made until the proposed dam modifications are made. Is funding needed if changes to the dam are not made within this project period? To what extent might changes at Nelson Dam involving consolidation benefit salmonids?

Deliverable 5 includes an element of screen evaluation as part of the oversight committee. The sponsor should provide some information showing that the screens are effective. For instance, how many fish are salvaged?

[198812025](#) - Yakima River Management, Data and Habitat-Yakima/Klickitat Fisheries Project (YKFP)

Sponsor: Yakama Confederated Tribes

Short Description: The Yakima/Klickitat Fisheries Project (YKFP) is split into several sub-projects (Monitoring and Evaluation, Operations and Maintenance, and Construction) under the overall umbrella for the program. The Management and Data project includes the overall management and administration, as well as the data management, of the YKFP program. Habitat protection and restoration components have been combined with the Side Channels (199705100) to form a fish habitat and land acquisition project.

ISRP response loop recommendation: Not Applicable

Comment:

This project is a coordination and data sharing project, which is not a major topic of this review. This proposal does not contain sufficient scientific information for ISRP review. The ISRP does not have any serious concerns with the proposal, as augmented with the response. See the ISRP's review of data management and coordination projects for programmatic issues to consider (ISRP 2012-6: www.nwcouncil.org/media/33387/isrp2012_6.pdf).

Preliminary ISRP comment requesting a response:

This project has a data management and administrative focus. The ISRP noted that data sharing between groups (YN, WDFW) is not working well and request an action plan to address data sharing. The action plan should identify personnel and/or positions involved, data that will be shared, and the mechanisms used for the sharing and/or transfer.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is a data management and coordination project that encompasses a number of other separately funded projects. The significance of the project to regional programs is described. Technical background is limited to stating that data are maintained in a variety of established regional databases, but no examples of the types of data maintained are discussed. Nearly all data storage is related to separate monitoring and evaluation efforts. The ISRP did not see examples of annual M&E reports that contained time series in data tables related to M&E efforts, though the overall program has a good record of publishing findings. Typically, long-term M&E programs will update the key metrics so that trends can be followed, but it was not apparent in the proposal that this was done when storing data in regional and local databases. The sponsors noted that they are seeking an enforceable data sharing agreement with WDFW because shared data have been inappropriately used in the past. Details of misuse were not described. The ISRP and ISAB believe that data sharing and access to data and associated meta-data is important, and we encourage the sponsors and WDFW to finalize the data sharing agreement.

The ISRP cannot comment on the scientific merits of the types of M&E data that are being collected and how they are stored because no information was provided here. M&E is covered by a different funded project. This approach hinders a comprehensive technical review of the proposal. The objectives of this proposal were clearly stated, but these objectives only cover operation and management of projects that were funded separately.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The ISRP found that accomplishments and results of the habitat projects were listed in tables; this is a good condensation of many individual projects funded by associated contracts. No quantitative information was provided on efforts to supplement natural stocks and improve habitat quality in the basin. Associated technical reports were not directly referenced in this proposal, rather a link was provided to the 2010 M&E proposal that provided links to technical reports. Sponsors should place the actual links in their proposal, rather than linking to a proposal with links as currently done. The YN and partners have done excellent work but this approach complicates a comprehensive review of the proposal.

Adaptive management was briefly described and one specific example was provided. The proposal mentioned a log of decision documents; a compilation of these documents would be worthwhile.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal refers to the monitoring project for emerging limiting factors such as avian and piscivorous predation, and fish interactions. Potential actions to address these emerging issues should be briefly described.

4. Deliverables, Work Elements, Metrics, and Methods

The sponsors listed the deliverables and identified that these revolve around data management, coordination, and reporting.

The entire budget is for personnel and overhead/indirect costs. Key personnel are shown, including approximately 4.8 FTE; effort by less key personnel was not described. A better description of duties of all personnel is needed in the proposal.

[199206200](#) - Lower Yakima Valley Riparian Wetlands Restoration

Sponsor: Yakama Confederated Tribes

Short Description: The primary purpose of this project is to permanently protect, restore, and manage Yakama Reservation lands to partially mitigate for wildlife habitat losses resulting from the construction of Bonneville, The Dalles, John Day, and McNary dams on the Columbia River. These wildlife habitat losses negatively impact Yakama Nation interests in its Ceded Land and Usual and Accustomed Places, as specified in the Treaty of 1855.

ISRP response loop recommendation: Meets Scientific Review Criteria

Comment:

The response was helpful in better framing objectives and deliverables in quantitative terms, while appropriately pointing out the inherent constraints and the need for flexibility. Additional material was provided that also helped clarify other aspects of the project. The physical setting was more completely described.

The response describes the need to lease rather than purchase land for protection. Reviewers do not completely understand the dispute the sponsors have with BPA over land easements and whether or not this continues to constrain progress. Hopefully the issue can be resolved so that key habitat can be protected.

Evaluation of Results

This project works in the floodplains of the Yakima River from Union Gap to Mabton (the “Wapato Reach” and areas below) and the lower elevation areas (below 2,000 feet) of Toppenish and Satus Creeks, to preserve and restore Reservation lands as mitigation for

hydrosystem impacts. Since its inception in 1991, over 20,000 acres of floodplain lands have been protected through purchase or lease. These lands include 75 main channel stream miles (117 miles of stream bank), 4,000 acres of National Wetland Inventory wetlands, and 1,400 acres of riparian forest. The program has also, since 2007, restored or enhanced over 25 miles of main and side channels, and over 1400 acres of wetlands.

The sponsors are in the process of compiling a history of project actions, including maps of project locations, to be finished by October 2013.

Preliminary ISRP comment requesting a response:

A response is needed that identifies quantitative objectives and deliverables to the greatest extent possible. Deliverables should also include project reports that document progress.

A number of other comments found below are intended as feedback to aide future proposal preparation.

The proposal mentions a dispute with BPA over land easements. The ISRP notes that it is important that this dispute be resolved so that conservation efforts can continue to expand.

Because one of the objectives of the work is to provide natural resources for Yakama members, documentation of progress toward this end should be included in future proposals. Progress could take many different forms such as documentation of plants and animals used, measures of use such as resource use days, or as culturally appropriate, map the distribution of culturally valuable resources that are reappearing due to their management actions. When the ISRP visited the Zimmermann Tract, our hosts gave a demonstration of wapato harvesting and were very pleased that this plant had appeared in the Tract.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The significance of the project to regional programs is adequately described. The ISRP appreciates when objectives and deliverables are presented quantitatively, for example secure 1,000 to 3,000 acres of floodplain habitat per year. However, some objectives were not quantitative, for example amount of habitat restored.

The goals of this project are to permanently protect 27,000 acres of floodplain lands along the Yakima River, Toppenish, and Satus Creeks within the agricultural portion of the Yakama Reservation, to enhance those lands to realize a net increase in native fish and wildlife habitat values, to adaptively manage those lands to ensure permanent fish and wildlife value, and to monitor the habitat conditions to ensure the desired habitat value is reached and maintained.

A description of the physical setting would have been helpful, including a map and brief overviews covering physical setting and land ownership.

It is noted that while steelhead spawn mostly in Toppenish Creek reaches above the project area, much spawning occurs in Satus Creek within the project area. The project area is especially important for winter rearing. Approximately 66% of the subbasin's juvenile steelhead typically enter the project area in December-January each year and do not migrate downstream until the spring. Future reports should discuss how project efforts protect or enhance that winter rearing habitat.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

It is noted that 21,000 acres of the 27,000 acre floodplain goal has been achieved, but 18,600 of these acres are leased. Reviewers are uncertain whether leased lands are fully protected in perpetuity, as suggested. The proposal mentions a dispute with BPA over land easements. The ISRP notes that it is important that this dispute be resolved so that successful conservation efforts can continue to expand.

The proposal notes that it is behind schedule in annual reports. The report for 2009 is 75% complete and the 2010 report is 30% complete. The proposal states that sponsors will improve the amount of timely reporting.

The project monitors its habitat acquisitions. Some information is reportedly presented on the webpage, which will be reportedly updated in FY 2013 but it is not clear when in FY 2013 the update will occur. The last report to integrate population monitoring with habitat restoration actions was completed in FY 1999 (Millsbaugh and Skalski 1999). More effort is needed to document acquisitions and monitoring results. Monitoring plans, management plans, and habitat surveys are specific deliverables but reviewers did not see references to documents that have been produced, so it is difficult to evaluate what has been accomplished in addition to stated overall land acquisitions.

A map is needed as well as photos of selected sites. During our visit, the tour hosts referenced using photo plots to record changes occurring on Project lands. We encourage this as a basic monitoring activity. Also missing was a description of locations of activities to determine whether they scattered or clumped. Better discussion of geographical specifics would have been helpful.

Prioritization of land acquisition was briefly described in the proposal and should be presented in more detail in future proposals. There is evidence of good partnering with USFWS, NRCS, and conservation groups.

4. Deliverables, Work Elements, Metrics, and Methods

A number of deliverables are listed. Many of these imply that a report would be produced, for example complete a wildlife survey and a complete management plan for new land. A key deliverable should be brief reports that document the activity given that the budgets for these efforts seem to be quite robust.

Specific comments on protocols and methods described in MonitoringMethods.org

A number of references are cited for habitat monitoring methods at MonitoringMethods.org. It is not clear to what extent these specific methodologies are actually used because a recent report on monitoring was not readily available.

199603501 - Yakama Reservation Watershed

Project Sponsor: Yakama Confederated Tribes

Short Description: The Yakama Reservation Watersheds Project (YRWP) works to protect, restore and enhance Endangered Species Act (ESA) listed Middle Columbia River Steelhead Trout (MCRS) population levels within the watersheds of the Yakama Nation Indian Reservation. MCRS are critical ecological components and have been culturally important to the indigenous Yakama people since time immemorial. The ultimate goal of the project is to help create a harvestable population level of MCRS for maximum benefit.

ISRP response loop recommendation: Meets Scientific Review Criteria

Comment:

The sponsor provided reasonably detailed responses to each of our seven concerns. This material contains valuable supplemental information about the project.

The efforts made to better quantify both objectives and deliverables were helpful. Particularly important were the descriptions and before/after photo series of selected recent activities. The prioritization protocol was effectively described.

Reviewers found the explanation of timber harvest processes used by the Yakama Nation helpful. More details about the timeline for certification under the Sustainable Forest Initiative would have been welcomed but was not requested. Clarification was provided regarding the extent to which project streams are supplemented with hatchery origin fish. It was also noted that no projects are currently planned for fish habitat in and along the mainstem Yakima River near the three tributary confluences.

Evaluation of Results

The proposal contains a detailed description of past and ongoing efforts to restore and protect Satus Creek, Toppenish Creek, and Ahtanum Creek, the three primary Yakima River tributaries on the Yakama Reservation. Work is laid out in a chronologic summary for each tributary, giving an account of the problem, the approach taken, and the activities completed to remedy the problem. There is a great deal of information included, and it shows considerable effort. Evaluation of results could be strengthened by including an account of the survival rates of the

various vegetative plantings and including key metrics from the steelhead monitoring conducted by others.

Preliminary ISRP comment requesting a response:

This is a proposal that shows considerable effort, but improvement is needed in several important areas. A response is requested to address the following:

1) The objectives and deliverables are reasonable, but many should be quantified so that reviewers and the Council have a better idea of what may be accomplished. For example, how many historical channel networks will be restored during the project period (Objective 3, Deliverable 7), how many miles of fencing will be installed (Objective 4, Deliverable 11), how many stream banks will be stabilized (Objective 5, Deliverable 8), how many acres of headwater areas will be restored (Objective 5, Deliverable 9)?

2) This project has a long history and a long list of specific accomplishments was provided, but this information was not synthesized to provide a status update on the restoration effort in the three targeted watersheds. See further comment below. Please include a revised description of accomplishments for the past two years. Also, linkage to other BPA-funded projects was not described in sufficient detail to show that the projects complement rather than duplicate each other. Brief explanations are needed.

3) The proposal mentioned that timber harvests will occur during the next five years. The response should mention how these new timber harvests might adversely impact ongoing restoration activities. What mechanisms are in place to coordinate timber harvest and watershed activities?

4) Prioritization of the project's components is described as "From 2008-present, the pool of projects identified using the Yakima Basin Steelhead Recovery Plan as a guide, were selected for implementation based on a cost-benefit prioritization method which considers biotic, physical and cultural factors." This inadequate description can be rectified by providing details about the biotic, physical, and cultural criteria used in the cost-benefit methods, the source of information used for the criteria, and which group or groups assign priorities using this method.

5) The focus is on geomorphic restoration, but it is not evident that the staff has those skills, as yet. The response should address this issue and, if appropriate, identify solutions such as using consultants or staff from other projects.

6) The proposal did not describe whether the three tributaries in this proposal were being supplemented with hatchery fish. That should be made clear in the response.

7) The new work proposed to "extend the geographic scope of potential restoration work by taking advantage of the best opportunities to protect and restore fish habitat in and along the

mainstem Yakima River near the three tributary confluences" is inadequately described and not justified by the proposal. Additional information is requested.

Additional comments and queries are given below as feedback for future efforts and do not need to be addressed in a response.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project has a long history. The description of significance to regional programs is adequate. In the technical background section, the sponsors should have provided more detail on how they prioritized specific habitat projects.

The motivation for this project is to restore ESA-listed steelhead numbers. The proposal would have been stronger if it tied these more specifically and directly to steelhead. To what extent might steelhead productivity have increased in response to past restoration activities? How much more effort is needed to improve steelhead productivity to some measurable amount?

The six objectives, restore hydrologic function, improve passage, restore channels and floodplains, restore riparian communities, restore flow and water quality, and monitor, are reasonable, but quantitative benchmarks should be provided for objectives involving restoration. For example, how many historic channel networks will be restored during the project period (Objective 3, Deliverable 7), how many miles of fencing will be installed (Objective 4, Deliverable 11), how many stream banks will be stabilized (Objective 5, Deliverable 8), how many acres of headwater areas will be restored (Objective 5, Deliverable 9)?

Supplementation of natural salmonids with hatchery stocks is an important activity in the Yakima watershed. The proposal recognizes the need to recover degraded habitat so that natural stocks may become self-sustaining.

The description of the setting of the three streams was helpful but incomplete. Maps are needed. More importantly basic hydrologic information should be included. This is a serious deficiency for a hydrologic-based proposal. What are seasonal and historical flows?

Description of the three streams was weakened by use of general and vague assessments of the systems biological function. More detail and specifics are needed, especially justification of limiting factors.

The sponsors propose to "extend the geographic scope of potential restoration work by taking advantage of the best opportunities to protect and restore fish habitat in and along the mainstem Yakima River near the three tributary confluences. We would limit potential projects to the Yakima River where it forms the Yakama Reservation boundary from the mouth of Ahtanum Creek (mile 107) downstream to the town of Mabton (mile 60). We would focus on

right-bank (Reservation-side) habitats that, if protected or restored at moderate cost, are likely to benefit steelhead under the current Yakima River flow regime, which is heavily modified for irrigation water storage and delivery, but could function even better with the mainstem flow restoration measures called for in the Subbasin Plan and Salmon Recovery Plan." This was included in the proposal but not emphasized, not mentioned in the introductory material, not featured as an objective, nor addressed during the site visit.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

A long list of accomplishments was provided, but it was difficult to evaluate what these mean in terms of restoring habitat for steelhead and salmon in these tributaries and in the overall Yakima basin. The proposal states there have been improvements; it would be beneficial to provide some quantitative information to support these claims. There is no reason to doubt that, over the years, project staff has actively pursued a plethora of restoration actions. But the accomplishments section is not adequate to enable reviewers to assess the success of those results. That is important because they are the best predictor of potential project success. The much-too-lengthy section needs focus on key efforts, with before/after photos and maps. It needs to focus on (a) what was the problem, (b) what were the key indices of success, both physical habitat and hopefully fish, and both short- and long-term. For example if XX numbers of tree were planted then why were they being planted, what fraction survived, and was this successful in solving the problem?

Prioritization of projects components such as, "From 2008-present, the pool of projects identified using the Yakima Basin Steelhead Recovery Plan as a guide, were selected for implementation based on a cost-benefit prioritization method which considers biotic, physical and cultural factors," is inadequate and needs to be described in much more detail.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The introduction mentioned that timber harvests will occur during the next five years. The proposal should mention how these new timber harvests might impact ongoing restoration activities. Are appropriate actions such as riparian buffers being implemented to minimize impacts?

There was no mention of the YN management and database project (1988-120-25), which reportedly coordinates and manages all YN data.

It was not clear how this project integrates or overlaps with project 1995-063-25.

4. Deliverables, Work Elements, Metrics, and Methods

Specific deliverables were identified under each objective. As noted above, the quantitative deliverables should be identified whenever possible so that reviewers know what is targeted for accomplishment during the project period.

Specific comments on protocols and methods described in MonitoringMethods.org

Links to MonitoringMethods.org were provided, but there was no detailed discussion of methods in the proposal. Reviewers of some of these methods, on the web page, noted that additional detail is needed. It would have been very useful to also link to a project report that provides detailed monitoring methods, given the long-term nature of this effort. The proposal does reference the use of some basic survey methodologies such as Timber Fish and Wildlife surveys.

199705100 - Yakima Basin Side Channels Land Acquisition

Sponsor: Yakama Confederated Tribes

Short Description: 'Habitat' of Management, Data, Habitat (198812025) will combine with the Side Channels (199705100) to form a fish habitat and land acquisition project. Habitat acquisition prioritizes land with restorable floodplain, spawning and/or rearing habitat, or critical habitat for steelhead. Properties with water rights, near other protected lands are preferred. Screening and passage structures, riparian plantings, wood additions, road closures, etc., will occur on non-acquisition lands as well.

ISRP response loop recommendation: Meets Scientific Review Criteria

Comment:

The ISRP appreciated the detailed response to concerns raised during the review. The response was helpful in clarifying some items. As with other YN projects, links to monitoring need to be strengthened.

The main thrust of this project is land acquisition and protection, and the proposal includes a table listing some 20 properties acquired since 1998. Another table identifies several dozen off-reservation fish habitat restoration projects, listing fish limiting factors addressed and project objectives. Biological results were not indicated. The statement is made that the YKFP Ecological Interaction Team (WDFW Ellensburg) is continuing to collect data that may prove definitively that the work is meaningful.

Preliminary ISRP comment requesting a response:

The ISRP requests that the sponsors provide more details about the techniques used for producing the deliverables identified in the proposal. These details should be written into the proposal.

After the site visits and presentation by sponsors, the ISRP is supportive of the overall program, but the proposal does not present enough details. The ISRP suggests a better development of monitoring response before and after projects is needed. The ISRP would like the sponsors to

identify monitoring data for the whole basin and provide those links in the proposal as a minimum for providing monitoring data.

The ISRP also requests that the sponsors provide maps showing location of sites selected to produce deliverables, especially for lands sought for purchase. For instance, the sponsors need to justify that these land purchases are important given direction from the Steelhead Recovery Plan.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The introduction should be revised to provide a more clear description of the project. Maps and descriptions of the location and setting are needed. For example, "In addition, the greater habitat picture in the Yakima Basin (formerly part of Project 198812025) necessarily includes all land and water affecting fish, thus land owned by non-willing sellers must be considered in the spectrum of habitat work, along with fish-bearing water regardless of adjacent ownership." What is the meaning of this statement? Can land be acquired from non-willing sellers?

Another example where the meaning was not clear to reviewers is the following, "All these activities are supported by the Yakima-Klickitat Fisheries Program, thus supported by BPA, thus supported by the Yakima Subbasin Plan, etc."

The proposal identified 2 objectives: Prevent further floodplain development; facilitate natural processes that remain (OBJ-1) ("Purchase of floodplain allows natural floodplain processes to continue while curbing development that reduces floodplain complexity en route to near-term profit") and: Improve tributary rearing and spawning habitat (OBJ-2).

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments are listed in an impressive success table that includes acres protected. The ISRP would like an additional table that provides an estimate of what proportion of the total effort needed that these accomplishments constitute. That is, are we 1% done, 10% done, or some other percentage?

The list of projects off-reservation is useful. One project in particular requires further explanation. The objective for the Holmes Habitat Restoration action is so inclusive that specific restoration actions are unclear. More details are needed, especially with reference to "Fix the world."

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The identification of emerging limiting factors is not adequate. The proposal mentions several existing and long standing limiting factors but consideration of how the project could respond to factors such as climate change, toxics and contaminants, and increasing pressure from invasive species would be very useful.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables are clearly associated with objectives. The description of metrics used is not adequate to relate project deliverables with a positive influence on fish. The ISRP requests that the sponsors further explain how project actions will lead to increased fish abundance, productivity, diversity, or spatial distribution.

P. Upper Columbia: Wenatchee, Entiat, Methow, and Okanogan

201000100 - Upper Columbia Programmatic Habitat

Sponsor: Upper Columbia Salmon Recovery Board

Short Description: The Upper Columbia Programmatic Habitat Project implements habitat restoration projects in high biological priority areas in the Upper Columbia Region (Columbia Cascade Province). It helps satisfy the Action Agencies' obligations under the 2008 FCRPS Biological Opinion, while complementing and benefitting from the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan and its recovery infrastructure.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This project covers a very large area of the Upper Columbia Basin and includes an array of restoration activities that have been reviewed and prioritized by a team of regional experts. The administrative structure differs from the traditional BPA funding approach in which the project sponsor is usually a single organization, but instead this project employs a group of partner organizations. Because of this structure the ISRP has had questions about whether the new approach would deliver the administrative efficiencies promised and whether it would lead to better planned and more effective habitat restoration actions in the Upper Columbia. The qualification to this proposal is that project staff should submit a comprehensive report summarizing their progress to date, including areas where they have experienced difficulties and areas where they have clearly achieved their objectives. This check-in report should describe the cooperative activities taking place between the project and other regional restoration efforts such as OSHIP, which was not clearly identified in the proposal. The report should be completed for ISRP review in late 2013 or early 2014. In addition, the ISRP may request a follow-up site visit to better understand the project selection process, the monitoring program, and how results will be used adaptively to plan and prioritize future projects.

Comment:

The UCSRB response to the ISRP's questions and requests for clarification were reasonably complete in some areas but did not address all of our concerns. In particular, stating that the proposal had been revised without providing full details in the response itself made it difficult for us to determine whether a question had been adequately answered without referring to the complete proposal. The project prioritization process is still unclear. We look forward to learning more about it when the promised check-in report is submitted for ISRP review.

Although we realize that biological effectiveness monitoring cannot be carried out at every restoration site, further explanation is needed on the relationship between this project, which supports on-the-ground habitat improvement actions, and regional population and habitat status and trend monitoring efforts such as ISEMP and CHaMP. The response is somewhat

vague on this matter. A project of this scope must be coupled to an equally ambitious monitoring program in order for adequate learning to occur. Therefore, we ask that past and anticipated future monitoring results also be highlighted in the check-in report. This summary should go beyond the organizational flow diagram (Figure 1) and identify key monitoring metrics that will be used to determine if VSP parameters of focal species are improving, how these metrics will be obtained (and by whom), and how will they be interpreted in terms of population status and trends. It is stated that "this project will continue to work with BPA and Council staff to identify whether restoration actions proposed under this project may be candidates for use in the AEM program." We feel that a plan to incorporate restoration actions into the AEM program should be included in the check-in report. The summary of the Twisp Elbow Coulee Project in the response was helpful, and we hope to see more examples using specific references to VSP parameters in the report.

The overall philosophical view that local experts and communities need to be engaged and involved in developing habitat restoration for salmon and steelhead is consistent with the ISAB Landscape Report and other socioeconomic considerations regarding conservation practice. Using the Upper Columbia Salmon Recovery Board as a vehicle to link the Council Fish and Wildlife Program and BPA/NOAA/Reclamation's non-Accord BiOp obligations is reasonable. The questions for ISRP review is whether sufficient progress in implementation is being made and whether the organization and governance structure is able to achieve the improvements in habitat and salmon survival and abundance in an efficient manner.

At this time it appears the targeted work is somewhat weakly linked to an understanding of habitat forming processes in the subbasins. From the tour, it appeared that knowledge could be better incorporated in the project regarding the status of salmon and steelhead and the improvement needed to achieve (1) viability status goals in the near and medium terms and (2) desired gains in salmon survival sufficient for recovery. It also appears the pace of implementation could be improved. At this time, the UCRSRB has executed only one targeted solicitation, and the RTT did not generate estimates of fish benefits associated with these initial actions.

Connections between the selected actions and habitat forming processes for salmon and steelhead population improvements need to be better reflected in the proposal and reports. In some cases, monitoring and evaluation seems to be underappreciated and misunderstood. The proposal, conversations during the site visit, and the response (both in this programmatic project and other organizations) seem to be focused on monitoring and evaluation of fish use of individual structures constructed by restoration partners – a narrow perspective and not very informative unless these project-scale assessments can be linked to basinwide fish population performance measures. The more relevant questions are: how are these projects affecting subbasin-scale habitat quality and habitat forming processes, and how are these changes in habitat affecting salmon and steelhead viability? These questions will be appropriately addressed by modeling ISEMP/CHaMP habitat and fish-in/fish-out data. Finally, if the projects actually conducting habitat and fish monitoring are not incorporating knowledge of existing

restoration sites into their sampling panels and analysis design, the resulting interpretations may be misinformed.

The format in which the project sponsors provided responses to ISRP comments made it difficult to distinguish the material added in the review loop. It did appear that some information was added to address ISRP concerns, but several of the issues we raised were not addressed. The overview of the program provided during the field tour did partially address concerns about relationships among the restoration programs involved in implementation of habitat projects in the Upper Columbia. This program will prioritize and help implement projects funded through this proposal, the Upper Columbia Salmon Recovery Board, the Bureau of Reclamation, and PUDs. These funding sources represent a significant proportion of the habitat restoration funding in this region. There are some other restoration projects in the Upper Columbia region, like OSHIP, that are not discussed in the revised proposal but it would seem some coordination with these programs also would be worthwhile to ensure the most efficient use of restoration resources. The relationships among RM&E programs and how information being generated through these efforts will be used to modify program processes and project prioritization was not fully addressed. Much of the additional information the ISRP requested about the specifics of procedures being used to prioritize projects also was not provided. Nonetheless, the program clearly plays a critical coordinating role for habitat restoration efforts in this region and should be supported. A program status report is proposed for 2013. This report should include a very complete description of program progress since inception; RM&E results and their application to program priorities and processes; and an indication of the extent to which the AEM program will provide RM&E coverage for watersheds without IMW efforts.

Questions for which the ISRP requested a response included:

1) Describe the restoration project review and prioritization process in more detail including the scoring sheet and criteria.

Some additional information on the prioritization process appears to have been added to version of the proposal submitted in response to the ISRP review. Discussions during the field tour also helped to clarify this issue. However, details of the scoring system were only included as a partially complete Excel spreadsheet (in the project description) for one of the restoration areas, and we were unable to conduct a thorough review of the technical merits of the prioritization system being used. The forthcoming check-in report should remedy this.

2) Describe the connection between the implementation project and the RM&E project in more detail and explain how monitoring results are incorporated into restoration decisions.

Description of the RM&E process being used to evaluate projects implemented under this program was expanded somewhat in the response. IMW efforts are being used to evaluate program effectiveness in the Entiat and Methow, and it is anticipated that the NPCC/BPA action effectiveness monitoring (AEM) program will assess a subset of the projects in the non-IMW

watersheds. The extent to which the AEM program meets RM&E needs for this program should be carefully assessed as AEM is implemented.

3) Explain the relationships between this project and the other RM&E efforts ongoing in the basin.

The relationships between the IMW programs (Entiat and Methow) and the anticipated coverage provided by the AEM program were discussed briefly. As noted above, the extent to which AEM will meet the RM&E needs of this program remains to be seen. In addition, it was indicated that the Methow IMW effort, supported by the Bureau of Reclamation, may not be well coordinated with the RM&E efforts under the Council's Program. In addition, no mention of OBMEP or RM&E activities in the Wenatchee was included in the response. This program would be a logical choice as the sponsor of a more formal process to ensure that coordination among all these RM&E projects occurs.

4) Describe how projects selected for funding address some parts of the VSP criteria for viability.

There was very limited discussion of the expected effect of program projects on VSP parameters. Given the availability of IMW information for two of the watersheds in the program area, some estimate of the response of the fish to the implemented and planned projects should be possible.

5) Describe how conflicts of interest are avoided during the RTT review process.

The response to the question about avoiding conflicts of interest in the project selection process was adequate.

Evaluation of Results

This large umbrella-type project has had a lengthy birth and so far only one entirely new restoration solicitation has been implemented. Thus, it is premature to judge whether the Upper Columbia Programmatic Habitat Project is meeting expectations. The project deserves an in-depth ISRP review that should focus on inter-organizational relationships, the habitat restoration prioritization process, and most importantly, a thorough look at the monitoring programs that are being carried out by other organizations, and how population and habitat data will be used to determine the effects of this project on VSP parameters of focal species. Completion of the check-in report in late 2013 or early 2014, coupled with possibly an on-site ISRP visit with project staff, should help ensure that satisfactory progress is being made.

Preliminary ISRP comment requesting a response:

This project has made progress in the short time since its inception, but additional information is needed for the ISRP to complete an assessment of its scientific soundness. The proposal

lacked sufficient detail in some key places for an evaluation, and so we are requesting responses to the following queries that are listed below. In the presentation and site visits, many of the ISRP's questions were partially clarified, but the proposal needs to be revised to include, document, and update this information. We appreciate the forwarding of the Parrish and Jenkins report on log jams in the White River subsequent to the site visits and presentation, and we are looking forward to receiving additional information relative to the following suggestions and questions. The proposal has distinct administrative and scientific/implementation components, and both require further elaboration.

The restoration project review and prioritization process needs to be more fully described. The scoring sheet and criteria should be provided. The ISRP does not need reviewer names or the project name, but an example of how the selection process takes place is needed.

The linkage between this implementation project and the RM&E project also needs to be more explicitly described. The adaptive management loop concerning how monitoring results are incorporated into restoration decisions was not sufficiently transparent. Please see our comments on the M&E component of this project in our RM&E and AP review 2010-44b www.nwcouncil.org/media/33226/isrp2010_44b.pdf.

The relationships between this project and the various RM&E efforts ongoing in the basin should be described. How will project effectiveness monitoring be conducted besides the ISEMP effort on the Entiat? How are projects supported by this project integrated with the large habitat and fish monitoring programs such as ISEMP and CHaMP that have been established in the region?

Some of the ISRP's questions can be addressed during the response loop, but a thorough examination of the project is beyond the scope of proposal evaluation. The ISRP originally suggested a check-in report in 2013, which will give us an opportunity to review the project in greater detail.

Questions for which the ISRP requests a response include:

- 1) Describe the restoration project review and prioritization process in more detail including the scoring sheet and criteria.
- 2) Describe the connection between the implementation project and the RM&E project in more detail and explain how monitoring results are incorporated into restoration decisions.
- 3) Explain the relationships between this project and the other RM&E efforts ongoing in the basin.
- 4) Describe how projects selected for funding address some parts of the VSP criteria for viability.

5) Describe how conflicts of interest are avoided during the RTT review process.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of the UC Programmatic Habitat Project is to implement habitat restoration projects in high biological priority areas in the Upper Columbia Region (Columbia Cascade Province). It thereby helps satisfy the Action Agencies' obligations under the 2008 FCRPS Biological Opinion, while complementing and benefitting from the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan and its recovery infrastructure. This project is still new, having been initiated in 2010 to replace 14 separate BiOp-serving habitat projects from the FY07-09 Fish and Wildlife Program solicitation. Annual budgets are approximately \$3.7M, equal to the total FY09 budgets of the 14 projects being replaced. The project is central to the regional program.

This project is relatively new but has been thoroughly reviewed by the ISRP in the past. It is one of the first attempts in the upper Columbia River to create an umbrella project that oversees a suite of habitat restoration actions instead of the more piecemeal approach of submitting a collection of standalone projects. When first reviewed, the ISRP was cautious about endorsing this approach until the technical procedures for prioritizing and selecting individual restoration projects, as well coordinating with ongoing monitoring projects, were sufficiently explained. The Columbia Cascade region holds several fish species that are ESA-listed including spring Chinook, steelhead, and bull trout, although this project is clearly focused on improving habitat for Chinook and steelhead.

There are two levels of technical background to consider: administrative and on-the-ground applications. Since the details of specific on-the-ground actions were understandably general, we assume that the expertise needed to carry out the restoration actions is adequate. As for the administrative technical background, we are somewhat concerned by the number and type of issues have been encountered during the first year of the new programmatic format. Many of the specific problems encountered, for example see section on Adaptive Management, might have been avoided if project staff employed general administrative principles that have emerged from managing and implementing many other large and similar complex restoration projects.

This project is consistent with the objectives articulated in various habitat restoration and salmon recovery plans that have been developed for the Upper Columbia region. This project reviews, selects, and supports projects funded with non-accord BPA project funding. The objectives provided in the proposal are relatively generic; the goal of this effort is to improve habitat sufficiently to meet VSP recovery goals for steelhead and spring Chinook. These are appropriate objectives for this project. The technical background for this project was generally sufficient. A thorough description of the project selection process was provided. One element of the background that was deficient was the description of the relationships among the various habitat restoration and RM&E programs in this region. Habitat projects in this region are supported through this project, Accord funding, Bureau of Reclamation funding, PUD

funding and SRFB funding. The extent to which these various habitat programs are coordinated was not clear.

A repeated concern was expressed by project sponsors about two aspects of BPA contract requirements: 1) inability to carry unspent funds into the next year, and 2) change from two-year contracts to one-year contracts. The sponsors claim that these restrictions reduce flexibility to the point where some important habitat projects may not be completed due to unforeseen delays. Are there any alternatives other than changes in BPA's contracting policies that would help to address these problems?

With regard to the technical background, the biological objective is improvement in VSP parameters in specific salmon species in particular watersheds through habitat restoration. The Recovery Plan and the BiOp RPA 35 call for specific improvements in the state of both VSP and habitat required during specific time periods. These need to be included in the proposal. Then the technical background should provide sufficient information so the ISRP can conclude that the project has a reasonable likelihood of completing the actions (assessments, planning, project selection, project implementation) within the time frame required in the BiOp. The accomplishments section of the proposal identifies an administration function that updates MYAPs, develops a targeted solicitation that is funded based on fulfilling the Recovery Plan and BiOp mandates. The time frame for bringing the process to full functioning and the relationship of the many parts of the process should be succinctly outlined in this proposal section. The work elements portion of the proposal summarizes the activities involved in administrative, targeted, and open solicitations. Other sections of the proposal suggest that it takes 3 to 4 years to bring a project to fruition. If this time frame is from project submission to final implementation, only activities from the first solicitation will be completed by 2018 when this project sunsets.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Because the project has been in place for only about two years the accomplishments to date have been to undertake the first round of restoration action selection and implement some of their prioritized habitat improvements. Results have therefore been limited to demonstrating that the technical review process can function as anticipated and that at least some of the actions can be implemented. As stated in the proposal, one major hurdle was an unusually high flow event that took place in 2011 that delayed the implementation of certain actions by a year. Fortunately, BPA funds were able to be carried over into the next year so the improvements could be initiated; however, the new administrative rules require annual funding with no carryover and the project now faces the difficult task of balancing investments in new restoration with maintaining a contingency fund in the event that unforeseen circumstances delay or prevent implementation. In general, the project sponsors have done a good job of planning for the unanticipated.

The proposal made clear that the long-term goal was to fund targeted restoration activities that involved substantial planning and resources, and gradually reduce the investment in the smaller

budget projects submitted through the Open Solicitation process. While this is understandable, we suggest that some project funds be reserved so that there will be room for new restoration ideas.

A previous review of this project in 2010 (ISRP 2010-28) asked that the project sponsors prepare retrospective reports for ISRP review in years 3 and 6 of this 7-year project in order to verify that assumptions about administrative streamlining, project selection efficiency, and action effectiveness are proceeding as anticipated. Specifically, the ISRP asked that the retrospective summary report in year 3 address actions outlined in Figure F-1 (page 52): Watershed Action Team(s) developing Multiyear Action Plans with the Regional Technical Team and Implementation Team subsequently developing targeted solicitations. As well, the retrospective report in year 6 should summarize the implementation of restoration activities following the targeted solicitation, and update the ISRP on monitoring and effectiveness evaluation of restoration actions. Given the dependence on other RM&E efforts to evaluate the effectiveness of this process, these retrospective reports the ISRP requested will allow the sponsors to summarize results from research efforts in the project area that are relevant to project restoration plans, as well as indicate how these results have been incorporated into the project prioritization process. Retrospective reports should clearly present the processes for Open and Targeted Solicitations, the updating of MYAPs, linkages between the WATs, RTT, and project development, and benefits accorded to BiOp and Recovery Plan obligations.

Since this project is now assisting in coordinating restoration actions in the Entiat subbasin, which comprise an IMW, some discussion of the current state of IMW evaluation and what is being learned should be included in the results section of the proposal. The ISRP would anticipate that the RTT is using monitoring information from the Entiat IMW to guide development of other targeted projects in the Entiat and other subbasins.

Evaluation of Results

Rather than provide an evaluation of results specific to this project, the ISRP chooses to identify what these umbrella type projects should be doing in the basin. The Upper Columbia Programmatic Habitat Project constitutes one of a handful of umbrella habitat projects in the Columbia River Basin that aim to adopt a landscape approach to restoration actions, that is addressing the most important restoration priorities in the right place and in the right order over a large area. Such efforts require thoughtful and comprehensive coordination and a willingness to learn from existing monitoring programs. These projects need to be documented with periodic retrospective reports that synthesize the science involved and chronicle whether desired outcomes of this approach are being achieved.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The relationships between this project and the other habitat efforts in the project area are described briefly, but a more thorough discussion of the interaction among these efforts would have been beneficial in reviewing the proposal.

ISEMP, CHaMP, and other assessment efforts are occurring in this region. ISEMP is focused on assessing the effectiveness of a suite of restoration projects being implemented on the Entiat River. It is not clear to what extent the monitoring programs are assessing the effectiveness of other program projects. The description of the adaptive management approach indicates that project-scale effectiveness evaluations are occurring but who is doing these assessments and how they are integrated with the ISEMP, CHaMP and other RM&E efforts in this region was not explained. Relationships among organizations performing RM&E in the region also should be better described.

Some emerging limiting factors were addressed in the proposal. A climate change assessment has been completed for the Methow and this information will be used by the UCRTT in proposal evaluations. Presumably, the Methow assessment contains information that also will shed some light on the threats from climate change to other watersheds in the project area. The proposal does not mention impacts from chemical pollution, non-native species or increasing human population and consequent development. These factors also should be considered by the UCRT when evaluating project proposals. As the project moves forward it will be important to be alert to such changes, and this is one reason why reserving some funds for the open solicitation may be prudent by facilitating novel restoration actions that address emerging problems. There are approaches in use to gain insights into future streamflows, and these insights can help shape restoration strategies and actions. These include scenario analyses to inform and improve existing flow restoration and habitat projects (see Donley et al 2012. *Global Change Biology* (2012), doi: 10.1111/j.1365-2486.2012.02773.x). As one example, it is ecologically important to assess, in simulated scenarios, the sensitivity of late summer (July, August, and September) flows to the following variables, both singly and in combination: climate change, changes in the quantity of water used for irrigation, and possible changes to existing water resource policy. Flows can be modeled using the Water Evaluation and Planning system (WEAP; as well as other modeling platforms) under historical and projected conditions (for example, 2020 and 2040) for each scenario.

A question of contracting was raised in the proposal that could benefit from discussion between the Council, BPA, and the sponsor. More than once in the proposal it was stated that “BPA no longer allows two important types of flexibility that would allow us to respond to the inevitable risks of implementing habitat projects and to reuse funds. The first is the ability to carry forward funds that are not obligated to contracts within the budget FY. In good years, unobligated funds will be only the small % retained for contingency. However, if a big project falls through at the last minute (e.g., failure to reach agreement with an infrastructure owner or another funding source stepping in to pay for construction) then we must scramble to find good alternative work to fund.”

Additionally, the ISRP has other specific concerns:

1) How will colonization by beaver and herbivory by native ungulates be addressed? Is there an overarching beaver and ungulate management philosophy for all the projects?

2) Should mussels be included under focal species?

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables are described in considerable detail and are generally appropriate for the objectives of the project. The descriptions for several of the deliverables include multiple, undefined acronyms (AC, ED, PM, AD, WE). It is unclear who these individuals or organizations are, making it difficult to understand how these deliverables are to be accomplished.

In the type of work section, the explanation of the nearly completed targeted solicitation is provided. Much of this text belongs in the results and accomplishments section. It describes the process used to develop the targeted projects, and the status of the first full solicitation under 2010-001-00.

The project relationships section of the proposal states:

*"The Upper Columbia Region uses a reach-based action approach to ensure priority habitat projects are implemented with a clear understanding of the existing physical processes. This reach-based approach to project development incorporates information from Tributary Assessments (TA) and Reach Assessments (RA) completed by the Bureau of Reclamation, Yakama Nation, and Colville Confederated Tribes, **which ensures restoration actions are based on a sound scientific assessment of channel processes.** As reach-level degradations and processes are **defined, alternatives development occurs in order to identify, sequence, and prioritize specific actions to restore channel and floodplain connectivity and complexity.** In concert with this reach-based approach, the Entiat and Methow subbasins are implementing an IMW approach (ISEMP and Bureau of Reclamation/USGS, respectively), which pairs reach-based actions with Level 3 effectiveness monitoring in order to assess the effectiveness of actions implemented within an experimental framework. The Upper Columbia Region is progressing from a reach-based approach to a landscape-level approach to recovery."*

The ISRP needs information sufficient to conclude that the assessments are using appropriate methods, that channel processes and extent of degradation are reasonably interpreted from the assessments, and that restoration alternatives are consistent with best practices.

The collection of restoration actions endorsed by the Upper Columbia Regional Technical Team is typical of those being implemented elsewhere in the interior Columbia River. Emphasis is on improving habitat complexity, fixing faulty fish screens, re-establishing floodplain connections, and adding structure (large wood) to stream channels. The entries in the objectives and project deliverables section of the proposal used the same boilerplate response to each objective;

however, a description of how the selected restoration actions address the objectives would have helped. The ISRP does not need an exhaustive description of how anticipated outcomes improve VSP parameters for every action, but a few examples would have been instructive.

Additionally, the proposal did not discuss a concern raised by the ISRP in an earlier review and that is how to avoid the potential for conflict of interest during the review process. We would like some assurance that members of the review team do not play a role in ranking proposals in which they have a vested interest.

The deliverables are sometimes not well related to individual objectives. As written, the deliverables are so vague that they cannot be linked to any one objective. Importantly, the deliverables need to be quantitative so that they can be accurately evaluated for success (or not) at the next program review. Further, the deliverables are mostly about using appropriated funds; they should really address quantitative fish recovery targets, habitat goals, and environmental protections – with timelines for being attained. Otherwise, how will one know if the actions are having their intended effects?

A professional publication, or two, in a refereed journal should be listed as a deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community. For example, the Parrish and Jenkins report that was forwarded to us was well written and represents a potential publication of general interest.

CVs, of a reasonable length, should be provided for key personnel.

Specific comments on protocols and methods described in MonitoringMethods.org

This project does not involve monitoring but claims to be well integrated into existing monitoring programs. In the Entiat River, and likely the Wenatchee River, this appears to be the case. The specific connection between this project and monitoring efforts in the Methow and Okanogan Rivers was a little less clear and deserves additional description.

In general, a description of which monitoring programs are associated with the selected projects would be helpful. The description should include what will be monitored (for example, CHaMP habitat parameters) and how monitoring results will be used to evaluate whether actions met expectations.

[200900300](#) - Upper Columbia Habitat Restoration

Sponsor: Yakama Confederated Tribes

Short Description: The goal of this project is to improve habitat conditions for salmonids listed under the Endangered Species Act in the Wenatchee, Entiat, and Methow subbasins to a degree capable of supporting sustainable populations. We enact habitat restoration actions consistent with scientific and policy guidance as recommended in the FCRPS BiOp, regional Salmon Recovery Plan, and the Subbasin Plans. Habitat restoration is a critical component of achieving population recovery of listed fish runs.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The primary need for improvement in this project is the integration between the selection and implementation of habitat restoration actions and the benefits they are intended to provide for focal fish species. This need for improvement was apparent in the site visit, presentations, and response. Moreover, this was identified as a major issue in the ISRP 2009 project review and, to date, has not been addressed by the sponsors, BPA, or the Council.

Because this is a wide-ranging project that includes many sites that potentially benefit a number of species of concern, monitoring the biological effectiveness of restoration actions is critically important. In the response to the ISRP, the sponsor states that progress will be made toward implementing an expanded effectiveness monitoring program at an Upper Columbia Science Conference in November 2013. The qualification is that the project sponsors and their partners should develop an agreed-upon set of metrics for evaluating biological effectiveness, a schedule for implementing effectiveness monitoring, a plan for evaluating and archiving data, and a procedure for incorporating monitoring information into future restoration plans. This document should be submitted by the end of 2013 and reviewed by the ISRP.

Comment:

The responses to the ISRP for questions 2, 3, and 4 raised in the preliminary review were not adequate. While it is true that this project is focused on implementing habitat restoration strategies, the purpose of these actions is to improve aquatic habitat to improve survival of specific life-cycle stages of anadromous spring Chinook and steelhead.

The work this project executes is coordinated through Watershed Action Teams and Regional Technical Teams and vetted through the Action Agency Expert Panel. Projects selected and implemented are intended to fulfill obligations under the FCRPS BiOp for offsite mitigation to improve salmon abundance, productivity, spatial distribution, and diversity. Consequently, it is essential that the project incorporates and demonstrates a knowledge of the current status of the focal species, the current status of the physical habitat, the desired restored state of the focal species, and the desired restored state of the physical habitat; an understanding of the hypothesized linkage between the state of the habitat and the state of the focal species;

knowledge of how the fish species are being monitored; knowledge of how the habitat is being monitored; and knowledge of the status of whether restoration efforts are achieving their intended benefit to salmon and steelhead.

This project takes place in a large area in which many other organizations are engaged in aquatic and riparian habitat restoration, as well as implementing a variety of water transaction agreements. It is clear to the ISRP that the level of biological effectiveness monitoring among projects is very uneven. Simply stating that effectiveness monitoring is the responsibility of a partner organization is no guarantee that assessment of restoration effectiveness will be sufficient to judge the overall success of a large project such as this one. Details are needed. For this reason, we believe that a comprehensive effort should be undertaken among Upper Columbia partners to develop an explicit monitoring program in which the responsibilities of each partner are clearly spelled out. The science conference in November is a step in the right direction, but the ISRP feels that a specific plan should be the outcome of the conference, and that the plan should be available for ISRP review by the end of the year.

Preliminary ISRP comment requesting a response:

A response is requested for a revised proposal. While this is a proposal to continue useful work, the following information is needed in order for the ISRP to fully judge its scientific adequacy:

- 1) In the significance to regional programs section, provide the RPA 35.1 table 5 gaps for each subbasin and identify the anticipated gains in habitat values from this project.
- 2) In the problem statement, provide a summary of the focal species' current status and desired gains in VSP from habitat restoration in each subbasin. Further, provide context and justification for individual restoration priorities and linkage to the BiOp RPA 35 and Upper Columbia recovery plan.
- 3) Clarify how this project is coordinated with the Upper Columbia Programmatic Habitat project, with which it apparently shares many objectives and deliverables.
- 4) Explain how this project is linked to regional monitoring programs, and in particular, which monitoring programs will be involved in monitoring the effectiveness of each of the nine deliverables.

Summary Comments

The goal of this project is to improve habitat conditions for salmonids listed under the Endangered Species Act in the Wenatchee, Entiat, and Methow subbasins to a degree capable of supporting sustainable populations. This proposed project is specifically intended to restore ecological functions to stream habitat in the three identified subbasins in order to contribute to the recovery of salmon, steelhead, and bull trout. In addition, the project is intended to be holistic in nature and thus to improve habitat for other fish and aquatic as well as terrestrial

species present in these areas. The overarching goal is of significance to a number of regional restoration programs.

The project was evaluated by the ISAB in 2009 and concerns were raised about post-treatment monitoring of habitat restoration actions. The ISRP believed that, while the value of habitat projects identified through the process described in the proposal appeared obvious and compelling, the habitat work needed to be accompanied by a reasonably explicit monitoring plan. Otherwise important learning opportunities would be lost and the adaptive management value of the actions would be compromised. The present version of the proposal does little to resolve these concerns.

The sponsors appear to have the technical expertise to carrying out the restoration actions. They have been implementing the actions for several years and, we believe, have learned the best ways to accomplish the actions.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Significance to Regional Programs: The linkage of the project to regional programs was for the most part described. However the specific details of how this project's work is intended to contribute to the BiOp RPA 35 and recovery plan priorities is not adequately presented. BiOp RPA 35.1 is quite specific regarding improvement in complexity or categories of habitat features within each subbasin. The proposal should provide the gaps from RPA 35.1 Table 5 for each subbasin included in this proposal, and identify how much of the required improvement from 2014 through 2018 will be undertaken by this project.

One obvious question, however, was how this project was related to the Upper Columbia Programmatic Habitat project (2010-001-00), with which it appears to have a significant overlap of objectives and restoration locations. The proposal did not mention how the two projects, with similarly large budgets, would be coordinated. That is would they share resources and implementation responsibilities in subbasins where they have a common interest?

Problem Statement: The information in the problem statement is overly general and too brief. The proposal should summarize the current status of ESA listed salmon, steelhead, and bull trout, the desired status in the BiOp and recovery plan timeframes (2018 and 2033 – 10 and 25 years after the 2008 BiOp), and the hypothesized gains to be achieved with habitat restoration. The proposal provides citations where the ISRP and others can find much of this information, but a cogent summary is needed in the proposal itself to establish context for the individual actions. The opening paragraph in the Significance to Regional Programs section states: "The goal is to re-establish the ability of the ecosystem to maintain its function and organization without continued human intervention". In the problem statement the ISRP would appreciate more information on the balance of actions to achieve long-term watershed process improvement at the landscape scale and actions intended to provide near-term site and reach scale improvement in symptoms caused by larger scale disturbance. The sections of the introduction that emphasize that habitat restoration will take place within assessment units

and address limiting factors identified as priorities in the Recovery Plan and Subbasin Plans is helpful. It is however difficult to grasp what additional assessment and planning is required, a timeframe for completing work, and a timeframe for observing a response in physical habitat attributes and ultimately in fish population vital parameters.

Objectives: There is only one objective: Comprehensive Habitat Restoration. The objective is overly vague and lacks quantification but can be better examined via the deliverables for the project. While it is reassuring to see the subbasin plans being used, the specific habitat objectives need to be better identified. Success and how it will be assessed are not described, although such a description is requested in the proposal form.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments and Results: The proposal provides details about the numbers of assessments completed, projects planned, started, and completed during the recent work cycle. The sponsors have completed a number of physical restoration actions and the reporting rate is satisfactory. Unfortunately, the specific objectives for past actions were not quantitative so it is not possible to evaluate if they are successful in meeting their programmatic goals. Further, nearly all the monitoring conducted was for Individual Project Engineering Performance. It appears that little ecological monitoring was conducted.

The ISRP needs to see the ecological performance relative to the timeframe expected under the BiOp and Recovery Plan, identification of shortfalls under those plans, and discussion of whether the overall ecological goals can be achieved for the 2018 period of the MOA.

According to the proposal this project is linked to a number of regional monitoring programs such as ISEMP, PNAMP, PIBO, and others. As well, the Entiat is the site of an ISEMP Intensively Monitored Watershed. We would like more information on coordination between this project, which is apparently limited to restoration implementation, and the other regional monitoring programs. What information is passed from this project to the other monitoring efforts, what information is received from them, and how are monitoring data used to inform new restoration actions? Also, will biological monitoring take place at every restoration location implemented by this project, or a subset of sites?

Adaptive Management: There is no adaptive management plan or strategy specifically for this project. Reference is made to an adaptive management loop in the recovery plan, but how it will function, and what metrics and methods apply to this project are absent. There is no explanation of who is responsible for evaluating the actions in this project and the governance for implementing a different suite of actions if that should be required. A discussion of the variables being evaluated by the adaptive management conceptual models, the threshold values that would trigger actions, the alternative actions under consideration, and dates when evaluations will take place need to be provided. All actions should have testable goals (hypotheses), appropriate monitoring, analyses, and a process for adjusting future actions, if

necessary. Further, it is not clear that this section was updated from the previous proposal. For example, the sponsors *are still planning to hold a workshop in November 2009*.

The executive summary lists various entities involved in monitoring and evaluation of the project. However, at least one of the entities (CSMEP) is no longer functioning. And others like PNAMP do not actually collect field data and conduct assessments. So somewhere in the proposal there is a need to be specific about which entity is collecting field data, which is estimating derived parameters, and which is making conclusions about efficacy using the estimated parameters.

There is no response provided for past ISRP reviews. This omission needs to be addressed, especially considering the concerns in the 2009 review.

Evaluation of Results

In the Explanation of Recent Financial Performance section of the proposal, the sponsor summarizes each year activities:

FY2009 – Started four Reach Assessments. Constructed 1 project, designed 5 projects, and funded one other.

FY2010 - Completed four Reach Assessments, completed one design and began designs for eight additional projects, completed construction on four projects and funded one other. Began design on two large projects to be implemented in FY2011. The UCHRP was fully staffed by this time.

FY2011 - Completed designs for six large projects (did not implement because of high water), began design of three projects, completed one small project, began two Reach Assessments and completed the Middle Methow River Safety Assessment.

FY2012 - Completed nine restoration projects, completed design of three projects, completed Upper Wenatchee River Safety Assessment, completed one and began one reach assessment.

The “Results: Reporting, Accomplishments, and Impact” section of the proposal list the name and river mile section of priority reaches and provides a more detailed presentation of the information above in tables organized by subbasin. The information provided by the sponsor is interesting but not sufficient for the ISRP to evaluate the extent to which the process of project development (expert panel/watershed team), implementation, and evaluation is working to achieve the goals of the Fish and Wildlife Program, BiOp, Recovery Plan, and Tribal and Subbasin fishery objectives.

The ISRP needs to know the amount of habitat work needed in each subbasin, how much assessment is needed, how much has been planned, how much has been implemented, and the

state of assessment. The ISRP needs to be able to determine that each element of RPA 35 was fulfilled.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project Relationships: The relationships section of the proposal lists all the former projects that have been incorporated into Project 2009-003-00. It appears that this project is a recent consolidation of approximately 44 individual projects. Given the geographic scope and range of habitat actions implemented the proposal should outline the administrative structure to manage these in an effective manner. Specifically, how are the individual projects reviewed for scientific rigor and prioritized? Is there a review team, with an appropriate level and scope of expertise, to do this?

The ISRP needs more information on other entities that are also conducting work in the Wenatchee, Entiat, and Methow subbasins and how the Yakama Nation's projects are integrated with those efforts.

The executive summary provides a list of projects that contribute to monitoring, but the details of the relationships are not provided in any other section of the proposal. There are notes in the results table that ISEMP is monitoring some projects. What are the project's relationships with other entities? What are the details of the relationships for specific restoration actions and goals? Are the data, if available, delivered in a timely manner so as to allow adjustments to on-the-ground habitat actions?

Emerging Limiting Factors: Climate change is mentioned as an emerging limiting factor, but other important factors are not mentioned, for example toxic agricultural chemicals, future water withdrawals for agriculture, hatchery impacts, non-native invasions, and predation. How are these factors incorporated into restoration strategies and priorities? They are all important and each has the potential to undermine costly restoration efforts. Further, while climate change is acknowledged in this proposal, it is not being adequately addressed for a program of this scope. There are approaches in use to gain insights into future flows, and these insights can help shape restoration strategies and actions. These include scenario analyses to inform and improve existing flow restoration and habitat projects (see Donley et al 2012. *Global Change Biology* (2012), doi: 10.1111/j.1365-2486.2012.02773.x). As one example, it is ecologically important to assess in simulated scenario the sensitivity of late summer (July, August, and September) flows to the following variable both singly and in combination: climate change, changes in the quantity of water used for irrigation, and possible changes to existing water resource policy. Flows can be modeled using the Water Evaluation and Planning system (WEAP; as well as other modeling platforms) under historical and projected conditions (for example, 2020 and 2040) for each scenario. Models to perform analyses like these were not mentioned in the proposal. With the scope of restoration being planned and prioritized, assessment beyond geomorphic analysis is warranted. Further, should mussels and specific riparian birds be included as focal species?

4. Deliverables, Work Elements, Metrics, and Methods

This section is reasonably complete. According to the proposal, specific restoration locations have already been identified while others will await environmental assessments before priority sites are determined. Three restoration categories – instream flow improvements, irrigation screen installation and replacement, and cattle exclusion fencing – are mentioned in the executive summary but not specifically identified in the objectives or deliverables. We assume this means that those types of projects will be minor additions to the suite of actions to be funded under this proposal.

While the objectives and deliverables were well described, there was no mention of the primary target fish species that would be benefited by particular restoration actions. It is assumed that Chinook and steelhead are the focal species for most actions, but some of the work will improve habitat for coho salmon, bull trout, and Pacific lamprey. It would be helpful to include a list of target species for each deliverable.

Additionally, deliverables need to be quantitative and have associated timelines for successful completion. Some deliverables do this, but many do not. Further, without any direct monitoring for effectiveness, it is not possible to tell if the work elements and metrics are the best for specific situations or if the work elements and metrics need to be modified in any way.

Professional publications in a refereed journal should be listed as a deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community.

Specific comments on protocols and methods described in MonitoringMethods.org

According to the proposal this project does not engage in monitoring, and therefore there were no links to MonitoringMethods.org. Nonetheless, evaluation is required, even if field data are collected and analyzed by another project or entity. Somewhere in the proposal, a reasonably detailed data evaluation process needs to be described.

[199604200](#) - Restore Salmon Creek Anadromous Fish

Sponsor: Colville Confederated Tribes

Short Description: To reestablish anadromous salmonids in Salmon Creek. The primary goal is to secure an adequate amount of water to facilitate fish passage upstream of an irrigation diversion dam and early stages (egg, fry, parr, smolt) of freshwater life history.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

An M&E and Adaptive Management decision framework should be developed within the next three years and reviewed by the ISRP.

The M&E framework should include an annual habitat survey of Salmon Creek above the low flow channel to verify that spawning and rearing conditions remain favorable for steelhead and Chinook; objectives for juvenile outmigration, adult immigration, and low flow channel habitat, along with metrics for each; a plan to collect the data to evaluate the metrics; and an adaptive management decision framework to guide alternative selection based on empirical results.

The data being generated through the OBMEP program could provide a sound foundation for a very effective adaptive management process. The project sponsors should develop a framework with clear, quantitative objectives and specific sets of circumstances that would initiate changes in management approach.

Annual habitat surveys above the low flow channel are needed to establish that assumptions about the suitability of upper Salmon Creek for the two species are supported empirically. This is important for two reasons: first, because evidence is needed that adequate flows for fish passage continue to be the most important limiting factor in the system (and not some other environmental parameter), and second, because realistic adult escapement and smolt production targets require up-to-date data on habitat quality and quantity in order to help project sponsors set quantitative population goals that balance artificial and natural production. The response mentions the Intrinsic Potential of Salmon Creek, but calculation of the Intrinsic Potential metric must be based on current habitat data.

Comment:

ISRP Comments on the Specific Responses

ISRP Preliminary Comment 1. Significance to Regional Programs: *The proposal needs to better describe how the project fits into regional restoration programs and the Biological Opinion. The proposal indicates that the project contributes to implementing BiOp RPA 34 and 35, but these are not mentioned in the significance to regional programs section. The proposal should provide explicit statements on RPA elements from the BiOp and restoration delisting under the Upper Columbia recovery plan. The presentation to the ISRP that showed the fish abundance targets*

for the subbasin, and for Salmon Creek for the recovery plan, subbasin plan, and tribal plans, is the type of explicit information the ISRP believes is essential to provide context and justification for the project tasks.

ISRP Comments on the Response: The additional information provided by the sponsor does not directly answer the questions posed by the ISRP and should be improved in future proposals. A sentence each is provided on RPA 34 and 35, but the text does not explain whether the actions in the proposal are explicitly identified in the RPA(s) and what the actions in the RPA(s) are. For example, the ISRP is under the impression that RPA 35 has a table 5 that gives improvement in survival assigned to habitat actions in specific tributaries. The ISRP believes this type of information is needed to establish the context for the project. Where the response cites the Recovery Plan and BiOp, details are lacking about the role that Salmon Creek would play in the recovery of steelhead. The ISRP understands the general relationship to the Recovery Plan and BiOp; it is the specific details that are requested. These specific details provide the basis for establishing quantitative objectives, monitoring and evaluation, and triggers to consider additional actions under adaptive management. Consequently, the ISRP believes the request is not just pedantic, but forms the foundation for guiding the project in the medium- and long-term. In the response to the ISRP, text is copied from a draft Okanogan Subbasin Steelhead Hatchery Master Plan. A portion of that text describes recovery plan standards for abundance and spatial distribution of steelhead in the Okanogan River subbasin. A succinct summary of those criteria and how the habitat restoration in Salmon Creek is intended to improve survival in Salmon Creek and contribute to achieving steelhead delisting is needed in future proposals.

ISRP Preliminary Comment 2. Technical Background (problem statement): *The technical background provided in the proposal is very brief, but what is included suggests that a fairly thorough assessment of habitat conditions and fish distribution in the stream has been conducted. The proposal indicates that Salmon Creek contains much of the suitable spawning habitat for spring Chinook and steelhead in the Okanogan system. Restoring summer passage through the 4.3 miles of Salmon Creek below the irrigation diversion was identified as the second restoration priority in an assessment conducted on the Okanogan. The proposal makes an effective argument that [water quality](#) and physical habitat in upper Salmon Creek are worth the effort of restoring its connection to the Okanogan River during the migration (and irrigation) season.*

The information that was presented in the proposal is sufficient to indicate that the habitat above the diversion is of high quality, supporting the high priority of reconnecting the upper watershed with the Okanogan River. A more detailed discussion of the results of the habitat and fish assessments that have been completed are needed to determine the opportunities for an RM&E program to assess response of the system to improved summer flows.

ISRP Comments on the Response: The response references a quantitative spawning habitat survey in 1995 and another survey in 1998. In addition, the response states “preliminary estimates of smolt production within pool tail-out regions indicated this 4-mile reach of Salmon Creek has the potential to produce more than 90,000 summer steelhead and 123,000 Chinook

salmon smolts at a survival-to-emergence of 10%.” These statements suggest that existing habitat inventories are either over a decade old or contain considerable uncertainty. Periodic (every 1 or 2 years) habitat measurements will greatly assist project staff in determining the productive capacity of upper Salmon Creek for steelhead and Chinook, and also in identifying biological “hotspots” for spawning and rearing.

The response includes information from recent fish assessments (Fisher and Arterburn 2003, 2005) providing support for the sponsors ability to assess and evaluate the flow and channel for steelhead migration. As noted in other sections of this review, clear metrics for evaluation and links to recovery and BiOp plans are still needed.

ISRP Preliminary Comment 3. *The objectives focus solely on recovery of summer steelhead. They provide a quantitative goal (Objective 2, return of 250 adult natural origin steelhead/yr). The introduction indicates that Salmon Creek also is an important spawning and rearing area for spring Chinook. Is the focus only on steelhead due to the fact that spring Chinook access the upper watershed prior to [low flow](#) becoming an issue below the diversion structure? Is there habitat below the diversion that would be improved by enhancing flow that could be valuable to spring Chinook?*

ISRP Comments on the Response: Explicit answers to the two questions were not provided. The implication from the text is that the focus is on steelhead because they are listed and spring Chinook in the Okanogan are extirpated and not essential for recovery of that ESU, and that the volume of water for Chinook restoration (reintroduction) is not available at this time. There is text that states that spring Chinook are using Salmon Creek, but whether this use involves the low flow channel and leased water is not clear.

ISRP Preliminary Comment 4. *The problem statement section of the proposal needs to include the TRT status review summary of recent abundance and productivity for the focal species, the near-term and long-term objectives under the Fish and Wildlife Program, BiOp, Recovery and Subbasin Plan, and discuss the extent to which those objectives are believed to be accomplished by continued implementation of the water lease.*

ISRP Comments on the Response: Text in the proposal and the response provide much of the desired information. However some of the information remains in a general, rather than specific format and often without sufficient clarity. For example, in the response to the ISRP the sponsor answers the query by stating the BiOp population target is 500 steelhead in the Okanogan River subbasin and that all four populations must meet their targets to achieve the BiOp goal. But the four populations are not mentioned, nor are the targets for each of the populations. In this proposal the population of particular interest is Salmon Creek, but the overall context will aid in understanding the restoration in a subbasin level framework. The proposal goes on to state that Salmon Creek is considered a minor spawning area for steelhead and that the Colville Tribe estimates that 159 steelhead spawners are needed to achieve restoration objectives. If the subbasin goal is 500 steelhead, 159 in Salmon Creek would seem like a major, not minor contributor.

ISRP Preliminary Comment: During the site visit, the ISRP engaged in a discussion of the source populations being used to supplement and reintroduce steelhead to Salmon Creek. A paragraph or two in the problem statement should be added to provide a summary of the planning that has taken place in this regard. The ISRP concern is that steelhead from a population whose replication in Salmon Creek might contribute little to meeting genetic restoration objectives would constrain the full benefits of the project. An explanation is needed of steelhead population structure – independent populations, and major population groups – and priorities for obtaining stock for reintroduction or supplementation.

ISRP Comments on the Response: The text explaining the status of Wells Hatchery stock and the text from the draft hatchery plan given in response to 3. *Project Relationships, Emerging Limiting Factors, and Tailored Questions* provides sufficient explanation of the recovery planning at this time. The topic can be reviewed in greater detail if the draft master plan is submitted. The ISRP is curious whether this plan will replace the Cassimer Bar Master Plan that began review several years ago.

ISRP Preliminary Comment 5. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results).

Accomplishments, Results: A paragraph in the proposal states, “Since 2009, there has been a conservative estimate of 662 adult steelhead which returned to Salmon Creek. This is a conservative estimate since counts are conducted via a video weir which becomes circumvented at flows in excess of 20 cfs.” This information indicates that there is an active program in place to assess fish populations in the Salmon Creek watershed, but no details about this program, or how it will be used to judge the effectiveness of improved passage below the diversion, was included in the proposal.

ISRP Comments on the Response: The response states that a primary metric for the project is the ratio of steelhead migrating and spawning above the point of diversion. The ratio of steelhead had been 2 fish spawning below for each fish spawning above in 2009 and 2010, whereas in 2011 and 2012 the ratio was 3 fish spawning above the diversion for 2 fish spawning below.

The ISRP believes metrics for the project need to be established, monitored, and used for evaluation and adaptive management. This important aspect of the project needs to be completed.

ISRP Preliminary Comment: The proposal needs to include succinct details on the video weir to enumerate adult steelhead and salmon, methods used to count emigrating smolts, survival of smolts to points downstream that is hopefully contrasted with other locations, a physical condition monitoring program for the channel, and to estimate the juvenile production and adult population generated by spawning and rearing in the eleven miles of now accessible habitat.

ISRP Comments on the Response: General information on the video weir is provided. Additional details are needed that provide evidence that the precision of estimates is adequate to guide management decisions on whether restoration standards have been met, whether additional flows and habitat is needed below the point of diversion, and whether continuation of the water lease is justified.

Adaptive Management:

The response to the ISRP provides adequate explanation of the state of adaptive management for this project. It is evident that the sponsor and various co-managers are engaged in longer-term discussions about the need for water and habitat for steelhead in Salmon Creek. Linkage needs to be clearly established between the decisions that will need to be made and project metrics and subbasin level M&E. The ISRP remains concerned that development of metrics for project evaluation is insufficiently linked to plans for data acquisition. The project has progressed to the point where a well-articulated decision framework would be useful.

ISRP Preliminary Comment 6. 3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

ISRP Comments on the Response: The response provides improved understanding of the role of the hatchery program and OBMEP. The ISRP believes the hatchery program needs independent review soon and that an M&E plan for this project needs to be clearly established. The response states that OBMEP collects both habitat and fish data throughout the Okanogan subbasin, including Salmon Creek. However, the response goes on to state that OBMEP is currently proposing to estimate juvenile production in Salmon Creek. Assessing juvenile production seems essential to the ISRP. As stated earlier, the ISRP is concerned that project metrics, M&E, and adaptive management is proceeding in an ad hoc manner, and that the project has developed to the point where a more formal decision framework is required. The ISRP appreciated the hatchery program draft, as it clarified the status of anticipated artificial production for conservation and harvest.

ISRP Preliminary Comment 7. Deliverables, Work Elements: *The work element and deliverable on the purchase of 1,200 acre feet of water is adequate. The work elements and deliverables on inspection and maintenance of the low flow channel are inadequate.*

ISRP Comments on the Response: The response provides a summary of challenges with maintaining the migration channel and the approach used for inspection. The proposal should provide a description of a flexible inspection and maintenance plan that is justified.

Preliminary ISRP comment requesting a response:

This project is straightforward and involves maintaining a low-flow bypass channel that restores the connection between Salmon Creek and its parent stream, the Okanogan River, as well as negotiating water leases and other agreements with the Okanogan Irrigation District that will

increase flow in lower Salmon Creek and the bypass channel, which will improve conditions during the primary steelhead and Chinook migration period as well as facilitating the downstream passage of smolts. According to the proposal, Salmon Creek was historically one of the most important spawning and rearing tributaries in the Okanogan River system, but anadromous salmonids were extirpated when Conconnuly Dam was constructed in the early 1900s. Restoration of flow to the lower portion of the Salmon Creek drainage network during late spring and summer is clearly an important restoration goal for the Okanogan system.

The proposal, however, is incomplete and revision is required. It does not provide sufficient background context on the status of the focal species; benefits that are anticipated to be accomplished by this project including a timeframe for improvements in abundance; relationship of the project to steelhead recovery and delisting; and criteria for evaluating success.

The proposal incompletely describes the work elements to be conducted by this project. Additional detail on the specific actions that will be undertaken to maintain the low-flow channel and how they will be sequenced from 2014 to 2017 should be provided. Finally, a much more complete description of the relationship between this project and projects in the Okanogan watershed that are monitoring fish and aquatic habitat condition should be included in the proposal.

Responses requested: See each proposal review topic for questions to be addressed in the proposal revision.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Significance to Regional Programs: The proposal needs to better describe how the project fits into regional restoration programs and the Biological Opinion. The proposal indicates that the project contributes to implementing BiOp RPA 34 and 35, but these are not mentioned in the significance to regional programs section. The proposal should provide explicit statements on RPA elements from the BiOp and restoration delisting under the Upper Columbia recovery plan. The presentation to the ISRP that showed the fish abundance targets for the subbasin, and for Salmon Creek for the recovery plan, subbasin plan, and tribal plans, is the type of explicit information the ISRP believes is essential to provide context and justification for the project tasks.

Technical Background (problem statement): The technical background provided in the proposal is very brief, but what is included suggests that a fairly thorough assessment of habitat conditions and fish distribution in the stream has been conducted. The proposal indicates that Salmon Creek contains much of the suitable spawning habitat for spring Chinook and steelhead in the Okanogan system. Restoring summer passage through the 4.3 miles of Salmon Creek below the irrigation diversion was identified as the second restoration priority in an assessment conducted on the Okanogan. The proposal makes an effective argument that water quality and

physical habitat in upper Salmon Creek are worth the effort of restoring its connection to the Okanogan River during the migration (and irrigation) season.

The information that was presented in the proposal is sufficient to indicate that the habitat above the diversion is of high quality, supporting the high priority of reconnecting the upper watershed with the Okanogan River. A more detailed discussion of the results of the habitat and fish assessments that have been completed are needed to determine the opportunities for an RM&E program to assess response of the system to improved summer flows.

The objectives focus solely on recovery of summer steelhead. They provide a quantitative goal (Objective 2, return of 250 adult natural origin steelhead/yr). The introduction indicates that Salmon Creek also is an important spawning and rearing area for spring Chinook. Is the focus only on steelhead due to the fact that spring Chinook access the upper watershed prior to low flow becoming an issue below the diversion structure? Is there habitat below the diversion that would be improved by enhance flow that could be valuable to spring Chinook?

Specific quantitative targets for steelhead adult abundance and juvenile emigration are absent. A summary of long-term biological goals and some time frame for achieving the goals are needed. The project has apparently established an intermediate term (12-year) lease for water to wet a constructed low-flow channel, but there is no indication of what is going to happen in the longer term (post agreement) and what level of natural fish production is needed to expand on this initial agreement.

The problem statement section of the proposal needs to include the TRT status review summary of recent abundance and productivity for the focal species, the near-term and long-term objectives under the Fish and Wildlife Program, BiOp, Recovery and Subbasin Plan, and discuss the extent to which those objectives are believed to be accomplished by continued implementation of the water lease. During the site visit, the ISRP engaged in a discussion of the source populations being used to supplement and reintroduce steelhead to Salmon Creek. A paragraph or two in the problem statement should be added to provide a summary of the planning that has taken place in this regard. The ISRP concern is that steelhead from a population whose replication in Salmon Creek might contribute little to meeting genetic restoration objectives would constrain the full benefits of the project. An explanation is needed of steelhead population structure – independent populations, and major population groups – and priorities for obtaining stock for reintroduction or supplementation.

Objectives: There are two objectives identified: (OBJ-1) restore instream flow in Salmon Creek; and (OBJ-2) Restore instream flows to Salmon Creek. The difference in deliverables is that Objective 2 involves the lease of water while Objective 1 includes the lease of water and maintenance of a constructed low-flow channel. For both objectives a description of how success will be evaluated is needed. These metrics need to include physical habitat and biological targets.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments and results: Although the project dates from 1996, the proposal describes work on the bypass channel and securing the 12-year water lease agreement with the Okanogan Irrigation District since 2009. Results therefore pertain only to bypass channel construction and maintenance, and to extending the water lease to provide additional flow. In addition, the project sponsors wish to modify the bypass channel so it provides passage for adult steelhead at 10 cfs instead of ~25 cfs.

A paragraph in the proposal states, “Since 2009, there has been a conservative estimate of 662 adult steelhead which returned to Salmon Creek. This is a conservative estimate since counts are conducted via a video weir which becomes circumvented at flows in excess of 20 cfs.” This information indicates that there is an active program in place to assess fish populations in the Salmon Creek watershed, but no details about this program, or how it will be used to judge the effectiveness of improved passage below the diversion, was included in the proposal.

The proposal also states that hatchery steelhead smolts have been used to document adequacy of the channel. However, no data are presented and no explanation is provided on the specifics of the monitoring, numbers of hatchery steelhead juveniles or smolts released, and estimates of natural smolt production. Fish use of the bypass channel should be assessed, and estimates of adults in and smolts out (both wild and hatchery) are needed to evaluate the biological effectiveness of this restoration effort. Specifically, this project needs at least three elements for evaluation: 1) emigration of stocked and natural smolts, 2) upstream migration of adult steelhead, and 3) physical condition of the constructed channel.

The proposal identified that recent flows have damaged the channel that stocked smolts presumably left the system and returned as adults – with at least 600 adults returning in the past few years. Mention is made of a video weir to monitor adult passage. The proposal needs to include succinct details on the video weir to enumerate adult steelhead and salmon, methods used to count emigrating smolts, survival of smolts to points downstream that is hopefully contrasted with other locations, a physical condition monitoring program for the channel, and to estimate the juvenile production and adult population generated by spawning and rearing in the eleven miles of now accessible habitat.

Adaptive Management: The adaptive management section of the proposal simply indicates that changes in water releases from Conconully Reservoir and alterations in the release location of steelhead smolts have been implemented or are being considered. There is no indication that these changes were linked in any way to an RM&E program that indicated that these changes could be beneficial (although the water release issue arose because of damage to the low flow channel). This project would benefit from a formal adaptive management process.

Two instances of adaptive management appeared in the proposal with one appearing in the secondary focal species section. The first described altered water management to reduce damage to the bypass channel, presumably to streambanks, during high flow events. This

suggests that project managers are not allowing the bypass channel to interact with its riparian area in a way that would mimic a stream's natural interaction with its floodplain. There may be good reasons for doing this, but we caution against taking a hard bioengineering approach to fish habitat in instances where natural meander processes can yield long-term habitat benefits. The second example is the institution of a sport fishery targeted at non-native species in Salmon Creek. This seems like a good idea as long as there is not excessive mortality to focal species.

Evaluation of Results

Result reporting is brief, so retrospective comments on the project by the ISRP are therefore incomplete. Water leases and low-flow channel construction have been achieved. Removing migration barriers is argued to have substantial potential to contribute to restoration of salmon because intact spawning and rearing habitat is available and salmon abundance and productivity response will be quick. Restoration of access in Salmon Creek could contribute to estimating the benefits from this action, but the data presented are insufficient to establish reasonable conclusions on when, or if, the project may accomplish the steelhead and spring Chinook restoration objectives.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships are not explained at all in the proposal. This omission is a substantial deficiency for assessing the effectiveness of this project. The proposal indicates that the sponsors are not requesting support for RM&E. But there are a number of RM&E efforts in the Okanogan system that are likely collecting information that would help to evaluate the effectiveness of reconnecting Salmon Creek to the Okanogan River, and which could greatly benefit this project. This expensive effort incurs ongoing costs for water purchase. Some understanding of the benefit being derived in terms of fish production would be very important to determine the value of investing in projects of this type. The proposal should have described RM&E efforts occurring in Salmon Creek that are collecting data relevant to this project and should have indicated how the sponsors intend to use this information to improve project effectiveness going forward by using an adaptive management plan.

This proposal indicates that emerging limiting factors are being considered in restoration planning. The proposal mentions that providing consistent access to Salmon Creek may help mitigate for increased water temperatures caused by climate change. Salmon Creek drains a watershed with a northeastern aspect and has significant spring input. Therefore, it exhibits water temperatures through the summer that are much cooler than those in the Okanogan River and could serve as a thermal refuge if access were possible. There may be little this project can do to address problems related to long-term climate change, but the observation that Salmon Creek maintains a temperature regime more suited to cold water species does reinforce the need to allow salmon and steelhead access to its headwaters. There also are a number of ongoing programs to address impacts from non-native fishes in the Okanogan River.

Statements in the proposal about removing invasive species suggest that the restoration project has links to other projects that have not been included in the proposal.

While climate change, predation from invasive bass and brook trout, and instream flows are identified as emerging limiting factors, how they will be addressed through adaptive management is not discussed.

Few details about hatchery releases were given. The proposal does not state what the estimated carrying capacity for juvenile steelhead and Chinook salmon might be in Salmon Creek. At some point such an estimate is needed, because as natural productions ramps up the number of hatchery releases may need to be ramped down.

4. Deliverables, Work Elements, Metrics, and Methods

Purchase of water for instream flow and maintenance of the low flow channel are the primary work elements. It appears that most of the requested funding for channel maintenance is basically for a contingency fund to repair damage should it occur. The ISRP recognizes that it not possible to specifically identify damage that will occur to the channel in the future. However, some explanation of the possible issues that might arise and the work elements and methods required to correct these issues should have been included in the proposal. A general description of deliverables and work elements is given, but the proposal lacked sufficient detail for scientific review. Specifying work actions and a timeline are needed.

Deliverables, Work Elements: The work element and deliverable on the purchase of 1,200 acre feet of water is adequate. The work elements and deliverables on inspection and maintenance of the low flow channel are inadequate.

Metrics: None are given. Monitoring and Evaluation is needed for this project, or linked to data and evaluation performed through other projects. The information provided in the proposal is inadequate.

Methods: None are provided.

Specific comments on protocols and methods described in MonitoringMethods.org

Not Applicable. No monitoring methods are provided; funding for monitoring is not requested.

[200000100](#) - Omak Creek Anadromous Fish Habitat and Passage

Sponsor: Colville Confederated Tribes

Short Description: The Omak Creek Anadromous Fish Habitat and Passage Project is directed toward improving habitat conditions to allow for a self-sustaining steelhead population in the Omak Creek watershed and addresses the resource problems identified in the Omak Creek Watershed Plan/Environmental Assessment (Natural Resources Conservation Service, NRCS, 1995).

ISRP response loop recommendation: Does Not Meet Scientific Review Criteria

Comment:

While the restoration actions proposed in the project description seem reasonable, the proposal (together with the response to the ISRP's specific questions) does not provide enough detail for us to conclude that the work is scientifically grounded and will be guided by feedback from habitat monitoring and fish population assessments.

The proposal does not clearly establish goals for physical habitat improvement, that anticipated habitat restoration work will be sufficient to achieve required habitat improvement, or that the habitat improvement will lead to improvement in steelhead abundance and productivity. The ultimate numeric goal improving steelhead abundance appears to be only partially decided. The response indicates that the recovery goal in the NRCS Watershed Plan is 1545 steelhead, but presumably this number refers not just to Omak Creek but to an aggregate of streams, as elsewhere in the response, habitat within Omak Creek is estimated to be sufficient for 90 spawners in currently accessible habitat and for 90 more spawners in habitat further upstream that would be made accessible by the project. Thus, the significance of Omak Creek to the recovery of this steelhead ESU remains unclear.

In order to provide sufficient evidence of scientific justification for the work, the ISRP asked the sponsors for more information about the accompanying monitoring program. We realize the CCT asserts that environmental monitoring in Omak Creek will be handled by partnering organizations, but we asked for more information about how and where the monitoring would be conducted, as well as how environmental data would be analyzed, reported (and by whom), and subsequently incorporated into future restoration actions. That information should have been included in the response, even if only in simple summary fashion.

We also remain concerned about the validity of the data used to support the project prioritization and implementation process. The response repeatedly references the 1995 NRCS Watershed Plan, which is now 18 years old. In addition, the road density and stream crossing information provided in Table 1 is 8 years old, and the V-Star (sediment) data show no obvious trends from 2000-2010, although the downstream site seems to possess different V-Star values from the upstream site. However, without additional description of the sites and what restoration treatments were being evaluated, we are not sure how to interpret Table 2. The point is that greater confidence would have been placed in the need for specific restoration

actions if site selection and restoration choices had been based on more current information. It is possible that more up-to-date information is in fact available, but clear summaries of the results of more recent monitoring were not provided in the response.

The response did not address our questions about the monitoring, evaluation, and adaptive management aspects of the project, stating that the sponsor was not required to include protocol methods or data from monitoring projects in this proposal, and that monitoring projects are identified in the project relationship section of the proposal form. The essence of the question from the ISRP was not for specific details of individual field and laboratory protocols and standard operating procedures but rather for a reasoned explanation of how many sites were being monitoring and the type of design, who will do the monitoring (what projects and agencies), and how the monitoring and evaluation data will be used to guide future restoration decisions. The ISRP believes that even for projects that are not collecting or evaluating data, the project leads and managers need to understand and agree on metrics that indicate success of particular actions, expectations for improved status of steelhead and other focal species, and have a framework for implementing restoration alternatives if more work is needed in the future.

Again, the ISRP believes that many of the proposed actions might be well justified; however, we are unable to determine if the project meets scientific criteria without a more detailed, scientifically supported project description.

Evaluation of Results

Insufficient information is provided in the proposal to develop a cogent analysis of whether the project is making reasonable progress toward watershed, subbasin, and basin-level goals for steelhead or other focal species.

Preliminary ISRP comment requesting a response:

The ISRP requests a revised proposal in order to establish that the project:

- 1) is based on sound science principles;
- 2) has clearly defined objectives and outcomes;
- 3) has provisions for monitoring and evaluation of results.

The purpose of this project is to remedy habitat problems in Omak Creek, which holds a remnant run of steelhead. According to the proposal, this work will involve riparian re-vegetation, large wood additions to the stream, removing passage barriers, and reducing sediment inputs. Later in the proposal, it is stated that the specific locations of many of these actions have not yet been identified but will become apparent after environmental assessments.

The proposal describes work that is likely needed and will also likely benefit endangered steelhead as well as other native fishes, but there was insufficient detail in several sections of the proposal form. In order to judge the scientific adequacy of the proposed work the ISRP needs:

- 1) A more comprehensive introductory section describing how this project will contribute to the goals of the Upper Columbia recovery plan for steelhead and a problem statement establishing the physical habitat and biological status of steelhead to provide context for justifying the project. The problem statement needs to start with fish abundance, the goals they want to achieve, and limiting factors.
- 2) A more detailed description of how various environmental assessments will be carried out, including how specific restoration locations will be prioritized for treatment.
- 3) More details on the actual restoration methods, by restoration category. For example, what types of plants will be used in the riparian re-vegetation projects, how will large wood be reintroduced to the stream, for example by use of individual pieces or engineered log jams that are anchored, and what techniques will be used to reconnect Omak Creek with its floodplain?
- 4) More information on how the sites will be monitored, who will do the monitoring and what methods will be used, and how the results of monitoring will be incorporated into continued restoration planning.

See the comments on individual proposal component for more detailed suggestions.

We were unable to understand how the projected budget was derived given that the assessments have not yet been completed and the number and scope of restoration actions for Omak Creek has not yet been specified.

Finally, the benefits of this project are likely constrained by land use in the watershed. Timber harvesting and the associated road system need to be managed in a manner that complements and aids self-sustaining restoration. Fixing symptoms of ecosystem degradation without addressing land use that drives watershed level processes is likely to require more effort with less benefit. A thorough road inventory of the entire Omak Creek watershed, with special focus on river crossing and identification of critical road components is needed. Road maintenance to lessen/mitigate impacts to fish and wildlife could be included in their timber sale contracts. Sustainable timber certification could be explored to increase their markets.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Significance to Regional Programs: Apart from discussing the cultural significance of Omak Creek, the proposal did not explain sufficiently how this project fit into regional restoration programs. The Okanogan Subbasin plan and the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan are cited, but the linkage is not clearly summarized. Specifically for the

recovery plan, a description of the TRT assessment of viability and the contribution expected from Omak Creek toward delisting the steelhead ESU needs to be included. Is the Omak Creek steelhead population considered an independent population essential for delisting the steelhead ESU? Is the population part of an MPG? How will restoration of the creek's steelhead population contribute to CCT, State of Washington, and Fish and Wildlife goals for VSP statistics for steelhead abundance, productivity, spatial structure, and diversity?

Problem Statement: Inadequate; the information provided is too brief. A more complete picture of the objectives for steelhead VSP parameters, limiting factors, and how they are going to be addressed is needed. Background should be provided about the current status and abundance of steelhead in the project area to support inferences about whether production is currently limited by too few spawners perhaps due to past depletion or continuing out-of-basin factors, or too many spawners for the available habitat resulting in low productivity perhaps due to habitat limitations within the subbasin.

The purpose of this project is to remedy a number of habitat problems in Omak Creek. According to the proposal this work will involve riparian re-vegetation, large wood additions to the stream, removing passage barriers, and reducing sediment inputs. Later in the proposal it is stated that the specific locations of many of these actions have not yet been identified, but will become apparent after environmental assessments. The proposal should include an explanation of the priority of addressing the limiting factors.

Project Objectives: Inadequate. The proposal states that the objective is a self-sustaining population of steelhead. The proposal should identify the abundance and productivity goals, and a timeframe for meeting the goals. The proposal does not provide any information on how success will be evaluated.

The objectives are not presented as part of an overall strategy, although it is mentioned under Adaptive Management that the "long-term goal" is to first provide passage above Mission Falls and then improve habitat there. No history of Mission Fall is provided, but that strategy sounds like one of expanding range above a longstanding barrier, which presupposes enough spawners will be available to colonize the new habitat.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Major Accomplishments: A list of accomplishments was given in a table describing contracted deliverables from 2004 to the present, but details about those efforts were not summarized nor were the biological results of the restoration actions discussed. These achievements include culvert replacement and rock removal to improve passage, road improvement or decommissioning to reduce sedimentation, fence installation, riparian planting and placement of large woody debris to improve stream complexity. What is lacking is a concise summary of these achievements and evidence to show that the efforts have actually improved fish access, habitat quality, and fish abundance or productivity.

The results reported in the proposal are too vague to evaluate, and there is no evidence that an evaluation has been attempted by the sponsors. The first paragraph of the results section contains no results. The second mentions activities to improve passage over the falls, but seems to indicate that passage is not yet possible. The third paragraph justifies efforts to improve riparian vegetation, but it is not clear whether the measurements of canopy closure (8.4% in 2001 and 30% in 2002) represent improvements or measurements in different areas. The fourth paragraph justifies road decommissioning to reduce sedimentation and mentions that road densities have been determined from orthophotographs and that a new strategy has been developed by a Technical Advisory Group, but it does not indicate what improvements have been achieved to date. This proposal would have benefitted from before and after photos of some of the restoration actions. Other proposals have done this effectively, and it is recommended that project sponsors do so here unless more quantitative pre- and post-restoration habitat data are available.

Response to ISRP Comments: The information presented in the proposal does not address the question/suggestion the ISRP raised about using spring water as a source for off-stream cattle water. This needs to be added.

Adaptive Management: The proposal does not directly answer the questions in the proposal instructions. The entry under Adaptive Management refers to a long term goal but does not indicate how that goal might have changed as a result of monitoring and evaluation. In other words, this section does not obviously relate to either active or passive adaptive management. The project sponsors claim that monitoring has occurred in Omak Creek, although no information on what has been learned from the monitoring or how it has been applied to other work was given. The lone exception was an attempt to improve adult steelhead passage at Mission Falls, which apparently yielded unsatisfactory results. The project sponsors believe they now know how to increase fish passage at the falls, yet few details were provided.

Evaluation of Results

Insufficient information is provided in the proposal to develop a cogent analysis of whether the project is making reasonable progress toward watershed, subbasin, and basin-level goals for steelhead or other focal species.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project Relationships: “None” was the answer in Taurus, but this seems at odds with the 2012 annual report. Consequently, insufficient information was provided in the proposal to judge the scientific soundness of this effort in terms of project relationships. The proposal text needs to provide an adequate answer to how this project interacts within the upper Columbia Province and similar habitat work in the region. Elsewhere the proposal mentions support from Okanogan Habitat Land and Water acquisition funds, but the nature of that relationship is not explained in any detail.

Emerging Limiting Factors: The section on emerging limiting factors merely lists again the factors that have already been noted as limiting salmon production; it does not include any significant discussion of factors that are newly emerging or that have been noted elsewhere as warranting attention in the future. In a TAURUS proposal, "Emerging Limiting Factors" means new environmental problems, for example climate change that are only now becoming apparent, not factors that are clearly known to be problems.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables: Nearly all of the nine deliverables call for an assessment or inventory of Omak Creek before specific restoration actions can be undertaken. Therefore, the ISRP was unable to determine what the work elements, metrics, and methods will be. The proposal needs to provide the inventory methods for assessments relating to each of the deliverables and then a summary of the approaches to be used to approach problems. For example, the ISRP needs more information than "add large woody debris to the channel to increase habitat complexity," or "replant riparian areas that have been overgrazed" in order to determine whether scientifically sound approaches will be used. Because this project is more than 10 years old, it seems somewhat surprising that problem areas have not already been identified.

Further, the proposal does not indicate any specific level of work to be accomplished over the time period of funding. Classes of work and work elements are presented, but the level of effort in each area is not provided. Some sort of over-arching summary of the anticipated accomplishments is required. And, there needs to be an explanation of why this sort of work was chosen, and what the anticipated benefits will be for focal species.

The map is inadequate as it does not indicate the relevance of the shading, the location of Mission Falls, or the location and extent of the habitat being made accessible or improved.

Specific comments on protocols and methods described in MonitoringMethods.org

Although the proposal states that monitoring has taken place and will occur in Omak Creek, no details were given. There were no references to monitoring protocols in MonitoringMethods.org.

[200722400](#) - Okanogon Subbasin Habitat Implementation Program (OSHIP)

Sponsor: Colville Confederated Tribes

Short Description: The goal of this project is to implement the Okanogon Subbasin Plan. The Subbasin Plan was developed to describe in detail the current state of the Okanogon Basin and then describe what the limiting factors are for anadromous salmonid production and survival. Implementing the Subbasin Plan will require a sequenced set of key habitat restoration and protective actions. The Okanogon River, Similkameen River, and associated tributaries have several factors that limit salmonid production.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The adequacy of specific strategies for improving water quantity and temperature should be considered (or modeled) under a range of plausible future scenarios (as per ISRP request #5). In general, the response was fine concerning the expected directions of climate change. However, the ISRP would like to better understand specific actions/strategies being considered or implemented to maintain biologically meaningful in-stream flow.

A short report should be submitted within 6 months for review by the ISRP. This report should address the mechanics of obtaining the water as well as a frank assessment of the willingness of those controlling the water sources to make suitable arrangements so that OSHIP can maintain adequate in-stream flows. For example, over the period covered by this proposal, how much water is needed, where will the needed water be obtained, and what is the potential contribution from each source? What plans or strategies are in place to obtain this water? How much of the needed water is projected to come from conservation agreements, how much from sealing stream substrates, and how much from other potential sources?

Comment:

The sponsors have made a creditable effort to respond to the ISRP's requests and concerns. Many of the ISRP's concerns had to do with coordination among the various organizations involved in habitat restoration in this watershed and the relationship between RM&E activities and the projects implementing habitat projects. These concerns were adequately addressed. The responses and the links to relevant documents provided reassurance that OSHIP has well-reasoned and methodical approaches for setting goals relevant to ESU viability parameters (e.g., EDT life history models and spawner targets by stream) and for selecting projects based on limiting factors and feasibility. In particular, the response clarified the complementary roles of UCSRB and OBMEP in setting objectives and in monitoring results, respectively.

One area where the project sponsors could profitably direct some attention is the development of quantitative habitat objectives. The current objective is expressed as a desired percentage improvement in habitat quality, but the specifics of what this level of improvement actually means on the ground were not specified. Given the data being collected under the OBMEP

program and the availability of the EDT model for this watershed, more specific habitat objectives could be produced. These quantitative objectives would be useful for evaluating progress against broader-scale objectives, evaluating the relationship of habitat condition to biological response, and updating the project prioritization lists. Specific habitat objectives also are essential for adaptive management.

The sponsors also might consider working with OBMEP to ensure that enough project-scale monitoring is occurring to evaluate the relative effectiveness of different restoration options. It is not clear to what extent the habitat response to individual projects is being assessed, but this information could be critically important for improving the efficiency of the restoration program moving forward.

Preliminary ISRP comment requesting a response:

A response is requested to:

- 1) Clarify the problem to be solved and present evidence to support or rank hypotheses about the stated limiting factors.
- 2) Quantify the objectives and explain the choice and sequence of actions being proposed to achieve the objectives.
- 3) Quantify the deliverables so that it would be possible, in principle, to demonstrate success or failure of implementation and compliance.
- 4) Explain how this project would monitor and evaluate or link with other projects to monitor and evaluate the effectiveness of its actions, and the outcomes for fish status.
- 5) Evaluate how proposed actions to secure more cool water for juvenile rearing might succeed or fail under a range of plausible climate change scenarios.
- 6) Justify the proposed budget of \$100,000 per year for vehicles. Although not a scientific issue, this cost (\$500,000 over five years) seems large and warrants explanation.

The proposal should also be revised to include the information requested above and to address other issues outlined below.

This proposal fails to provide a coherent description of current status and factors limiting population viability of anadromous salmonids in the Okanogan Subbasin. The problem statement should establish the relevance of the selected restoration sites to Viable Salmon Population (VSP) parameters of abundance, productivity, diversity, and distribution for the endangered steelhead ESU and other species as appropriate. It should indicate how restoration at these specific locations will help to meet the RPA 35 obligations and goals identified in the Subbasin Plan. As it is, the proposal does not demonstrate that the tributaries to be restored

would contribute much in terms of ESA recovery for steelhead or restoration of fisheries for summer/fall Chinook and other species.

This project includes a very ambitious set of restoration activities. Most of the proposed activities appear to address some of the generic limiting factors identified in the Subbasin Plan, for example temperature, sediment, and habitat complexity. But reasons for addressing these problems at the specific project sites are not provided. Additional detail on the project prioritization process being used by OSHIP should be included in the proposal.

This proposal should explain the relationships among the multiple habitat programs including the Upper Columbia Habitat Program and the Upper Columbia Salmon Recovery Funding Board Program that are identifying and implementing restoration projects in the Okanogan River watershed. Even if other programs access funds from different sources, all restoration programs in the watershed should be fully coordinated, with compatible processes for prioritization, so that complementary projects are selected.

In addition, the relationship between OSHIP and Okanogan Basin Monitoring and Evaluation Program (OBMEP) should be described. The proposal indicated that OSHIP was conducting some project-scale effectiveness monitoring. The design and methods being used for this task were not described. The proposal also should describe how the project-scale monitoring is aligned with the OBMEP efforts.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The proposal does not adequately explain its significance to regional programs. The Okanogan Subbasin plan and the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan are cited, but the linkage is not clearly summarized in a way that can be reviewed easily. The executive summary states that the purpose of OSHIP is "to implement a sequenced set of key habitat and protective actions." This sequence is not described or justified in the body of the proposal.

The problem statement is inadequately developed. Background should be provided about the current status and abundance of the target species in the project area to support inferences about what factors currently limit salmonid viability and production.

The proposal does not explain the extent to which this project will be coordinated with the Upper Columbia Habitat Programmatic or the Upper Columbia SRFB, both of which are identifying and funding projects in the Okanogan River watershed. Restoration of anadromous fishes in the Okanogan system would be most efficient if all these oversight programs were well aligned.

The objectives are clear, but they are not quantitative because they lack criteria for success or time lines for achievement. The objectives are not presented as part of an overall strategy that indicates an appropriate sequence of actions. Given the wealth of information that has been

collected on this watershed, especially over the last few years with the initiation of the Okanogan monitoring program, these objectives could be site specific and quantitative.

Based on resumes provided in the proposal, the ISRP wonders whether CCTAFD personnel have the overall expertise to oversee and successfully complete many of the actions proposed, and whether advisory teams will be assembled to assist the technical and managerial staff. That said, the sizeable budget for professional meetings and training seems appropriate.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The proposal includes a long list of activities undertaken through this project since 2008. These activities appear to have been identified by habitat assessment based on data collected by the OBMEP project. It would have been useful if results of this assessment had been summarized in the proposal. As it stands, the results section contains too little detail to evaluate the extent of accomplishments or their impact. Many of these projects are still underway such that evaluation might be premature. Even so, no data or evidence of monitoring are presented to instill confidence that the efforts are producing useful results.

The proposal section on adaptive management simply states that the project sponsors have been identifying stream reaches where additional flow would be beneficial to steelhead. No plan for adaptive management is articulated, and this omission needs to be corrected. Given the potential availability of habitat and fish data in this system, this project could implement a very powerful adaptive management process. Project priorities should be reviewed annually using new information on the effectiveness of projects implemented previously.

Evaluation of Results

OSHIP was authorized in 2007 but did not begin until 2008 in conjunction with the Fish Accords.

Research conducted by the CCTAFD indicates that water flow in most tributaries of the Okanogan River that support steelhead is over allocated for irrigation, such that water is now a principal limiting factor. Accordingly, the goals of OSHIP have shifted to acquiring more water flow for juvenile rearing. Even so, the proposal contains no explicit plan for adaptive management.

Too little detail is provided in the proposal about fish or environmental monitoring to evaluate the extent of accomplishments or their impact. No fish response data are provided.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships are described only briefly. At a minimum, some description of the relationship between this project and other habitat funding programs operating in the Okanogan River watershed should be provided. How does each entity interface with the proposed project? What are the details of the relationships for specific restoration actions and

goals? One would hope that these various efforts are closely coordinated to avoid duplication of effort and to ensure activities are complementary.

It seems that OSHIP is the main driver of steelhead habitat restoration in the United States portion of the Okanogan River but works with other partners including Trout Unlimited, The Okanogan Conservation District, Washington Water Trust, and the Washington State Department of Fish and Wildlife. In addition, OSHIP also funds planning and design for projects in the Canadian portion of the Okanogan River while Chelan, Douglas and Grant Count PUDs provide implementation funding.

The proposal states that limited effectiveness monitoring is done by OSHIP, and that status and trend monitoring and evaluation of changes in habitat conditions is covered by the Okanogan Basin Monitoring and Evaluation Program. Details of this monitoring are inadequately described in this proposal. Project-scale evaluations should be fully integrated with the OBMEP program to ensure maximum benefit from the results.

Discussion of emerging limiting factors is scant and the meaning of the term may have been misinterpreted. OSHIP is focusing on opportunities for accessing water and habitats that are cooler than the mainstem Okanogan River, presumably in recognition of current limiting factors and predictions for climate change. However, potential climate change impacts on system hydrology are not addressed. What is needed is a discussion of (or some explicit modeling to determine) whether enough cool water *can* be secured under a plausible climate change scenario to provide reassurance that the odds of success are reasonable. Approaches to gain insights into future flows do exist, and these insights can help shape restoration strategies and actions. Scenario analyses have been used to inform and improve existing flow restoration and habitat projects (see Donley et al. 2012. *Global Change Biology* (2012), doi: 10.1111/j.1365-2486.2012.02773.x). As one example, it is ecologically advantageous to assess through simulations the sensitivity of late summer (July, August, and September) flows to various scenarios involving changes in the following variables, singly or in combination: climate, the quantity of water used for irrigation, and water resource policy. Flows can be modeled using the Water Evaluation and Planning system (WEAP; as well as other modeling platforms) under historical and projected conditions (for example, 2020 and 2040) for each scenario.

The proposal does not include consideration of other important factors, for example toxic agricultural chemicals, future water withdrawals for agriculture, hatchery impacts, and non-native species invasions and predation. Each of these factors is important, and has the potential to undermine costly restoration efforts. Accordingly, some consideration of these factors should be incorporated into the project selection process.

The list of focal species is surprisingly short given the scope of the proposed restoration work. Lamprey, other trout, mussels and riparian birds are not mentioned. Are there other species or ecological groups to be concerned about or which could benefit from the proposed actions?

4. Deliverables, Work Elements, Metrics, and Methods

The 19 deliverables listed in the proposal all address issues relevant to the primary limiting factors identified in the Subbasin Plan and consistent with the stated objectives. However, the deliverables are not quantitative and seem more like goals than deliverables. Without more detail, it would be impossible to determine later, whether a project component had succeeded or failed.

Some additional explanation of the project prioritization process would have been helpful in reviewing the proposal, especially given the sizable funding request. Why were these actions chosen as top priorities? What are the expected outcomes in terms of fish recovery? These expectations should be included as criteria, along with timelines for achieving them. The lack of detail and prioritization diminishes confidence that useful outcomes can or will be achieved.

Further, without any direct monitoring for effectiveness, it will not be possible to determine if specific work elements and metrics are the best for specific situations, or if the work elements and metrics need to be modified in any way. The lack of effectiveness monitoring is a major oversight.

Note that none of the 19 deliverables are listed as supporting Objective 6 (Habitat Protection).

A large proportion of the budget is for land and water acquisitions, but no details or justification are provided on what properties or rights will be purchased or leased, the priorities and rationale for acquisition, or how these actions relate to specific fish or wildlife goals. Further, in the budget, rent/utilities are traditionally overhead costs and no justification is provided for the large annual expenditures on vehicles.

Professional publications in a refereed journal should be listed as a deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community.

Two resumes are missing.

Q. Grande Ronde River

199202601 - Grande Ronde Model Watershed

Sponsor: Grande Ronde Model Watershed Foundation

Short Description: Within this proposal, Grande Ronde Model Watershed will be referred to as "GRMW"; habitat restoration projects will be referred to as "project(s)". The primary goal of GRMW is the restoration of habitat critical to the survival of native anadromous and resident fish populations. Coordination of science-based restoration is to be achieved through the engagement of the local community; prioritized, designed and implemented by professionals from local, state, Tribal and federal organizations.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The Grande Ronde Model Watershed is a strong, well organized program, and has had considerable success in implementing a large number of habitat enhancement projects. However, it needs to improve effectiveness monitoring and the adaptive management process to incorporate climate change, toxic chemicals, and non-native plants into the active program, and set priorities at the landscape scale. Results should be judged in terms of improvements to freshwater survival and productivity of fish.

Analysis of monitoring data often lags behind data collection. The sponsors should consider enlisting the assistance of NOAA-Fisheries early in the process to assist with the design of monitoring actions and with data analysis.

Qualifications:

- 1) An Objective and Deliverable pertaining to M&E should be included in future proposals. An M&E Objective signifies a commitment to monitoring, especially effectiveness monitoring.
- 2) In future proposals quantitative details should be provided on how past and current actions are influencing survival and growth of native fishes. This should include monitoring results and how the results have altered actions through the adaptive management process.
- 3) Develop plans and actions to fully integrate climate change, toxic chemicals, non-native species, and agricultural water demands into an effective program.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The primary goal of Grande Ronde Model Watershed program (GRMW) is the restoration of habitat critical to the survival of native anadromous and resident fish populations. The GRMW

coordinates watershed planning activities and funds habitat enhancement projects within the Grande Ronde and Imnaha subbasins. The focus of the program currently is in the Upper Grande Ronde and Catherine Creek.

The GRMW encourages and supports sound land and water management, the local economy, and multiple land uses consistent with sound ecosystem management. Collectively, the GRMW plays a central role in coordinating the actions of numerous regional programs conducted by Tribes, agencies, counties, and landowners. The effort to coordinate local habitat restoration activities and to engage public support more broadly are commendable and consistent with the landscape approach advocated by the ISAB and others. The technical aspects of the project are strong. The GRMW has a long history of accomplishment, trained and experienced staff, and a programmatic network that can maintain adaptive capacity.

The program is significant to regional programs and is consistent with numerous recovery plans directed at habitat protection and recovery including the Grande Ronde and Imnaha Subbasin Plans, the FCRPS Biological Opinion, the Oregon Plan, and the Oregon Watershed Enhancement Board and more recent planning documents including the Atlas Process. The Atlas Process should be very useful to the GRMW program in its project planning and prioritization.

GMRW deserves credit for being proactive in expanding the scope of habitat restoration projects based on past experience, and for seeking to prioritize projects based on feasibility and biological benefits, for example the Stepwise project selection process and the Atlas Process. However, details were lacking on how feasibility and biological benefits are judged.

The Objectives and background are well described. The Objectives presented in the proposal, for example restore habitat connectivity and enhance floodplain connectivity, represent the desired outcomes of the suite of habitat enhancement projects funded through the GRMW program. The proposal includes adequate background information on the nature of the habitat problems being addressed, and extensive summaries of past activities with links to detailed results at individual sites. The results, in terms of individual projects, are impressive.

The Objectives are clearly related to the overall goal of improving native fish populations. The proposal, however, does not provide a compelling overview of progress towards achieving the program's Objectives, especially whether progress is being made in improving freshwater survival and growth of native fishes. Determining whether the GRMW is accomplishing its goals of habitat enhancement and improved freshwater fish productivity requires effectiveness monitoring, as emphasized by the ISRP in its previous review of this project. Effectiveness monitoring traditionally has not been a central component of the activities. The project has been in place since 1992, but it appears that effectiveness monitoring was only recently implemented.

With regard to this point, the sponsors make an important observation on p. 3: "Both the U.S. District Court in Oregon and the Court of Appeals for the Ninth Circuit have held that the ESA standard of jeopardy requires NOAA Fisheries to consider not only whether the species will

survive but how the prospective actions (including habitat improvement projects) will affect the species' prospects for recovery." The ISRP interprets this as meaning that the results of restoration actions need to be quantified via effectiveness monitoring or the use of quantitatively based models to predict outcomes. It does not appear that this is being done at a scale and scope which will meet this criterion.

The GRMW recognizes the importance of effectiveness monitoring but states that it is constrained by lack of funding. The GRMW has approached the issue in at least three ways. First, for each objective they propose metrics or measures to evaluate project success. The metrics, for example miles of fencing and acres of riparian planting, pertain mostly to implementation with the assumption that they are having the desired outcome of improving habitat conditions and fish abundance. This is a complex and uncertain assumption but, in lieu of M&E, it is understandable from a practical perspective, depending on whether there is a direct relationship between the metrics and the desired outcomes of habitat improvement such as restoration of habitat connectivity and enhancement of floodplain connectivity. This assumption may be generally true, but it does not provide a quantitative assessment of actual habitat improvements. For example, are riparian plantings and other efforts to enhance riparian areas stabilizing banks, providing shade, and reducing water temperature? Perhaps most importantly, are these actions benefitting fish? This can only be demonstrated through M&E.

Second, the sponsors state that they will rely on ODFW and CRITFC monitoring projects to provide "overall watershed habitat status." It would be helpful if the sponsors had provided more detail regarding the way that these projects will satisfy the need for effectiveness monitoring of GRMW projects.

Third, the GRMW has made an effort to incorporate more site specific monitoring in the individual projects funded through their program. This is a positive step, and the ISRP recommends that this effort continue and expand in the future. The effectiveness of the GRMW program ultimately depends on the cumulative success of the individual projects in improving habitat. It would be helpful if the sponsors had provided more detailed information about this effort, including the responsibility of the GRMW in planning and design of the monitoring process, as part of its coordination role.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The GRMW has successfully implemented an impressive number of projects. The Stepwise procedure developed for project selection, prioritization, and funding is a formalized process directly involving cooperators and includes technical review of each proposed project. This process helps ensure that individual projects share a common goal, that they are working in defined priority areas within the subbasins, and that closer cooperation among projects is fostered.

The Stepwise process, although useful, has limitations. It does not establish landscape scale priorities; rather, it assists the sponsors in developing and implementing individual projects. This limitation is important to recognize; how are priorities set at the landscape scale and the project class in terms of having a positive effect on fish survival? Further, how is the “biological benefit score” established and what are the components used to develop this quantitative score?

Results would be more meaningful if the sponsors presented at least a quantitative summary of how the projects it funds, taken together, have improved riparian and stream processes and freshwater survival of fish. If monitoring continues, as it should, the sponsors should develop an effective way of synthesizing results of individual projects to provide a “big picture” view of the success of the GRMW project as a whole.

Program management appears to have adapted appropriately to experience gained over 20 years, but this adaptation seems to have been passive rather than active. Adaptive management, as originally intended, requires deliberate experimentation to acquire the knowledge to reduce key uncertainties, with the goal of improving future decisions, and long-term benefits. Monitoring and evaluation are critical to such an adaptive management approach. Linking local monitoring of site specific projects to CHaMP methods used at watershed scales seems like an appropriate strategy given limited funding.

While learning is occurring at the program scale and at the scale of individual projects, the effectiveness of the adaptive management process could be vastly improved with the use of quantitative hypotheses or goals and the judicious use of reference sites for single actions or a group of actions. This would allow timely evaluation of effectiveness, and possibly the discovery of underlying mechanisms, and thereby improve learning.

Evaluation of Results

The purpose of the GRMW is to select, review, prioritize and fund habitat protection and restoration projects intended to benefit ESA-listed salmon and other fish species in the Grande Ronde and Imnaha Subbasins. The GRMW is a well-established and successful program that appears to have established stable and deeply rooted relationships with cooperators in the Grande Ronde subbasin. Its accomplishments since its inception in 1992 are impressive. The GRMW appears to be a well-managed program and, with the development of the Stepwise process, has improved its procedure for selection, review, and prioritization of projects. A strength of this program is its close working relationship with state and local governments, Tribes, conservation groups, private landowners, and other local public interests to coordinate habitat restoration projects on state and public lands.

The Grande Ronde Model Watershed Foundation, established by the GRMW, contracts directly with BPA and other funding sources to fund and implement restoration projects. Working through the Foundation, the GRMW with its cooperators is able to consolidate and coordinate habitat restoration planning at a subbasin scale and, through a formalized, structured process

for project selection, helps ensure that projects address limiting factors in priority watersheds identified in the subbasin and other plans (and in the upcoming Atlas). Because the GRMW provides funding for projects it can exercise considerable influence on project selection and implementation. The existence of a single entity, such as the GRMW, responsible for planning and project selection within a subbasin should be considered in other subbasins where coordination among habitat restoration projects appears to be more loosely defined.

Determining whether the GRMW is accomplishing its goals of improving habitat and freshwater productivity of fish requires a robust effectiveness monitoring program. At present, monitoring is not sufficient to clearly demonstrate positive impacts of habitat improvement actions on fish. The GRMW should develop an effectiveness monitoring program that is capable of demonstrating quantitatively progress toward achieving the objectives of the individual projects funded through the GRMW and of the GRMW as a whole.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The success of this project requires close coordination with agencies, tribes, and the public. The GRMW seems to have been very successful in developing and maintaining these relationships and enfranchising a wide range of stakeholders.

The sponsors recognize climate change, non-native plants, and toxic chemicals as emerging limiting factors. In reality, these are not emerging limiting factors but ones that are already present at significant levels. As such, they should be addressed directly by program actions. An additional “emerging limiting factor” may be increasing agricultural demands for water, and this could be examined through scenarios, at a minimum, or the use of quantitative models/trend analyses. Flow restoration will need to operate in cooperation with agricultural demands and climate change. The project needs to have a strong understanding as to how these factors may impact future water supplies and timing.

Administration and overhead are 34% of the budget. This seems high compared to other similar projects. Is there justification for this high rate? If so, a detailed justification should be provided, especially so in that rent/utilities are a line item in the budget; these items are usually covered under overhead except in exceptional circumstances.

4. Deliverables, Work Elements, Metrics, and Methods

The project Deliverables are clearly linked to methods and individual restoration Objectives and should help meet the stated Objectives. Most of the Deliverables are classes of enhancement actions that will be undertaken by projects funded through GRMW. The specific projects that will be recommended for funding are given for each Deliverable. The ISRP assumes that these projects have already passed the Stepwise review process. A Deliverable as well as an Objective addressing M&E should be included. This Deliverable should specify the procedures the GRMW program will use to allocate funding for M&E. Will the GRMW propose guidelines for M&E for individual projects and will these guidelines or requirement be integrated into the Stepwise

process for project selection? A more formalized process for M&E that applies to all projects funded through the GRMW is needed.

It was refreshing to see that the Deliverables were quantitative in terms of actions to be completed. The sociological results and benefits were highlighted in the Executive Summary but only lightly touched upon in the text. This is a highly important aspect central to the overall success in meeting programmatic goals. It should be directly addressed in the text, especially in the Work Elements and Deliverables.

Specific comments on protocols and methods described in MonitoringMethods.org

No comments.

200739300 - Protect and Restore Northeast Oregon

Sponsor: Nez Perce Tribe

Short Description: The Protect and Restore Northeast Oregon/Southeast Washington project will identify and pursue habitat enhancement projects in the Grande Ronde/Imnaha subbasins and the Pine Watershed in Northeast Oregon and the Tucannon River and Asotin Creek watersheds in southeast Washington. This project provides funding for Nez Perce Tribe, which allows for implementation of watershed restoration projects on the ground through outside funding sources.

ISRP recommendation: Does Not Meet Scientific Review Criteria

Comment:

This project has encountered serious difficulties, which the sponsors candidly discuss in their Annual Reports, and which are detailed in the History section of this review. These difficulties include enlisting the help of qualified partners to do the work, acquiring external funding to support habitat enhancement projects, and establishing cooperative relationships with some public entities. It is not clear at this point how successful the sponsors have been in dealing with these difficulties. If these problems are not overcome, the success of this project is highly uncertain. The proposal would have been improved significantly if the sponsors addressed these difficulties forthrightly in the proposal and discussed the progress they have made in resolving them.

The need for this project is unclear. The project appears to duplicate many of the functions of the Grande Ronde Model Watershed (GRMW), a well-established and successful project that has played a key role in implementing habitat projects in the Grande Ronde subbasin. Neither in the proposal nor in their presentation to the ISRP were the sponsors able to clearly explain, on scientific grounds, how their project differed significantly from the GRMW and why it was needed in addition to the GRMW. This project, unlike the GRMW, provides no direct funding for

projects but will seek external funding once habitat enhancement proposals have been selected. This introduces considerable uncertainty into the funding process. The ISRP suggests that this project be consolidated with the GRMW program and, possibly, with existing Tucannon planning activities, or that the sponsors provide a scientifically defensible reason for not doing so.

The objectives and deliverables broadly describe the process for project selection and design but provide little information on specific outcomes. The proposal does not identify the location of priority areas for restoration, limiting factors that need to be addressed at these locations, specific projects being planned, and how these projects address the limiting factors. The proposal does not provide quantitative goals or benchmarks for the objectives and deliverables which makes it difficult to determine whether progress is being made toward achieving the objectives. This information is necessary to evaluate the scientific merit of the proposal.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is an umbrella project whose purpose is planning and coordination of habitat protection and restoration projects in streams in Northeast Oregon and Southeast Washington including the Grande Ronde subbasin, Imnaha subbasin, and Pine Watershed in Northeast Oregon and the Tucannon and Asotin Creek subbasins in Southeast Washington. It also is involved in outreach and education. The project will coordinate with partners to identify priority locations for habitat enhancement, select proposals that address the limiting factors identified through the FCPRS Biological Opinion Expert Panel process, and seek funding for these proposals. The sponsors state that the project is consistent with the 2008 FCRPS BiOp, the Fish and Wildlife Program, and other tribal, state, and federal recovery and monitoring plans.

Regarding uncertainty in project funding, the sponsors state in their 2009-10 Annual Report: "Another important issue that cannot be understated is the lack of direct project funds to implement restoration activities. It simply adds over a year to the total time frame for completion of projects if the sponsor has to seek outside funding sources to accomplish them. This situation demands much more time committed to the project, simply in terms of acquiring the funding to implement and additional reporting requirements." The difficulty in acquiring stable funding sources clearly jeopardizes the project's chances for success.

Part of the difficulty in acquiring funding seems to stem from a disagreement with the GRMW over project prioritization and funding. The July 2010-January 2012 Annual Report states "The Protect and Restore Northeast Oregon contract had much success in identifying projects but little success in implementing projects. This was primarily due to two causes. Disagreement between the project leader, the Grande Ronde Model Watershed and others over the efficacy and priority of selected projects prevented project implementation. Unfortunately, some projects that the project leader advocated for were denied funding by the Grande Ronde Model Watershed." Discussion of this difference in viewpoints in the proposal may have helped resolve some of the ISRP's concern over duplication of effort. For example, what were the scientific reasons for the differences in viewpoints between the project leader and the GRMW?

The sponsors list the GRMW as one of its cooperators. Given that this project appears to have a similar function as the GRMW, and that there apparently was some disagreement in the past over project selection, it would be useful if the sponsors provided more details on the nature of their current coordination efforts with the GRMW.

The proposal would have been improved if the sponsors had identified the specific habitat projects that have been funded and where funding had been acquired. It also would have been helpful if the sponsors identified projects that are in the planning stage but have not yet been funded. Since many partners are involved, and since they will be and have been doing most of the actual on the ground implementation, it would be helpful if details were provided on the roles and restoration actions of the partners.

The Objectives, in a very general sense, are reasonable. However, since there are no quantifiable goals for the objectives or for the deliverables, the objectives cannot be evaluated for success. Objective 2 pertains to prioritization of locations for habitat protection and restoration. The proposal implies that a prioritization process is already in place and some projects have already been selected and funded through this process. It would be useful if the sponsors had discussed the prioritization process in somewhat more detail. The Key Personnel appear to have the expertise to accomplish the proposed coordination/ administration although it is unclear as to who will have responsibilities for specific work items.

2. History: Accomplishments, Results, and Adaptive Management

The sponsors have succeeded in acquiring funding for some projects and have several projects in the planning stage. The proposal, however, described only generally the kinds of projects that were or will be implemented, for example projects that remove migration barriers and reduce sediment. The proposal would be improved if the sponsors had specifically identified the habitat projects that have been implemented so far and their location, and provided a summary of the limiting factors each is addressing and progress to date. Future projects, in so far as they are currently known, and possible funding sources should be identified and discussed. It is not possible to determine if currently funded habitat enhancement projects have been successful since the actual implementations of restoration actions was accomplished by the project's partners.

Adaptive changes to the project are primarily improvements in implementation techniques that are typical of most habitat enhancement projects. Recent expansion of the project to ceded lands and most recently into southeast Washington are newer activities.

Evaluation of Results

This project is an umbrella project whose purpose is planning and coordination of habitat protection and restoration projects in streams in Northeast Oregon and Southeast Washington. The project will coordinate with partners to identify priority locations for habitat enhancement and select proposals that address the major limiting factors. This project does not have the

capacity to provide direct funding for habitat enhancement projects and so must acquire funding for them from external sources.

Although this project has identified and acquired funding for some habitat enhancement projects and has several projects in the planning stage, overall it seems to have had difficulty gaining traction for a number of reasons identified in the Annual Reports. The sponsors apparently have had some difficulty enlisting the help of qualified partners to do the work. From the 2009-2010 Annual Report: "One of the largest issues that impeded the ability to rapidly and efficiently get projects started appeared to simply be the capacity of some entities to work on these projects." No further details were provided. The sponsors state that they have made significant progress in dealing with this issue.

A second issue is difficulty in obtaining funding for projects. The sponsors have had some problems gaining funding through the Grande Ronde Model Watershed (GRMW) program, apparently due to a disagreement over project priorities (2010-2012 Annual Report), and so have had to seek much of their funding from external sources. Although the sponsors have had some success on acquiring external funding for projects, they state that the process is both time consuming and costly. The sponsors advocate for a direct allocation of funds to the project (2009-2010 and 2010-2012 Annual Reports), much in the same way as the GRMW.

The third issue is what the sponsors refer to as "local politics" (2009-2010 Annual Report). This issue apparently involves difficulty in establishing cooperative relationships with some public entities. No reasons for this were given in the Annual Reports. This problem probably should not be construed as the general case since a number of projects have been successfully implemented which undoubtedly required cooperation between the NPT and public and private entities.

The ISRP is concerned that this project duplicates many of the same functions as the GRMW, and thus there does not seem to be a clear need for the project. It does appear, however, that this project is working in areas of the Grande Ronde and Imnaha that are not a major focus of the GRMW program.

The sponsors appear to be working hard to stabilize this project and have several projects in the planning stage, but they are as yet unfunded. However, they have encountered significant difficulties that impede progress, as described above. A particularly serious concern is the uncertainty in securing funding for their habitat enhancement projects. The future of the project clearly hinges on the ability of the sponsors to obtain stable sources of funding to support habitat enhancement projects. Unless the sponsors can overcome these difficulties, the success of this project is uncertain. A new project leader was hired in 2012 and perhaps, with this change in leadership, the project can overcome the problems it has so far encountered.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions for Type of Work (hatchery, RM&E, tagging)

The sponsors cite relationships with many BPA funded projects in northeast Oregon and southeast Washington, although they do not provide many details concerning how they are cooperating or coordinating with these projects. For a project that is based on extensive coordination, a clearer and more detailed explanation of existing and planned future relationships with potential partners, ongoing projects, and other planning efforts should be given.

Climate change and non-native species are discussed as emerging limiting factors. The sponsors feel that the habitat enhancement actions this project is undertaking will help to ameliorate impacts of climate change. The sponsors identify brook trout as an important non-native species, but they do not discuss how great of a threat this species is to native fishes.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables describe the process that will be undertaken to prioritize and select habitat projects for implementation. There are no quantitative goals for the deliverables, or measureable endpoints or benchmarks outlined, making it difficult to determine if success has been achieved. At a minimum the deliverables should identify the priority locations for habitat projects and why they are priorities, the particular limiting factors that are being addressed at each priority location, the projects that are being planned to address these factors, and the potential sources of funding for these projects.

[198402500](#) - Blue Mountain Fish Habitat Improvement

Sponsor: Oregon Department of Fish and Wildlife (ODFW)

Short Description: The primary goal of "The Grande Ronde Basin Fish Habitat Enhancement Project" is to create, protect, and restore riparian and instream habitat for anadromous salmonids, thereby maximizing opportunities for natural fish production within the basin. This project originally provided implementation of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program (NPPC, 1987), and continues to be implemented under subsequent revisions (NPPC 2009).

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a strong proposal. The project has an impressive record of accomplishments and is an effective habitat improvement program. The sponsors are to be especially commended for their efforts to evaluate the effectiveness of the projects. They could be providing leadership for some of the other local projects that are struggling to establish comprehensive, integrative, and

successful programs. The ISRP encourages the sponsors to publish their results in refereed journals.

The following qualifications should be addressed during contracting or in future proposals and reports:

- 1) Provide an Adaptive Management process that leads to more effective learning about implemented projects.
- 2) Describe in more detail how restoration actions will help mitigate the ecological consequences of non-native species, hatchery effects on native salmonids, predation, toxic chemicals, and trends in agricultural water withdrawals.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The goal of this project is to restore riparian and instream habitats to benefit recovery of ESA listed Grand Ronde River Chinook, summer steelhead, and bull trout. Habitat degradation has been a major in-basin factor contributing to the decline of these species. The project is consistent with the Fish and Wildlife Program, NOAA-Fisheries Draft Recovery Plan, Oregon's Plan for Salmon and Watersheds, and the Grande Ronde Subbasin Plan.

The project has a long and productive relationship with local partners and, thereby, is significant to regional programs. The sponsors select project locations opportunistically but also strategically, focusing their work in specific priority areas of the subbasin. The proposed activities appear to be well-coordinated with restoration actions being proposed by others in the subbasin. The sponsors have the technical background and experience necessary to successfully complete the individual projects.

The Objectives, in a general sense, are appropriate and adequately address the major factors thought to be limiting salmon populations in the Grande Ronde. In several objectives, the sponsors propose to restore habitat as close as possible to "historic conditions." As the objectives are structured, historic conditions seem to serve as a benchmark or goal against which progress will be evaluated. In a conceptual sense this seems reasonable, but the sponsors provide no information about what historic conditions were, how they were determined, and how they were quantified. Is it possible to develop a quantitative goal in terms of habitat structure and process rather than something like the number of miles of fences to be constructed so that tangible progress toward the goal can be evaluated? Perhaps the sponsors should consider using the Minam and Wenaha Rivers, where habitat is relatively intact, as reference streams to gauge how their recovery efforts are progressing.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This project has been ongoing since 1984, and its accomplishments in implementing restoration actions are substantial. The sponsors provided a link to PISCES where a report synthesizing results related to project planning, implementation, activities undertaken, and RM&E from 1984-2007 was given. Results from 2008 were presented in the proposal. While the sponsors appear to have put more effort in monitoring relative to other habitat enhancement projects in the region, effectiveness monitoring for fish responses remains sporadic and, while some results indicate positive responses of habitat to enhancement actions, the results to date of the physical enhancement actions appear to be equivocal or neutral in many cases. The proposal could be improved if the sponsors provided recovery goals for fish and some indication of how, at this point, the habitat work may be contributing to recovery.

It would have been helpful if the sponsors identified major spawning and rearing areas and the locations and types of projects in these areas. The sponsors could have done a better job of discussing how on-the-ground habitat enhancement efforts tie in with and are validated and aided by the excellent research record out of this office.

While learning is occurring as experience accumulates on the best habitat enhancement approaches, adaptive management is not being implemented as intended when the concept was originally proposed. Each restoration action or a collection of actions needs hypotheses or quantitative goals, a timetable for a response, and comparisons to reference sites rather than only before-after comparisons. Fish populations are dynamic, and there are many influences on their abundance, hence the need for reference sites. Quantitative hypotheses/goals and timetables allow evaluation of the influence of habitat enhancement actions on fish. The discussion of adaptive management was interesting and useful but was not the most efficient form of learning.

Evaluation of Results

This project has implemented an impressive number of projects over its 29 year history. The sponsors completed a report synthesizing information on its habitat enhancement projects including results from its monitoring program from the inception of the project to 2007. It is clear from this report and the current proposal that the project has continued to improve its prioritization process and enhancement techniques in keeping with advances in the field of habitat restoration.

The sponsors have developed a viable RM&E program with updated sampling protocols based on CHaMP. The ISRP encourages the sponsors to continue and to expand the RM&E program to better evaluate fish responses to habitat enhancement. The Minam and Wenaha rivers in the Grande Ronde subbasin can possibly serve as useful reference streams to help evaluate whether fish are responding positively to habitat restoration actions.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project relationships are a strong point of this project as has been noted in previous ISRP reviews. The sponsors have worked collaboratively with several state and tribal entities.

The sponsors discussed possible impacts of climate change and feel that their work will be able to detect changes induced by climate change, and the enhancement actions they are undertaking may help ameliorate these changes. Again, using the Minam and Wenaha as reference streams may help detect any climate induced changes in habitat and fish populations.

Climate change is not an emerging limiting factor; it is an existing factor. Fortunately, the sponsors are proposing to address it through better riparian protection and rehabilitation as well as other actions. Climate change began in the region about 1950 and this “phase” of loss of late summer snowpack is thought to have its full effect around 2030. There are new modeling platforms available that the sponsors may wish to examine that give insights into future stream conditions. These modeling platforms may help guide restoration actions.

Other emerging limiting factors, or just limiting factors, that received little attention in the proposal include non-native species, hatchery effects on native salmonids, predation, toxic chemicals, and trends in agricultural water withdrawals. How will the proposed restoration actions be affected by these factors? Or, how can the restoration actions help mitigate some of their ecological effects?

The ISRP was pleased to see an emphasis on winter icing conditions. Most projects ignore this very important ecological driver of stream communities.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables for each objective are for the most part quantitative and thereby allow for an eventual evaluation of effectiveness. All the deliverables, work elements, metrics and methods seem appropriate, with a couple specific exceptions:

DELV-16: It would be very useful to have data on condition factors of juvenile salmonids by site and over time. The ISRP suggests that this be added to the parameters measured.

DELV-18: How is local capacity building accomplished? For example, are there internships available for students? Further, can capacity building and local responsibility be improved by instituting a citizen science program?

The monitoring program appears to be adequate within the basin, but perhaps not tied closely enough with this project. The sponsors appear to have kept up to date on data analysis. Metrics and methods of the RM&E program are based on Oregon’s Aquatic Inventory protocol as well as EMAP and CHaMP, adapted for the Grande Ronde basin. These protocols are well established and should provide an adequate basis for Grand Ronde habitat monitoring.

Specific comments on protocols and methods described in MonitoringMethods.org

The protocols and methods were adequately described in MonitoringMethods.org.

199608300 - Grande Ronde Watershed Restoration

Sponsor: Umatilla Confederated Tribes (CTUIR)

Short Description: CTUIR Grande Ronde Fish Habitat Project protects, enhances, and restores functional floodplain, channel and watershed processes to provide sustainable, healthy habitat and water quality for aquatic species in the Grande Ronde River Basin. The project achieves biological objectives and strategies established in the Grande Ronde Subbasin Plan, addresses limiting factors in the FCRPS BiOp, Fish Accords and supports physical/ecological conditions for the CTUIR First Foods Framework and River Vision

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a strong project that can point to significant accomplishments in implementing habitat enhancement projects. The project has made substantial progress in project planning including identification of limiting factors and refinement of the project selection process. The sponsors could be providing leadership for some of the other local projects that are struggling to establish comprehensive, integrative, and successful programs.

The following qualifications should be addressed during contracting or in future proposals and reports:

- 1) Ensure that the sponsors provide an adaptive management process that leads to more effective learning about implemented projects.
- 2) Ensure that the sponsors describe how restoration actions will help mitigate the ecological consequences of non-native species, hatchery effects on native salmonids, predation, toxic chemicals, and trends in agricultural water withdrawals and land use.
- 3) Ensure that the sponsors provide monitoring information and analyses that address the issue as to whether the restoration actions are having an influence on fish survival, condition, and abundance.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The purpose of the CTUIR Grande Ronde Fish Habitat Project is to protect, enhance, and restore functional floodplain, and channel and watershed processes to provide sustainable, healthy habitat and water quality for aquatic species in the Grande Ronde River subbasin. The restoration approach is founded on the Tribal First Foods framework and River Vision which describes the physical and biological processes needed to provide First Foods. The River Vision and the five touchstones of hydrology, geomorphology, connectivity, riparian vegetation, and aquatic biota provide a reasonable and holistic conceptual framework for restoration. This approach is meaningful in that it ties habitat and fish restoration directly to Tribal cultural traditions. The proposal includes extensive justification for the program vision and objectives, and their significance to regional programs. Diagnosing factors limiting salmon production in priority geographic areas in the subbasin is an excellent component of the project.

The proposal provides a clear description of how the Restoration Atlas process will be used to identify water transaction opportunities and to judge biological benefits and feasibility. However, no explanation is given for how the estimated potential benefit and feasibility measures will be combined to rank opportunities; such ranking can be tricky, and ideally, should be based on a risk assessment model to compute expected benefit per cost, where $\text{expected benefit} = \text{probability of achieving benefit (based on assessment of feasibility)} \times \text{potential benefit}$.

The sponsors have significantly improved the process for identification and selection of project sites where habitat enhancement will yield the greatest benefit to fish. This is particularly important because it advances and refines the procedure for site prioritization beyond that in the subbasin plans and it will be useful in selecting future project locations.

The project is consistent with the Grande Ronde Subbasin Plan and more recent federal, state, and Tribal planning documents. It has great significance to regional programs and, over time, developed strong working relationships with numerous partners. The sponsors appear to have the technical expertise to complete the proposed activities and demonstrate a willingness to improve their actions by continued learning from project results as well as from external training.

Project objectives tend to be qualitative rather than quantitative, but timelines are defined, and actions are specified in quantitative terms. The objectives address the major factors limiting salmon and steelhead abundance in the Grande Ronde subbasin. Objectives relating to flow enhancement through acquisition of water rights and screening irrigation diversions were not given. If these factors are important in limiting fish production in the Grande Ronde, as they are in other subbasins, perhaps they should be addressed by this proposal. The sponsors stress the importance of monitoring and evaluation throughout the proposal. Considering the significance the sponsors place on M&E, perhaps a monitoring objective should be included in the proposal.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The project has been operating for 16 years and has successfully completed a significant number of restoration actions. Past activities and results to date are described in detail in the proposal. The accomplishments and results, purely from a project implementation perspective, are impressive. Although some of the details might be questioned, the sponsors have done what they proposed.

The 2006 ISRP review requested that (1) biological results be provided to demonstrate project effectiveness and (2) that monitoring and evaluation be described in greater detail. The ISRP urged that these recommendations be addressed for each enhancement project. The sponsors made a conscientious effort to respond to the ISRP's recommendation and provided a detailed description of each project following the outline suggested by the ISRP. This effort, however, was not sufficient to demonstrate that the restoration actions are having widespread positive influences on freshwater survival, fish condition, or fish population abundance. The results in many cases appear to be untestable due to inadequate design or effectiveness monitoring, equivocal, or negative. After so many years of data collection, it should be possible to statistically test for fish responses. It seems that the before-after treatment approach was used in many cases, but there were few, if any, reference sites for temporal adjustment or comparison in specific years. Fish population parameters, temperature and other key variables will fluctuate from year-to-year depending on a number of external variables including annual ambient and ocean conditions, hence the need for reference sites.

It appears that very little monitoring for biological benefits has been initiated or is proposed for new ("look forward") projects. It is perhaps reasonable that some projects should be undertaken without expensive monitoring for biological benefits, relying instead on results from ISEMP's Intensively Monitored Watersheds and CHaMP to assess overall outcomes based on habitat measures. However, the proposal does not describe a systematic process for deciding whether or not to monitor for biological benefits, or how outcomes would be extrapolated from other studies. A cost-effective strategy for monitoring biological benefits is very important given that these habitat interventions are expensive and enduring, and the biological benefits remain largely speculative at present.

The sponsors should consider how hatchery operations are impacting fish survival, condition, and abundance in restored streams? This factor is not addressed in the monitoring protocols.

Although project management appears to have adapted quickly and appropriately to experience gained over 16 years, this adaptation appears to have been passive rather than active. Adaptive management, as originally intended, requires intentional experimentation to acquire the knowledge needed to reduce key uncertainties with the goal of improving future decisions. Learning is certainly taking place for this project, but it is not as efficient as it could be if the adaptive management process was fully developed. Establishing quantitative hypotheses or goals and timelines for success, along with appropriate monitoring and evaluation, are needed to make adaptive management more efficient. The sponsors appear to

have the skills and experience to establish reasonable and testable hypotheses or goals for individual as well as types of restoration actions.

Evaluation of Results

The primary goal of this project is to restore viable and harvestable salmon and other native resident fish through acquisition, leasing, and restoration of riparian and instream habitat within Tribal Ceded Territory. An important organizing framework for restoration is the First Foods concept which follows the serving order of foods in the Longhouse. Water is the foundation of First Foods, followed by salmon but also including Pacific lamprey, steelhead, trout, and whitefish. The significance of the First Food concept is that it ties watershed restoration to Tribal spiritual and cultural traditions. The project appears to be well-managed and organized.

The accomplishments of this project since its inception are impressive. Accomplishments include implementation of habitat projects on 40 stream miles with 14 miles of riparian fencing, 16 water developments, installation of over 150,000 plants, and seeding over 850 acres. In cooperation with CREP and other organizations involved with land acquisition and leasing, conservation easements totaling about 2,800 acres were instituted. A particularly strong point of this project is cooperation and coordination with multiple partners within the subbasin.

The sponsors clearly recognize the need for M&E. While some habitat monitoring has taken place, little fish monitoring has occurred and consequently the impact of 16 years of habitat enhancement on freshwater fish productivity is uncertain at this point in time.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions for Type of Work

A strong point for the project is its relationships with other entities in the Grande Ronde Basin. The long history of this program attests to these successful relationships. This project works closely with CTUIR Ceded Area Stream Corridor Conservation and Protection Project and with numerous state and federal agencies.

The sponsors concisely describe expected impacts of climate change on arid land streams. The proposal includes a good discussion of predicted trends and uncertainties associated with climate change, as well as consideration of strategies for coping with trends that are unfavorable to project objectives.

While climate change is noted as an emerging limiting factor it could easily be argued that it is no longer an emerging factor. Climate change really started in the region about 1950 and the present phase of loss of late summer snowpack is thought to be completed around 2030. There are new modeling platforms available that the sponsors may wish to examine that give insights into future stream conditions. These modeling platforms may help guide restoration actions.

Other “emerging limiting factors” or just limiting factors that received little attention in the proposal include non-native species, hatchery effects on native salmonids, predation, toxic chemicals, and trends in agricultural water withdrawals and land use. An important question is how the proposed restoration actions, especially the fish populations, will be affected by these factors. Or, how can the restoration actions help mitigate some of their ecological effects? The sponsors especially should give more thought to the non-native fish issue. In the Grande Ronde, warm water non-native fishes, which are already present in much of the subbasin, could become much more prevalent as climate change ensues and waters become warmer.

An emphasis is needed on winter icing conditions. Most projects ignore this very important ecological driver of stream communities.

It is gratifying to see mussels listed as species of concern, but nowhere in the proposal were they mentioned again. Mussels appear to be in serious decline in the region, and it would not be surprising if some species were proposed for listing in the next decade. It will be important to start collecting data on them now so as to be prepared for future restrictions.

4. Deliverables, Work Elements, Metrics, and Methods

The proposal includes a thorough and consistent explanation of the relationships between deliverables, work elements, metrics, and objectives. The deliverables identify specific projects that will be implemented and the enhancement actions that will be undertaken for each project. Deliverables 5-9 seem unnecessary because the activities they describe are already contained in Deliverables 14-22. Condition factors should be measured for juvenile salmonids in order to judge their vitality.

Professional publications in refereed journals should be listed as a deliverable. It is important for large scale projects, like this one, to provide leadership in the broader restoration community.

Specific comments on protocols and methods described in MonitoringMethods.org

It is good to see that work elements 157 (Collect, generate, and validate field and lab data) links to CHaMP methods.

R. Asotin Creek and Other Small Tributaries to the Lower Snake River

199401805 - Asotin Creek Enhancement and Restoration

Sponsor: Asotin County Conservation District

Short Description: The project goals are to enhance in-stream habitat for passage, spawning and rearing, implement riparian buffer systems and upland BMPs. Project implementation will be on Asotin Creek and its tributaries. Working with local landowners, the District has been able to implement conservation efforts that has had a positive impact on fish habitat and other natural resources. The continued implementation of these projects is critical to the watershed health and ESA listed fish species.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP was impressed by the sponsor's presentation and the video that documented the program's success in gaining support by private landowners for habitat restoration activities. Communication with private landowners and gaining their support is a key achievement of this project. The ISRP is encouraged that this effort will lead to other willing participants in habitat restoration.

The ISRP's qualifications should be addressed in contracting, and the ISRP would like to see a progress report in 2014. Qualifications include:

- 1) Further discussion of the strategic planning and prioritization process and a timeline for completion of this planning/prioritization effort is needed. It is critical that the program utilize a strategic process to prioritize future projects. This is a very important component for ensuring effective use of funds and increasing the likelihood of a positive ecological response. Actions should not be undertaken unless they have been vetted through the evaluation and prioritization process.
- 2) Project objectives and proposed "deliverables" should be quantitative so that accomplishments can be better documented. For example, how many miles will be fenced and how many trees will be planted?
- 3) Basic accomplishments should be quantified and documented in a report so that the Council knows what has been accomplished with the past funding. This should also include a summary of past monitoring results and major lessons learned.
- 4) A coherent and comprehensive implementation and effectiveness monitoring plan is needed. After 15+ years of project implementation, this is important. Such monitoring is critical to directly assess the effectiveness or benefits derived from the project's habitat restoration activities. The sponsors acknowledge this and suggest that ongoing monitoring in the Asotin

Basin, conducted by other entities, could be used to fill this need. More information is needed on what monitoring approaches will be used and how they will be tied to informing the location and/or design of future restoration actions. There are many "low to moderate" intensity techniques for monitoring project implementation and compliance that would provide useful information on the results of various treatment methods.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is a long-term, whole watershed "ridgetop to ridgetop" restoration project that has employed use of integrated restoration treatments (upslope, floodplain/riparian, and instream treatments). The Asotin County Conservation District manages the project and works with federal, state, and local agencies and landowners to identify and prioritize habitat restoration activities. It is an important regional program and facilitates collaboration between private landowners and agencies and enhances cost-sharing in an effort to improve riparian and aquatic habitat conditions. There has been a substantial amount of coordination and the completion of a wide array of important restoration work. It is stated that there have been large advances in habitat quantity and quality realized since beginning of work in the 1980s. Unfortunately there is no summary describing these changes, where they have occurred and what treatments, or combination of treatments appear to have been responsible for them.

The project complements the Asotin Subbasin Plan, Snake River Regional Recovery Plan, WRIA 35 Watershed Plan, and the Asotin Creek Model Watershed effort. As stated in the proposal, the past approach has been site-scale and opportunistic and this proposal will employ the "Atlas Process" to develop a more strategic approach for restoration. As described, this process will synthesize data and GIS layers and use the TAC to identify priority locations (BSRs) and treatments. There are a number of issues that need to be considered: previous ISRP comments on geomorphic analysis and monitoring do not appear to have been fully addressed; the process does not appear to provide sufficient focus on past monitoring and lessons learned over the last 15+ years of implementation; as a whole watershed restoration project including a substantial upland component, it seems that the make-up of the TAC should be interdisciplinary and not limited to biologists; the description of how priorities will be set is vague and the role of the Stakeholder TAC (local experts) seems limited to only making recommendations on project feasibility.

Looking at various reports and documents, via hotlinks in the proposal, it appears that there is a good deal of relevant information that was not included in the main body of the current proposal. One example is a wide range of public outreach and education activities. These have been ongoing for several years and likely have contributed to good landowner understanding and buy in to the restoration efforts and a higher level of understanding by residents, especially children and students, on the importance of healthy watersheds to fish and to humans. There are other examples including additional monitoring and a variety of lessons learned that were not presented or specifically referenced in the proposal. A video called "Ridgetop to Ridgetop"

has been developed which is a very high quality product. The video should be very useful in attracting interest and support from landowners and the general public. This support is essential because habitat restoration often requires support of private landowners. It would be useful to get this video on the NPPC website. The video and presentation to the ISRP provide confidence that the program has made good progress, especially in regard to gaining support of private landowners.

Four general objectives were briefly identified. These objectives should include quantitative metrics, that can be monitored, and a stated time frame for the expected outcomes. In other words, based on past experience, how much can be accomplished during the next project period? The objectives should also be linked to the four limiting factors that were identified in the proposal. LWD and bed scour were not directly addressed by the objectives.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

It appears that there have been substantial accomplishments in this watershed and that they have addressed both valley bottom and upslope issues. There is very little discussion that quantitatively summarizes the extent and results of past restoration treatments. Similarly, there was very limited discussion regarding the many lessons that have likely been learned over the long history of restoration work. A positive aspect of the proposal is the recognition that a more strategic approach is needed for more effective restoration results. Unfortunately, the current approach appears limited to the instream and floodplain components of the project and does not consider upslope elements.

Ideally, the proposal should have stated its initial quantitative objectives for each of its previous actions, such as miles of stream fenced and numbers of trees planted, and then describe what was accomplished and the associated results, for example reduced water temperature or healthier riparian vegetation. Information about accomplishments was provided in linked implementation reports, but a summary of this key information should have been in the proposal so that reviewers and the Council can readily see what has been accomplished. In the linked reports, it was not clear whether the reported activities achieved the initial objectives, in part because quantitative objectives probably were not developed for the initial projects. Proposals such as this should estimate what they hope to accomplish and then evaluate what was accomplished. This is not monitoring project effectiveness, rather it is documenting accomplishments, which is a task that should be easy to do. Presentation of this information would facilitate a roll-up of habitat accomplishments across all watersheds in the Columbia basin.

The proposal attempted to address comments from the previous ISRP review. The program consulted with a BPA geomorphologist, but it is not clear to what extent the prioritization process will account for geomorphic processes, as suggested by the ISRP. The ISRP also asked for monitoring and assessment, but the sponsors have not addressed this issue other than to respond that the project is a habitat project, not RM&E. Some fish and habitat monitoring is being conducted by other entities such as WDFW and the State of Washington's IMW. It

appears that the annual implementation report contains much of this information even though the proposal does not.

Evaluation of Results

There appears to have been a good deal of productive work, coordination, and the completion of a wide array of activities over the life of this project. Unfortunately, there is a limited discussion of actual results other than the statement "to date, large advances in habitat quantity and quality have been realized." A specific example of where a description of results has not been provided is the channel, re-meander project that was completed in 2005 where nearly a mile of stream was treated on lower George Creek. The project was completed more than 7 years ago, and yet there is little discussion of the results of this very intensive, restoration treatment. Additional examples include reductions in sediment input from the use of no-till practices, revegetation of riparian areas and fencing and planting. There have clearly been important results from these treatments, but no quantitative measures or estimates are provided.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There is a cursory discussion of emerging limiting factors that only addresses non-native plant species. Surprisingly, there is no discussion of climate change and possible effects on stream temperature, stream flow, or potential changes in riparian vegetation. Perhaps a key limiting factor, though not emerging, is private property ownership that might prevent priority actions. The proposal highlights cooperation with landowners, but it did not identify the number of priority actions that may be constrained by unwilling landowners. How will this compromise or adversely impact adjacent habitat restoration activities? Nevertheless, the ISRP was impressed with the informative presentation and video that documented significant progress in gaining support by private landowner to protect and restore habitat.

4. Deliverables, Work Elements, Metrics, and Methods

The proposal generally describes the type of actions that will be implemented as deliverables. The proposal should quantify these deliverables so that completed actions can be compared with what was proposed. For example, how many acres, or stream miles, of riparian vegetation is proposed to be planted during the project period? Each deliverable should have a quantitative objective so that progress against the objectives can be documented. Plus, it would be good to know how much might be accomplished with the proposed budget. This type of information is needed for habitat restoration efforts throughout the Columbia basin so that the Council and planners can readily see what is being proposed and what is being accomplished. No details are provided on when this work will be accomplished or evaluated.

Methods or rationales to achieve objectives were not fully described. It is not clear how some deliverables will achieve the stated objective(s). For example, how will removal of noxious weeds reduce embeddedness in the stream channel?

Specific comments on protocols and methods described in MonitoringMethods.org

Overall, this proposal is weak regarding comprehensive monitoring for a long-term, whole watershed restoration project. It is important that a coherent monitoring plan be developed for the watershed restoration program and is one that integrates the range of activities by all players. The monitoring plan should be strategic and build on experience gained in past efforts. It should also incorporate ongoing efforts such as those for the IMW being done by the State of Washington. Monitoring should include a base level of implementation and compliance monitoring for all SWCD projects.

There is, and has been, a wide variety of monitoring activities over the long life of the project. Results of the evaluation of these efforts are not provided or discussed. A summary of past monitoring activities and findings is overdue for this project.

As stated above, this is an IMW for the State of Washington, and there is monitoring for fish response to restoration ongoing. There is no discussion of results or discussion as to any linkage with other monitoring. Also, there is no mention of ISEMP/CHAMP or AEM or how this will be incorporated into the current plans for monitoring. These efforts may serve the needs for effectiveness monitoring if they are integrated with the ongoing habitat restoration effort.

200205000 - Riparian Buffers on Couse and Tenmile Creeks in Asotin County

Sponsor: Asotin County Conservation District

Short Description: The goals are to enhance in-stream habitat for passage, spawning and rearing, implement riparian buffer systems and upland best management practices (BMP's). Project implementation will be on Asotin County streams that are tributaries to the Snake River. Working with local landowners, the District has been able to implement conservation efforts that had a positive impact on fish habitat and other natural resources. The continued implementation of these projects is critical to the watershed health and ESA listed fish species.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The project has produced significant accomplishments for restoration at the watershed-scale. It is continuing to expand the network of partners and involvement of an increasing percentage of local landowners. This will likely increase the amount and quality of upland and CREP work that is completed. The sponsors demonstrate a strong commitment and genuine enthusiasm for the restoration program. An especially good example of this is the very high quality video that has been completed to improve outreach and education for the program. With additional modifications/upgrades, the program will likely be more effective and efficient at meeting its ambitious, long-term restoration goals.

The prompt response to ISRP questions is appreciated. However, additional detail is needed to fully answer four of the original ISRP qualifications. It is recommended that this occur during contracting.

Qualifications are:

1. Additional detail should be provided on the process for prioritizing watersheds and individual projects, completed plans from this process, or a timeline for the completion of this planning effort.

The sponsors state that they will complete prioritization of projects, by watershed, in 2014 (expected in July 2014 but no later than Jan 2014 [2015?]). The sponsors plan to work with local and regional experts from federal, state, local agencies, landowners and the public to prioritize their restoration projects. More information is needed about this process:

- Will a board with a regular meeting schedule carry out this process?
- How will the prioritization process work?
- How will landowner concerns be included into the prioritization process?

Also, there is no discussion about prioritizing watersheds before prioritizing individual projects within watersheds. It would seem most efficient to prioritize watersheds and then do project prioritization only for the highest priority watersheds likely to be treated in the life of the current agreement. It is noted that an interdisciplinary team (including fisheries, soils, geomorphology, and range management disciplines) will be formed to complete the task. Use of such a team is a sound approach.

The sponsors also state that BPA wants to see documentation of high quality outcomes of actions instead of quantification of direct fisheries benefits. Improved definition of expected outcomes is discussed in item 2, while monitoring/evaluation of project/treatment success is discussed in item 4.

2. The proposal needs to be revised to include quantitative objectives and associated, targeted actions and with time frames for their completion.

There appears to be some confusion on development of objective statements as suggested by the ISRP. The original comments were offered in hopes of seeing objective statements of desired project/treatment outcomes (future conditions following restoration treatment) that can be observed/measured. For example, in addition to a statement that 10 miles of stream will be fenced (a deliverable accomplishment), it was hoped that the objective statement would be something like: "Within 2 years following treatment, fully exclude livestock use of the riparian area and achieve at least 80% survival of planted vegetation. Within 5 years, achieve re-establishment of historical, riparian vegetation communities on at least 80% of the fenced area." Such statements of quantitative objectives provide descriptions of desired, post restoration conditions that can readily be measured and an expected time frame for

completion. They also establish a useful foundation for project monitoring. Completion of these objective statements is requested for individual projects. Additional detail on this topic is also included in the Programmatic Issues discussion.

3. Additional information and discussion is needed about a strategic approach to assessing and restoring connectivity for upstream and downstream fish passage in the mainstem and major tributaries.

The sponsors state that prioritization of fish passage needs will be part of the overall prioritization process and that such an effort is difficult due to changing flow conditions and dewatering of some stream channels. It is suggested that this assessment focus on documented, man-made barriers (culverts, diversion dams etc.) that occur on streams known to support spawning and/or rearing of target fish species. Re-connecting potential habitat is a high priority issue and should be done iteratively at subbasin and watershed scales. Given the stated lack of irrigation in the area, it is suggested that the assessment focus on road-stream crossings and on any known water diversion structures. It is not clear if a full listing of these structures is in hand to allow for such a prioritization effort. If not, one should be developed. The primary goal of a completed fish passage assessment is to facilitate the reconnection of the highest quality habitat especially to, and within, the highest priority watersheds. A schedule for completing an assessment of fish passage, particularly in high priority watersheds, is requested.

4. A plan and timeline is needed for a project implementation and compliance monitoring/evaluation program.

As noted in the original ISRP comments "This issue was raised previously by the ISRP, and there does not seem to have been much progress towards accomplishment." The basic outline of a program and a timeline for its completion is requested. Many of the comments raised for the Asotin Creek Enhancement and restoration project also apply to this project, especially near term development of an implementation and compliance monitoring program using relatively simple approaches and perhaps using students or interested public to assist in its implementation. This program would determine if project objectives (which describe expected, project-specific outcomes, as described in item 2. above) are met. The objectives would provide the foundation for such monitoring. It is felt that monitoring/evaluation activities could be implemented on selected projects or groups of projects, at a very reasonable cost and would provide valuable insights regarding project results and the effectiveness of treatment types. This information would likely lead to improvements in the effectiveness and efficiency of restoration treatments and increases in overall program benefits.

Comment:

Completion of responses to the four major ISRP qualifications is appreciated and will be an important step in making this project more strategic and in providing a higher chance of achieving substantial, on-the-ground results to benefit target fish species. Developing a more strategic framework for restoration will help to ensure that work occurs on the most important

locations and if not possible at those locations, due to land owner issues, that alternate sites are guided by an overall prioritization scheme. Given the large land area involved and the limited ability to treat every "problem site," this approach will provide a template that ensures the most effective use of limited resources.

The sponsors will be starting a new process for prioritizing projects within each watershed. They will work with local and regional experts from federal, state, local agencies as well as local landowners and the public in this prioritization process. Guidance from BPA staff and the Snake River Salmon Recovery Board will help inform this process. This is a good approach; will a board be created with a regular meeting schedule to carry out this process? Moreover, because this project performs work in multiple watersheds a little more information on how the prioritization process will work is needed. For example, will watersheds be prioritized first and once that has been done will projects within the highest rated watersheds be ranked and worked on? Or will prospective projects from all the watersheds in the region be simultaneously prioritized and work started on the highest rated ones regardless of watershed? And lastly, the District clearly wishes to include landowner concerns into this new prioritization process. Will that concern be met by the inclusion of local landowners and the public into the prioritization team or will some other approach be used?

In the past, the project has provided explicit quantification of its deliverables. The District states that this was not easily done for the current proposal because the new prioritization process that will identify upcoming work has not taken place. Instead the submitted budget was based on funding the District had received in the past for a suite of actions, e.g. riparian planting, maintaining planted vegetation, noxious weed control, protection of riparian buffers, manure management, developing water sources for livestock, sediment and erosion control and planting perennial cover. Given the circumstances this was a reasonable approach. It is clear however, that before new projects can be initiated budget and contract revisions will likely have to occur to account for possible differences in project emphasis.

It appears that this project would unfold over time as projects are prioritized with help of other "experts" and cooperation of private landowners. The proponents have successfully gained support of private landowners, and this is key to restoration in this region. But specific targeted actions need to be identified in order to effectively use available funding. Targeted actions and objectives should be developed at the time of contracting.

Implementation monitoring can be used to gauge the degree to which project objectives are met. In order for this to be effective, it is important that the project objectives are stated in measurable terms and have an expected time for results to be achieved. Such an effort can be done with relatively low tech methods and/or using volunteers to implement part selected components. The Conservation District has purchased a turbidity meter and deployed water and air temperature monitoring equipment to collect environmental data. We urge the sponsors to work with their monitoring partners to ensure that their larger projects are being examined. Before and after photos should also be taken whenever possible.

The primary focus of this monitoring would be to ensure that project objectives are met. It is fine that different entities will be conducting M&E (actually this is preferred). The proponent and those conducting M&E should share regularly information on activities.

The coordination of proposed riparian and floodplain project work with in channel work is adequately addressed, the proponents assert that their new prioritization process will provide the strategic planning to coordinate such work.

ISRP comments in 2006 identified the need for geomorphic assessment to better understand broader scales processes. It is not clear if this assessment will occur in the new proposal?

Information regarding passive restoration and protection is adequately addressed. The District defined what it meant by passive restoration in its response giving minimum tillage as an example.

Evaluation of Results

This is a long standing project that has made substantial accomplishments on the ground. Unfortunately, the lack of a strategic approach for identifying highest priority watersheds and treatments within each, is limiting the long term success of the project. Additionally, the lack of basic implementation and effectiveness monitoring to address physical and vegetation response to treatments, limits the ability to make adjustments to treatment type and location needed to improve project and treatment effectiveness over time.

Preliminary ISRP comment requesting a response:

A response is requested for the following items:

1) Additional detail on the process for prioritizing watersheds and individual projects, completed plans from this process, or a timeline for the completion of this planning effort.

The proposed habitat protection and restoration project demonstrates its significance to the region. The program identified its key deficiency in the past: implementing projects opportunistically rather than based on a technical evaluation and prioritization. The current program proposes to evaluate and prioritize actions using the Atlas Process. Prioritization is needed before specific deliverables are identified. Although there is success in demonstration of landowner conservation practices, the direct fish benefits in the targeted creeks is unclear.

2) The proposal needs to be revised to include quantitative objectives with associated time frames for their completion.

3) There needs to be additional information and discussion about a strategic approach to dealing with connectivity, that is, upstream and downstream fish passage in the mainstem and tributary proposal components.

4) Description of a timeline for implementation of a meaningful monitoring and evaluation program. This issue was raised previously by the ISRP, and there does not seem to have been much progress towards accomplishment. The basic outline of a program and a timeline for its completion is requested. Many of the comments raised for the Asotin Creek Enhancement and restoration project also apply to this project, especially near term development of an implementation and compliance monitoring program using relatively simple approaches and perhaps using students or interested public to assist in its implementation.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The proposal demonstrates its significance to ESA fishes and regional programs, including NMFS RPAs. The program facilitates collaboration between private landowners and agencies and enhances cost-sharing in an effort to improve habitat conditions for fishes. It offers a solid program of work towards implementation of "whole watershed" restoration which includes both upland and instream treatments and acknowledges and supports passive restoration. As stated, it "helps to bridge the gap between agency representatives and landowners on sensitive resource issues." This does appear to be an important role and needed for long term, sustainable restoration. Some questions remain:

1) How does this project coordinate the proposed riparian and floodplain work with that may occur in the stream channel? If not well-coordinated, damage to treated areas could occur given disturbance by heavy equipment needed for instream work or channel re-meandering.

2) Similar questions as were raised for the companion project, such as the need for multiple disciplines, the reach scale may be too limited for processes like erosion/sedimentation, and water temperature concerns. ISRP comments in 2006 identified the need for geomorphic assessment to better understand broader scale processes. The proposal notes that this is to be included at a stream reach scale in the Atlas Process, but there is no mention of it occurring at a watershed scale.

3) There is a good deal of discussion regarding passive restoration and protection, yet there is little discussion of any activities to accomplish this. Perhaps fencing and upslope erosion treatments are considered passive. If so, this should be clarified.

Three general objectives were briefly identified. These objectives should include quantitative metrics that can be monitored. The objectives should also link back to the limiting factors that were identified in the proposal. Additionally, LWD and bed scour were not directly addressed by the objectives.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

As with the companion proposal, it appears that there has been a substantial amount of work and stakeholder/community buy-in achieved in the past several years. This is a major accomplishment of the project. It is stated that there has been "documented improvement in

the health of watersheds in Asotin County" but there is no information or detail provided to summarize any of these positive changes. Including this type of information on positive results seems particularly relevant since the watershed has been a "model Watershed" since 1994.

The history of accomplishments was not clearly described in the proposal. Ideally, the proposal should have stated its initial quantitative objectives for each of its previous actions, such as miles of stream fenced, and numbers of trees planted. Then it should describe what was accomplished in terms of fencing and tree planting, and how many planted trees survived or died. Information about accomplishments was provided in linked implementation reports, but a summary of this key information should have been in the proposal so that reviewers and the Council can readily see what was accomplished. In the linked report, it was not clear whether the reported activities achieved the initial objectives, in part because quantitative objectives probably were not developed for the initial projects. Proposals such as this should estimate what they hope to accomplish and then evaluate what was accomplished. This is not monitoring action effectiveness, but rather it is documenting accomplishments, which should be easy to do. Presentation of this information would facilitate a roll-up of habitat accomplishments across all watersheds in the Columbia basin.

The proposal notes that previous habitat actions were largely opportunistic and not based on strategic assessment and prioritization of actions. This is unfortunate because habitat actions are expensive and opportunistic actions may not have the desired outcome if for example upstream condition impact actions downstream. In the proposal's adaptive management section, the sponsors recognize that there is a need for a strategic assessment. It is noted that the Atlas Process for prioritizing projects will be utilized. Completion of a comprehensive review and prioritization of future work is critical and should be completed immediately. It also appears that the proposed prioritization process is reach-based and will not be able to effectively assess major processes like erosion/sedimentation and water temperature that operate on a broader scale and should provide a context to inform the reach scale considerations.

The proposal attempts to address comments from the previous ISRP review. It is noted that the program consulted with a BPA geomorphologist, but it is not clear to what extent the prioritization process will account for geomorphic processes, as suggested by the ISRP. The ISRP also asked for monitoring and assessment, but the sponsors responded that the project is a habitat project, not RM&E. Some fish and habitat monitoring is being conducted by other entities such as WDFW and the State of Washington IMW. Nevertheless, the sponsor should document what was implemented during the project period, for example trees planted, trees that survived, and miles of stream protected. It appears that the annual implementation report contains much of this information even though the proposal does not.

Evaluation of Results

The lack of a consistent and comprehensive program of effectiveness monitoring and evaluation appears to severely limit the sponsor's ability to identify and discuss the actual

results of past treatment. The application of some medium to low resolution monitoring such as thermographs or stream shading using a solar pathfinder for water temperature, before-after photo network, and before-after upland erosion monitoring using available models would be useful. There are excellent photographs provided in annual reports of completed work, but few are before-after sequences. Additionally, there does not appear to have been any past effort to relate treatments in upslope and riparian/floodplain areas to instream habitat conditions.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The only emerging limiting factor mentioned was noxious weeds. Major issues are not discussed including climate change, water use/availability as related to agricultural use, upland forest management issues, and especially roads and fires and their relation to erosion and instream sediment. Also, another factor, and one that is perhaps a key limiting factor, is the extent to which the lack of cooperation by private property owners might prevent successful implementation of priority actions. The proposal highlights cooperation with landowners, but it did not identify the number of priority actions that may be constrained by unwilling landowners. How will this compromise or adversely impact adjacent habitat restoration activities? Nevertheless, the ISRP was impressed with the informative presentation and video that documented significant progress in gaining support by private landowner to protect and restore habitat.

4. Deliverables, Work Elements, Metrics, and Methods

Objectives for the proposal should be quantitative and thus link to deliverable activities that have occurred and that are proposed. Methods or rationale to achieve objectives were not fully described. It is not clear how some deliverables will achieve the stated objective. For example, how will removal of noxious weeds reduce embeddedness in the stream channel?

The proposal generally describes the type of actions that it will implement as deliverables. The proposal should quantify these deliverables so that actions can be compared with what was proposed. For example, how many acres, or stream miles, of riparian vegetation is proposed to be planted during the project period? Each deliverable should have a quantitative objective so that progress against the objectives can be documented. Plus, it would be good to know how much might be accomplished with the proposed budget. This type of information is needed for habitat restoration efforts throughout the Columbia basin so that the Council and planners can readily see what is being proposed and what is being accomplished.

In the budget section, it was not clear for what the majority of funds would be used. What is the item "other"?

Specific comments on protocols and methods described in MonitoringMethods.org

The lack of a monitoring program was previously identified by the ISRP, and there appears to have been little progress made in this area. No RM&E protocols are listed. The sponsors stated that monitoring has been a challenge due to the fact that this is a habitat restoration project not an RM&E project. However, there appears to be a number of options to employ relatively low cost/low effort implementation and compliance monitoring techniques to describe outcomes of work completed and to relate those to stated objectives.

S. Clearwater River Programmatic Comments

These comments primarily apply to the Nez Perce Tribe (NPT), but other partners doing work in the Clearwater should also consider these comments.

BiOp RPA Goal Achievement: How much habitat quality and quantity might be gained by the set of major restoration efforts at the end of the proposal period and how does this compare with the habitat improvement goals as required by the RPA for the Clearwater? Do the sponsors think the effort will achieve the RPA goal?

NPT Habitat RM&E Plan: The Tribe is developing an RM&E plan to track the effectiveness of their habitat restoration projects. Once prepared, the plan should be submitted for ISRP review. Particularly concerning the upper South Fork Clearwater, the plan or a supporting letter should describe how adequate status and trends monitoring will be achieved given cessation of the Idaho Supplementation Study in 2013. In addition, the plan or letter should resolve uncertainty about initiation of CHaMP or incorporation of CHaMP protocols, which would support inferences from ISEMP in this area.

Adult Abundance and Justification of Habitat Restoration: Given the history of extirpation or extreme reductions attributed to Lewiston Dam, current abundances of Chinook and steelhead adults returning to the upper South Fork Clearwater River and its tributaries may be too low even with supplementation for their reproduction and growth to be limited by the spawning and rearing habitat currently available in these watersheds. If true, justification for habitat restoration in these watersheds rests on the conviction that adult abundances will increase to recolonize available habitat (“build it and they will come”). Such an increase seems plausible, but no compelling evidence was presented that this is likely. As noted above, the monitoring program should look for evidence of density-dependent survival or growth within Clearwater River habitat as a means to justify and guide further habitat restoration activities.

T. Clearwater River Proposal Review Comments

199608600 - Clearwater Focus Program

Sponsor: Idaho Soil Conservation Commission

Short Description: The goal of the Idaho Clearwater Focus Program is to facilitate implementation of the objectives and strategies of the Northwest Power and Conservation Council's Fish and Wildlife Program in the Clearwater subbasin. Serving the diversity of interests and authorities, facilitation will increase the efficacy for program delivery. The project will continue to expand project sponsorship to increase restoration capacity and maximize use of multiple funding sources to serve common restoration goals.

ISRP recommendation: Not Applicable

Comment:

This proposal provides for coordination and administrative activities and does not lend itself to scientific review.

In general, the project is providing a valuable service to the region by helping sponsors obtain funding for habitat restoration. This is done in a number of ways, for example by coordinating and targeting proposals to meet differing criteria for three major funding sources (Fish and Wildlife Program, Pacific Coastal Salmon Recovery Fund [PCSRF], and the Snake River Basin Adjudication [SRBA]), writing and reviewing proposals, working with funding agencies, and participating in proposal solicitation and review. However, none of its activities are directly linked to on-the-ground results. The project appears to have provided benefits to the overall Clearwater restoration effort. Weak points in the proposal include limited discussion of tangible results and the lack of a thoughtful and strategic assessment of future priorities for the program.

The projects sponsor should look at the ISRP's report on metrics for regional coordination projects, some of which apply to this project (ISRP 2007-14).

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The project's goal is to facilitate and coordinate salmonid habitat restoration in the Clearwater and lower Salmon River subbasins. The project was created under the NPCC's 1994 program that directed states to develop coordinated watershed restoration programs. It does not directly engage in actions that achieve biological or environmental objectives, instead its goal is to assist project sponsors in obtaining technical and financial support to carry out such activities.

The project is a commendable effort to coordinate the actions of a variety of programs, each with very similar goals. Coordinating information and actions of a diverse group of participants

is an important role in achieving an integrated program of work and for sharing information and knowledge. The fact this program is still in place may be a testament to its value to the various players. However, the description of actual accomplishments, yearly or in total, is still quite vague and limited to describing accomplishments including number of meetings held and number of projects reviewed. It would be very useful to see a thoughtful discussion of actual outcomes of the work as well as some discussion of how the roles and priorities of the project have changed over time and, based on past experience, what the future direction should be to ensure the most value added contributions. An example might be that training and sharing of adaptive management findings/lessons learned could now be a real focus. This information was generally lacking in the proposal.

Another area, that was not discussed, is how the function of the Idaho Office of Species Conservation project has been coordinated with the Nez Perce Tribe Focus project. Given that 2/3 of the subbasin is in federal ownership, it seems that this is absolutely critical to the long term success of the overall program. There was virtually no discussion of this important linkage or how it has evolved over time.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

A number of accomplishments were described in general terms. There is little discussion of actual results of the Focus program as related to the goals and objectives of the proposal. It is stated that the facilitation will increase the efficiency of program delivery and increase the capacity and funding for restoration. It is unfortunate that accomplishments, linked to these specific goals and objectives, were not specifically discussed.

The activities of the project have changed over the years. When it first began it was mainly concerned with developing subbasin plans and commonly interacted with the Columbia Basin Fish and Wildlife Authority. Now, it is mainly focused on helping sponsors obtain support for restoration projects. This shift from one type of activity to another is not so much the result of adaptive management as much as a logical transition into new work as the overall program has grown and matured. The proposal does not offer any insights into lessons learned and their application at either the program or project scales. This is unfortunate given the long term of the program and the challenges of synthesizing numerous plans and coordinating their implementation with a variety of active participants.

In sum, there is limited description of tangible results of the program over time although there is solid rationale provided to describe the need for such a position.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There is some discussion that acknowledges the importance of climate change and its consideration in project design and selection. A reference and a flow chart are provided. Warmer air and water temperatures; changes in precipitation type and timing; lower stream flows in summer and fall; and increases in the length of the summer drought are listed as

expected outcomes of this change. The sponsors suggest that the protection of high quality habitat and re-establishing floodplain connectivity and hydrologic processes will help moderate climate change effects. There is no discussion of how this is incorporated into the overall program or into individual project location, design, or selection. Given the importance of water to the area, especially the western portion of the subbasin, it seems like there is a major need to discuss future strategies for restoration given a future with potentially less available water, as well as potential implications of this to the 70 dams, and their operation in the future.

4. Deliverables, Work Elements, Metrics, and Methods

There are 11 deliverables described in very qualitative terms. They include increasing the effectiveness of the Clearwater Technical Group and Columbia Review Team, preparing and reviewing proposals for restoration partners, developing Idaho's annual PCSRF budget, helping PCSRF and SRBA staff prepare contracts and scopes of work, investigating new funding opportunities for restoration actions, and participating in local restoration committees. All are administrative tasks and are appropriate for this project. This seems a large number of deliverable for one person, and it's also difficult to actually track performance or delivery given their very qualitative nature.

Specific comments on protocols and methods described in MonitoringMethods.org

No RM&E protocols were listed. There was no discussion about possible roles for this proposal in coordinating numerous monitoring programs or in providing information and guidance on the integration of ISEMP/CHAMP or AEM into ongoing project work.

[199706000](#) - Clearwater Focus Watershed Restoration Coordination

Sponsor: Nez Perce Tribe

Short Description: The goal of the Nez Perce Tribe Focus Watershed Restoration Coordination project is to develop and implement a comprehensive and accountable aquatic ecosystem restoration program through coordination with multiple jurisdictions, agencies, and private landowners.

ISRP recommendation: Not Applicable

Comment:

This project is not amenable to scientific review because it functions at the policy and administrative level. It is not based on science principles, and there are no provisions for monitoring or evaluation. However, the project performs an important coordination function and continues to facilitate significant on-the-ground restoration actions. The objectives are clearly defined, benefits to fish and wildlife seem likely, and the coordination and public engagement activities are consistent with the Council's Fish and Wildlife Program. The efforts

to coordinate with the U.S. Forest Service have been especially effective in developing a ridgetop to ridgetop approach, consistent with the landscape approach recommended by the ISAB (ISAB 2011-4).

To facilitate the evaluation of administrative projects, the ISRP previously recommended (ISRP 2007-14) that project managers develop a set of performance metrics that relate to the projects goals and objectives, and that these metrics be identified in the proposal, and then used to measure progress toward meeting project performance targets. Project managers and participants are best able to determine suitable metrics or indicators of success and to develop a plan to measure and evaluate project success on the basis of these indicators.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Watersheds and habitats throughout the Nez Perce Tribe's treaty territory have been impacted by agriculture, logging, road construction, mining, and grazing. Subbasin plans for the Asotin, Grande Ronde, Imnaha, and Tucannon watersheds, and the recovery plans for Idaho Snake River spring/summer Chinook and steelhead have identified factors limiting anadromous salmonids within the Tribe's treaty territory. These plans also identified actions that should be taken to ameliorate limiting factors and promote recovery.

The goal of this project is to build on subbasin and recovery plans to develop and implement a comprehensive restoration program through coordination with multiple jurisdictions, agencies, and private landowners. The project has five objectives: oversee the development of project proposals; identify areas that need restoration and protection; communicate to local communities how tribal cultural values and restoration actions are connected; maximize the social and economic benefits of restoration activities; and participate in local and technical advisory groups. This type of coordination has led to important restoration partnerships and significant restoration actions in the region.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Fifteen years ago this project established a unique partnership with the U.S. Forest Service in the Nez Perce Clearwater National Forest, leading to eight BPA projects that decommissioned 376 miles of roads, replaced 42 culverts, stabilized stream banks, restored riparian and stream areas, produced road/stream crossing inventories, provided 31 miles of fencing to protect riparian areas from grazing, and developed off-channel watering sites for livestock. Since then, similar partnering agreements have been established involving the Clearwater, Nez Perce, Wallowa-Whitman, and the Umatilla National Forests. These agreements with the Forest Service have helped to cultivate partnerships with the Nez Perce and Latah Conservation Districts (CD) in Idaho, Asotin, Columbia and Pomeroy CD's in S.E. Washington, and Wallow County in N.E. Oregon. In the Clearwater Subbasin, the project also established cooperative restoration partnerships with the Potlatch Corporation, Idaho Department of Lands, conservation districts, and the Bureau of Land Management. Currently, the project oversees eleven BPA habitat funded restoration projects in the Snake and Clearwater River basins.

More recently, this project supported the “Expert Panel Process” in the Clearwater, Salmon, Tucannon, Imnaha, and Grande Ronde rivers. It also supports participation by the Nez Perce Tribe in the Grande Ronde Model Watershed Program, the Natural Resource Advisory Committee, and the Snake River Salmon Recovery Board. Additionally the project contributes to regional monitoring and evaluation efforts including the Columbia Habitat Monitoring Program, Pacific Northwest Aquatic Monitoring Partnership Habitat Data Sharing Workgroup and the Northwest Environmental Data Network. The project promotes policy coordination by holding meetings with Forest Supervisors, District Rangers, County Commissioners, state agency policy representatives, and others.

The project has supported innovation and passive adaptive management. Establishing a partnership with the Forest Service in Nez Perce Clearwater National Forest was novel at the time it occurred. The Expert Panel process showed that greater biological benefits could be expected from projects targeting relatively large geographic areas. Once this knowledge was available, the project sponsors worked with BPA to obtain additional funds to increase the work area of projects within Nez Perce territorial lands.

Evaluation of Results

This coordination and development project began in 1996. In 1998, funding was increased to \$90K, supporting the Director of the Watershed Division in Nez Perce Tribe's Department of Fisheries Resource Management. This position has been responsible for coordinating *at a policy level* habitat restoration efforts within the Clearwater River Subbasin and in other watersheds within the Nez Perce Tribe's Treaty Territory, including the development of subbasin plans last decade. Funding was \$147K in 2012

The Watershed Division has had multiple partners including federal, state, and local government agencies as well as private landowners, and has managed 11 separate implementation projects in the Grande Ronde in Oregon east to the South Fork Salmon River north to the Clearwater River and east to the Lochsa River near the Montana border.

In the Clearwater Subbasin, the Nez Perce Tribe has focused its partnership efforts on relationships with the Clearwater and Nez Perce National Forests, Potlatch Corporation, Idaho Department of Lands, and conservation districts, and in 2012, with the Bureau of Land Management. This project allowed the Tribe to work together with the Idaho Clearwater Focus co-coordinator in developing the Clearwater River Policy Advisory Committee in 1996, and to develop an implementation strategy to complete the Clearwater Subbasin Plan in 2002 and 2003 that were adopted by the Northwest Power and Conservation Council in 2005. The Clearwater River Policy Advisory Committee has since been replaced by two new groups: the Clearwater Technical Group and the Core Review Team. In 2012, this project coordinated and participated in the Expert Panel Process in the Clearwater River, the Salmon River, Tucannon River, Imnaha River, and Grande Ronde River. This project also participated in the regional forum for monitoring and evaluation including the Columbia Habitat Monitoring Program and PNAMPs Habitat Data Sharing Workgroup.

The Nez Perce Tribe and the Forest Service continue to work in partnership on all projects that occur on Forest Service Lands. The Forest Service continues to contribute at least 20% match on projects overall, as required in a Memorandum of Understanding that was signed between the Forest Service and Bonneville Power Administration. Since 2011, these partners have defined goals and strategies for communicating watershed restoration work and created an organizational chart that defines their roles and facilitates the day-to-day interactions of implementing habitat restoration projects.

Two workshops have been presented annually to a variety of audiences from local communities, local businesses, and agency personnel. Topics ranged from cultural history and how this history is used to drive watershed restoration projects to restoration opportunities for local contractors to best management practices to preserve fish habitat.

This project supported project implementation through management in coordinating project activities, attending meetings and workshops, seeking additional funding, prioritizing and scheduling projects, employee supervision, preparing statements of work, managing budgets, and completing reports. All BPA-related programmatic and contractual requirements were completed, including accruals, and statement of work (SOW) package submissions and approvals.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project's most significant partnership has been with the Forest Service's Nez Perce Clearwater National Forest. Similar relationships are now in place on the Payette, Boise, Umatilla, and Wallowa-Whitman National Forests. The project also interacts with the Snake River Salmon Recovery Board in Washington, with conservation districts in Idaho, Oregon, and Washington, the Idaho Department of Lands, Idaho office of Species Conservation, the Bureau of Land Management, and with other federal, state, and local agencies plus private landowners and corporations. A number of BPA and non-BPA funded projects are associated with this project. Among them are the following eleven Nez Perce Tribe projects, Protect and Restore the Crooked and American River Watersheds, Newsome Creek Watershed Restoration, Red River Watershed Restoration, Lower South Fork Clearwater River Watershed Restoration, Lolo Creek Watershed Restoration, Restore Selway River Watershed, Protect and Restore Lochsa River Watershed, Protect and Restore Lapwai Creek Watershed, Protect and Restore Northeast Oregon, Slate Creek Watershed Restoration, and East Fork of South Fork Salmon River Passage. Other non-Nez Perce Tribe activities that complement the project are: Lower Clearwater and Potlatch Watersheds Habitat Improvements (Idaho Accord project), Potlatch River Watershed Restoration (Latah Soil and Water Conservation District), Lapwai Creek Anadromous Habitat (Nez Perce Soil and Water Conservation District), Tucannon River Programmatic Habitat Project (Snake River Salmon Recovery Board), and Asotin Creek Enhancement and Restoration (Asotin County Conservation District).

The emerging limiting factors of climate change and non-native species were identified. The potential impacts of climate change were clearly articulated. Restoration actions being

coordinated by the project are designed to accommodate 100-year floods. Increased fish passage, restoration of riparian areas through plantings and reconnections to the floodplain, reductions in sedimentation, and other actions are expected to dampen the potential impacts of a warming climate. Procedures to reduce the prevalence of invasive weeds in restoration project areas are being used. Brook trout were identified as being an invasive fish species that could negatively impact the restoration of steelhead, spring Chinook, and other indigenous salmonids. In some cases these fish will be euthanized if they are captured during routine electroshocking surveys; however, no systematic plan for their control appears to be in place.

4. Deliverables, Work Elements, Metrics, and Methods

The project has three deliverables: regional coordination of restoration projects; coordination of public outreach related to watershed restoration; and management, coordination, and communication. The first deliverable is to coordinate the habitat restoration efforts of multiple groups, including federal, state, and local government agencies and private landowners. The second deliverable is to educate restoration professionals and the general public about the Nez Perce Tribe's habitat restoration activities, as a means to create additional partnerships and funding opportunities. The last deliverable is to manage project implementation by attending meetings and workshops on habitat restoration, seeking additional funding, scheduling projects, supervising employees, preparing statements of work, managing budgets, and completing reports.

[200860400](#) - Lower Clearwater and Potlatch Watersheds Habitat Improvements

Sponsor: Idaho Office of Species Conservation

Short Description: Wild steelhead restoration and protection activities are planned and implemented in priority tributaries of the Potlatch River basin in a coordinated effort to help restore wild steelhead to a robust, self-sustaining population. Activities are coordinated on private and public lands through the implementation of the Potlatch River Watershed Management Plan. Biological responses are monitored through the Potlatch River Steelhead Monitoring and Evaluation Program.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The qualifications are the same as those for the companion proposal 200206100, Potlatch River Watershed Restoration.

The sponsors provided a comprehensive and effective response to most of the ISRP concerns. However, some items need additional attention, and those can be resolved at the time of contract preparation:

Qualification 1. Objectives and proposed deliverables should be quantitative and should have a predicted time frame for expected results so that restoration outcomes can be better documented. A good quantitative description of expected accomplishments is provided, but there remains a lack of meaningful project level objectives describing the expected outcomes of the proposed work. Table 6 provides an excellent source material for development of such objectives. Examples of potential project objectives could include: within 5 years following restoration treatment, extend the duration of base flows (0.23 cfs or greater) for at least one month; increase stream surface shading to at least 60% on all perennial streams; achieve at least 80% survival for all riparian plantings, and, at identified fish passage barriers, ensure that all species and life stages are successfully passing the restored, road-stream crossings. Such objective statements provide a more valuable, quantitative description of desired post restoration conditions/outcomes and establish a clear basis to assess the effectiveness of restoration treatments.

Qualification 2. Regarding the issue of summer streamflow response to meadow restoration activities, the sponsors provide a discussion of literature on this topic but did not specifically address the question because they say it would be speculative. Reviewers wonder if the sponsors are anticipating an increase in summer flows of 1%, or 10%, or perhaps restoration to a perennial stream following the proposed actions. The sponsors provided some flow monitoring data and referred to general habitat improvements associated with meadow restoration but unexpectedly failed to incorporate any mention of data from the groundwater monitoring system that has been in place for several years. That system purports to "a) test whether restoration significantly increases groundwater elevations and re-establishes connectivity between the channel and floodplain; b) estimate the direction and magnitude of groundwater flow gradients; and c) associate groundwater elevations with surface flow magnitudes and durations." But apparently it has not yielded any results to date. Reasons for that should be resolved during contracting and any appropriate modifications to the monitoring system should be implemented.

Qualification 3. Various assessments, particularly fish passage, to support future restoration work should be completed. A detailed discussion of project prioritization was provided, but little additional information was given regarding completion of fish passage and road condition assessments for the four identified priority watersheds. Given the priority setting process, it appears that having a good assessment of conditions for passage and road condition is critical to ensure that important projects are identified and prioritized early in the planning process. For roads, there was a discussion about completion of a rocking program designed to reduce increased sediment delivery, but there was no discussion about potential improvements to road drainage or pull back/treatment of unstable areas, especially on side-cast roads. Attention to both of these factors is likely to more fully address the issue of accelerated sediment delivery from roads. A road condition survey would allow identification of these needs/opportunities and their incorporation into planned road treatments. Additional information regarding the schedule for completion of fish passage and road condition assessments can be provided at the time of contract preparation.

Comment:

There was a large amount of additional detail provided which clarified many of the questions that were raised by the ISRP. The link to the Potlatch Plan and comprehensive discussion of the priority setting process were particularly useful.

The response clearly itemizes the significant benefits to steelhead that would be anticipated if the natural impediment to steelhead upstream movement at Big Bear Falls were removed. This portion of the project appears supportable by reviewers, assuming that resident fishes above the falls would not be negatively affected.

Overall, there has been some excellent assessment and strategic planning for restoration in this watershed. Steelhead rearing habitat is expected to be enhanced by ~50%. Unfortunately, it seems like some of the key assessments (fish passage and road condition) needed to help display the full range of restoration project opportunities, in the priority watersheds, have yet to be completed. Having a comprehensive display of restoration project opportunities/needs would ensure the most effective setting of individual project implementation priorities.

The sponsors were not able to provide an estimate of the extent to which the extensive meadow restoration efforts that have been completed (and are ongoing) would increase late summer flows. The ISRP urges the sponsors to aggressively pursue accumulating and analyzing data to enable a better quantitative understanding of that issue. At the same time, reviewers appreciate the value of the meadow restoration work in restoring watershed health and involving the community in those efforts.

Evaluation of Results

Major on-ground activities completed to date include the Pine Creek Barrier Removal and Channel Realignment, the East Fork Potlatch/Bloom Meadows Channel Restoration and LWD Project, and the Corral Creek/ Tee-Colby Meadow, Wetland and Riparian Restoration. Physical results are reported and biological results are pending ongoing monitoring.

Preliminary ISRP comment requesting a response:

This is a joint proposal from the Idaho Office of Species Conservation, the Idaho Department of Fish and Game, and the Latah Soil and Water Conservation District. During the tour and presentation much improved information was provided that was not in the proposal. The response should supply such information so it becomes part of the written record. It is clear to the ISRP that there is real potential here, especially bringing in private landowners to reverse a culture of agriculture and logging that paid little notice to aquatic resources. This project is tightly linked with its companion, Potlatch River Watershed Restoration (2002-061-00) from the Latah Soil and Water Conservation District.

A response is requested to address the numbered items directly below. Most, but not all, items are identical to those posed to the sponsors of project 2002-061-00. Other comments are provided as feedback for the sponsors.

1) Low summer flow is identified as a major factor limiting steelhead abundance, and reviewers concur. But despite reliance upon meadow restoration as a technique to increase water storage for eventual summer flow, and with placement of monitoring instrumentation at project sites, there has been no assessment of the additional water that might be available in summer as a result of this restoration activity. The response should address this issue, perhaps by identifying high-low limits for anticipated water volume, and compare this relative to current low summer flows. Flow enhancement in response to other actions being considered by both Potlatch projects should be considered in the analysis.

2) In a review of companion 2002-061-00 proposal, the ISRP (2009) concluded that this program met scientific criteria in part. The current proposal failed to specifically address the portions of the program that the ISRP (2009) said it did not meet. Specifically, work elements 29, 30, 181, and 184 were not described in such a way that the ISRP could fully appreciate and support the ecological justification for the bioengineering approach that has been or will be employed. As part of the 2009 ISRP review, plans were proposed by the sponsor to eliminate a natural seasonal passage barrier for steelhead at river mile 5.6 of Big Bear Creek. The ISRP review stated that the effort was not described in such a way that the ISRP could fully appreciate and support. The Big Bear Creek cascades are currently a part of 2008-604-00, where IDFG proposes to leverage funds for the modification of the cascades to improve steelhead passage. Please provide a comprehensive description of fish benefits that would be achieved, and also a description of risks to native fish species found above the cascades.

3) Objectives and proposed deliverables should be provided in quantitative form to the extent practicable.

4) Basic accomplishments should be quantified and documented in the response so that the Council knows what was accomplished with the funding.

5) It is not clear how completed assessments are used to support restoration work into the future. Fish passage, primarily at road-stream crossings, is the primary issue, but it is not clear if a comprehensive assessment of the road system has been completed and, if not, when it will be done. Please clarify.

6) It appears that no comprehensive watershed assessment has been completed. Is that correct? It might not have been needed at the onset of the Potlatch habitat program, but it is more so now. If no watershed assessment is in place, please discuss how current knowledge might suffice as an adequate surrogate in this time-sensitive program.

7) A detailed activity prioritization protocol was laid out during the presentation. A written version should be included in the response.

8) Mention is made in the Adaptive Management section that juvenile steelhead are monitored by screw trap and snorkeling. That information is used to focus habitat actions on the best tributaries. More details of this, especially examples of that process in operation, would be helpful for reviewers.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Despite the title, this proposal deals only with the Potlatch system. The proposal provides adequate information linking the effort to regional programs and for justifying the importance of habitat protection and restoration. Three project objectives were identified, but they were not quantitative. The proposal mentions that prioritization of restoration efforts was ongoing, yet a number of restoration deliverables was identified. It is not clear how these deliverables fit within the overall plan for the watershed and the extent to which these actions might improve conditions for steelhead.

This is the companion of 200206100, the Latah SWCD proposal. The description of Project Significance is identical and the Problem Statement nearly so. Objectives are identical for the two projects.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Relatively little information was provided on the accomplishments of this project during the past five years or so. Photos were helpful to visualize efforts. From what is provided, reviewers are not convinced that work conducted to vegetate stream banks and add instream cover in the form of single logs will necessarily achieve the desired objective. Such work is not bad in terms of increasing complexity, but it may or may not significantly increase steelhead egg to alevin survival or juvenile production. Monitoring results from the sponsors must be plugged into the efforts to maximize effectiveness.

The numerous actions to increase summer base flow by restoring meadow habitat are likewise in need of scrutiny to ascertain if they are achieving the desired objective(s). Overall, all habitat work needs confirmation of its effectiveness before it is expanded to other locations.

Little information was provided on adaptive management other than to say the NMFS IMW effort will inform decisions.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal identified climate change as an emerging limiting factor and briefly noted how the objectives might be beneficial, but the discussion was very general.

The assertion is made that "The cumulative improvement of habitat across the watershed is expected to result in an increase in survival for the egg-to-smolt life history of the lower Clearwater steelhead population of the Clearwater River Major Population Group (MPG) and

the Snake River steelhead Distinct Population Segment (DSP).” What is the basis for that statement? What monitoring will assess this? Does this mean that egg to alevin survival is the problem? Is it summer juvenile survival? Is it winter survival?

4. Deliverables, Work Elements, Metrics, and Methods

A long list of deliverables was provided, but there was no discussion of the prioritization ranking of each deliverable and the extent to which each deliverable would contribute to the overall restoration goal in the watershed. Prioritization of actions is apparently determined in the following way, "The Technical Working Group associated with Latah SWCD's Potlatch River Watershed Management Plan will likely convene in the spring of 2013 to revisit the restoration priorities within the Potlatch River watershed. This prioritization process will impact the collaborative restoration activities of the participating conservation agencies which include, but are not limited to, Latah SWCD, IDFG, Idaho Department of Lands, Idaho Soil and Water Conservation Commission, USDA Natural Resources Conservation Service and US Forest Service."

If these deliverables were achieved, how much more restoration effort would be needed?

The important essence of the project is only found in the list of deliverables. There are seventeen.

DELV 1, maintenance of restoration practices by the SWCD, seems supportable.

DELV 2-4 are IDFG efforts. DELV 2, Spring Valley flow augmentation, appears to be a valuable component as does DELV 3, Big Bear Creek flow augmentation, to plan potential pond/reservoir construction. DELV 4, Big Bear Creek cascades passage, needs a response as identified above.

The remaining deliverables are shared between IDFG and the SWCD to continue or initiate riparian restoration, channel alignment, meadow restoration, and culvert replacement. Often project funds are intended to be used as leverage.

The ISRP refers the sponsors to our Programmatic Comments regarding large wood, winter habitat, and CREP.

[200206100](#) - Potlatch River Watershed Restoration

Sponsor: Latah Soil and Water Conservation District (SWCD)

Short Description: Wild steelhead restoration and protection activities are planned and implemented in priority tributaries of the Potlatch River basin in a coordinated effort to help restore wild steelhead to a robust, self-sustaining population. Activities are coordinated on private and public lands through the implementation of the Potlatch River Watershed Management Plan. Biological responses are monitored through the Potlatch River Steelhead Monitoring and Evaluation Program.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The qualifications are the same as those for the companion proposal 200860400, Lower Clearwater and Potlatch Watersheds Habitat Improvements.

The sponsors provided a comprehensive and effective response to most of the ISRP concerns. However, some items need additional attention, and those can be resolved at the time of contract preparation:

Qualification 1. Objectives and proposed deliverables should be quantitative and should have a predicted time frame for expected results so that restoration outcomes can be better documented. A good quantitative description of expected accomplishments is provided, but there remains a lack of meaningful project level objectives describing the expected outcomes of the proposed work. Table 6 provides an excellent source material for development of such objectives. Examples of potential project objectives could include: within 5 years following restoration treatment, extend the duration of base flows (0.23 cfs or greater) for at least one month; increase stream surface shading to at least 60% on all perennial streams; achieve at least 80% survival for all riparian plantings, and, at identified fish passage barriers, ensure that all species and life stages are successfully passing the restored, road-stream crossings. Such objective statements provide a more valuable, quantitative description of desired post restoration conditions/outcomes and establish a clear basis to assess the effectiveness of restoration treatments.

Qualification 2. Regarding the issue of summer streamflow response to meadow restoration activities, the sponsors provide a discussion of literature on this topic but did not specifically address the question because they say it would be speculative. Reviewers wonder if the sponsors are anticipating an increase in summer flows of 1%, or 10%, or perhaps restoration to a perennial stream following the proposed actions. The sponsors provided some flow monitoring data and referred to general habitat improvements associated with meadow restoration but unexpectedly failed to incorporate any mention of data from the groundwater monitoring system that has been in place for several years. That system purports to "a) test whether restoration significantly increases groundwater elevations and re-establishes connectivity between the channel and floodplain; b) estimate the direction and magnitude of

groundwater flow gradients; and c) associate groundwater elevations with surface flow magnitudes and durations." But apparently it has not yielded any results to date. Reasons for that should be resolved during contracting and any appropriate modifications to the monitoring system should be implemented.

Qualification 3. Various assessments, particularly fish passage, to support future restoration work should be completed. A detailed discussion of project prioritization was provided, but little additional information was given regarding completion of fish passage and road condition assessments for the four identified priority watersheds. Given the priority setting process, it appears that having a good assessment of conditions for passage and road condition is critical to ensure that important projects are identified and prioritized early in the planning process. For roads, there was a discussion about completion of a rocking program designed to reduce increased sediment delivery, but there was no discussion about potential improvements to road drainage or pull back/treatment of unstable areas, especially on side-cast roads. Attention to both of these factors is likely to more fully address the issue of accelerated sediment delivery from roads. A road condition survey would allow identification of these needs/opportunities and their incorporation into planned road treatments. Additional information regarding the schedule for completion of fish passage and road condition assessments can be provided at the time of contract preparation.

Comment:

The sponsors provided a good deal of new information and reference material which was very useful in better understanding the proposal. The hot links to reference documents, especially the Potlatch Plan, provided excellent context for the information. The sponsors should be commended for their consistent use of non-BPA partner funds to support their ambitious program of work.

Sponsors were not able to provide an estimate of the extent to which the extensive meadow restoration efforts that have been completed (and are ongoing) would increase late summer flows. The ISRP urges the sponsors to aggressively pursue accumulating and analyzing data to enable a better quantitative understanding of that issue. At the same time, reviewers appreciate the value of the meadow restoration work in restoring watershed health and involving the community in those efforts.

The response described the IDFG monitoring, though it does not go into details about how this directly informs habitat restoration priorities. It does say the information is used to identify specific rearing and spawning habitat projects, but future reports and proposals would be strengthened by specific descriptions of how restoration strategies and completed actions improved rearing and spawning habitat of steelhead.

The comprehensive road crossing survey protocol now being initiated by the SWCD should provide significant benefits to fish.

Evaluation of Results

The results section of the proposal highlights five projects completed or in progress by the Latah SWCD. These are the Corral Creek / Tee-Colby Meadow, Meadow, Wetland, and Riparian Restoration, the Corral Creek / Avulsion-Round Reach, Meadow, Wetland, and Riparian Restoration, the Corral Creek / Passage Barrier Removal, the Corral Creek / Racetrack Meadow, Meadow, Wetland, and Riparian Restoration, and the Big Bear Creek / Tourmaline Wetland, Wetland and Riparian Restoration. Physical results are reported, and biological results are pending ongoing monitoring.

Preliminary ISRP comment requesting a response:

The tour and presentation helped this review. Additional useful information was provided that was not in the proposal. The proposal/response should supply this information in writing.

Response requested items:

- 1) Low summer flow is identified as a major factor limiting steelhead abundance, and reviewers concur. But despite reliance upon meadow restoration as a technique to increase water storage for eventual summer flow and with placement of monitoring instrumentation at project sites, there has been no assessment of the additional water that might be available in summer as a result of this restoration activity. The response should address this issue, perhaps by identifying high-low bookends for anticipated water volume, and compare this relative to current low summer flows. Flow enhancement in response to other actions being considered by both Potlatch projects should be considered in the analysis.
- 2) Objectives and proposed deliverables should be quantitative and should have a predicted time frame for expected results so that accomplishments can be better documented. For example, how many miles will be fenced and how many trees will be planted by year? Basic accomplishments should be quantified and documented in the proposal so that the Council knows what was accomplished with the funding.
- 3) It is not clear how various assessments are planned and completed to support restoration work into the future. Fish passage, primarily at road-stream crossings, is a primary issue, and it is not clear if a comprehensive assessment of the road system has been completed for the project area and, if not, when it will be done. This is important for prioritizing actions.
- 4) A statement that the sponsors intend to continue to implement restoration treatments shown to be effective over the past years suggests that some conclusions from monitoring have been made. These should be summarized and shared.
- 5) The second objective of this proposal is to provide suitable steelhead spawning and rearing habitat. The sponsors need a better vision of steelhead habitat, and they need early results from IDFG monitoring so they can be incorporated into continuing work. Please describe how

IDFG monitoring is used to identify and prioritize restoration projects specific to rearing and spawning habitat.

6) A detailed watershed and activity prioritization protocol was laid out during the presentation. A written summary of this process should be included in the response.

This is an ambitious project with a good foundation for landscape/watershed scale restoration. There is good coordination and involvement by a variety of partners with inclusion of outreach and education as part of the project. Also, there is good linkage with water quality restoration plans. The project appears poised for good results but needs additional work to firm up implementation of the strategic approach for restoration, to frame the priorities for work, to ensure useful findings and application of results from monitoring, and to clearly describe quantitative objectives and deliverables.

The proposed habitat protection and restoration project demonstrates its significance to the region. The program incorporates a somewhat ad hoc prioritization scheme to identify projects with tributaries identified to support steelhead. The key concerns are 1) issues raised by ISRP (2009) should be addressed, for example thermal refuges in pools, maintenance of bioengineered projects, and removal of natural migration barriers, 2) objectives and proposed deliverables should be quantitative so that accomplishments can be better documented, for example how many miles will be fenced and how many trees will be planted, and 3) basic accomplishments should be quantified and documented in the proposal so that the Council knows what was accomplished with the funding.

The project demonstrates strong use of funds to leverage additional resources. They use significant cost share to implement projects.

The ongoing work to improve passage is described well and seems a priority for implementation. It is not clear, however, if a comprehensive assessment and prioritization of all passage barriers in the watershed has been completed to guide strategic implementation of these projects. Concerns about effectiveness of actions to enhance flow should be addressed.

How much improvement of spawning and rearing habitat is needed? At what point are returns too marginal for the investment to be defensible?

There does not seem to be a logical division of labor here for Potlatch efforts between the Latah SWCD project and the Idaho Office of Species Conservation project. Elsewhere we sometimes see complementary efforts where one group works on, say, tribal lands while the other focuses on private land. There is no such distinction here. It appears that there could be much of duplication of effort without clear synergy. Coordination between the two efforts should be clarified.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Potlatch River is an important tributary for the restoration of natural-origin A-run steelhead. The proposal provides sufficient information linking the effort to regional programs and for justifying the importance of habitat protection and restoration. The proposal is intended to be a coordinated, landscape approach to restoration and has been underway for more than 10 years. A solid conceptual foundation for restoration is provided and three primary limiting factors/conditions are provided to focus restoration including passage, habitat quality, and flows.

The project objectives are very general and stated in qualitative terms, such as improve stream flows to improve steelhead rearing and spawning. Quantitative objectives are needed. For example, based on the proposed activities within the project period and fish requirements, how much will streamflow change, how much suitable habitat will be gained, and how many passage barriers will be removed as a result of restoration activities? With the long history of this project, the sponsors should be able to provide this information.

Additionally, a discussion of what major issues might slow achievement of the quantitative objectives and what alternative approaches may be employed if these should occur? Also, it is stated that restoration work will focus on priority tributaries, but there is no listing of these priorities or which have been chosen as a focus for current restoration. Additionally, the process for prioritizing projects seems lengthy and is overall confusing. It is stated that IDFG used a process to prioritize tributaries using a qualitative assessment. Treatments are then sorted using three very broad land types, these are ranked H, M, or L using consensus opinion, then ranked using five additional criteria, and again prioritized by consensus opinion. This is apparently in addition to similar work that was done in development of the Potlatch Watershed Restoration Strategy. Further clarification and summary of this process is needed and perhaps a flow chart developed to aide in following the process. The sponsor's presentation provided some of this information, which should have been provided in the proposal.

It is also not clear how complete assessments are used to support restoration work into the future. Fish passage, especially at road-stream crossings, is the primary issue. This proposal will seek to inventory and prioritize road crossings that limit passage in high priority steelhead tributaries, but details of that process were not provided. It is not clear to what extent a comprehensive assessment of the road system has already been completed or when such an assessment will be done. Additionally, it is not clear if there has been a comprehensive assessment of sites that are potential candidates for wetland restoration, the primary strategy to be used to address flow issues. For this treatment, it would also be useful to see if any thought has been given to how much area, and in what locations, will likely be needed to produce meaningful increases in water storage and base flow conditions. Presumably, focusing this work in selected tributaries would provide the highest likelihood of measurable increases.

The project appears to be well coordinated with public and private landowners and is aligned with a water quality restoration plan/TMDLs approved by IDEQ. Integration of this work with the fish recovery work is a positive situation.

The ISRP (2009) asked whether only anthropogenic barriers would be removed by the project rather than natural barriers that might provide important refuge for native resident fishes? Have and will anthropogenic barriers be targeted? If they plan to remove natural barriers, they should do a risk assessment to evaluate how resident fishes might be affected positively or negatively.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

It appears that a good deal of restoration work has been completed. It would be helpful if there was a roll up to summarize past accomplishments and where in the watershed they were completed. There is minimal information given to describe the results of past restoration even though it appears that some monitoring has been underway. A statement that the sponsors intend to continue to implement restoration treatments shown to be effective over the past years suggests that some conclusions from monitoring have been made. These should be summarized and shared.

There is limited discussion of lessons learned and their application to current and future conservation/restoration work. There is not a formal adaptive management process identified although it may be provided in the Potlatch Watershed Restoration Plan.

The ISRP (2009) concluded that this program met scientific criteria in part. The current proposal extracted the complimentary statements from ISRP (2009), that is those report sections that met scientific criteria, but the current proposal failed to specifically address the portions of the program that the ISRP (2009) said it did not meet. Specifically, WE 29, 30, 181, and 184 were not described in such a way that the ISRP could fully appreciate and support the ecological justification for the bioengineering approach that has been, or will be employed. ISRP (2009) requested additional specific information such as a demonstration that pools in this watershed provided thermal refuges. It is not clear from this proposal or from proposal 2008-604-00 whether pools provided a thermal refuge.

The project often utilizes bioengineering approaches to improve habitat, but these actions may need maintenance. How much maintenance has been needed and is adequate maintenance being accomplished?

In several locations, the proposal states that habitat actions are needed to reduce steelhead density-dependent impacts. However, information and reference on density-dependent processes in this watershed were not provided. What types of density-dependent effects have been observed, what life stages, and what is the report that provides this information?

The sponsors highlighted five activities at Corral and Big Bear creeks as examples of past efforts. One (Tourmaline) involves repairing damage resulting from an earlier effort to create wetlands. Unfortunately, details such as maps and photos are not provided in the very brief report.

The Tee/Colby and Avulsion/Round Meadow meadows restoration project reports are more detailed and more helpful. However, they need to be accompanied by a more comprehensive discussion of the potential of projects like these and their ability to accomplish Objective 3, to improve stream flow for steelhead spawning and rearing. How much of an enhancement in summer flow can be achieved by many such projects? What are alternatives? What fish production increases might result?

Photos were helpful to visualize efforts. From what is provided, reviewers are not convinced that work conducted to revegetate stream banks and add instream cover in the form of single logs will achieve the desired objective. Such work is not bad in terms of increasing complexity but may not significantly increase steelhead egg to alevin survival. Monitoring results from the sponsors would be very helpful.

The numerous actions to increase summer base flow by restoring meadow habitat are likewise in need of scrutiny to ascertain if they are achieving the desired objective(s). Overall, all habitat work needs confirmation of its effectiveness before it is expanded to other locations.

The passage project on Corral Creek seems like an effective gain for steelhead but some fish data would be valuable to include.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There is a discussion of climate change (an emerging factor) for projects, watersheds, and biological issues. This discussion is quite general and does not offer any specific approaches that will be incorporated into future projects in anticipation of changes in conditions. Additionally, there is no discussion of changes in forest health and their possible effects to aquatic habitat. This would seem to be an important issue for consideration. Relationships with other programs were briefly described.

Private landownership was not mentioned as a limiting factor, although approximately 78% of the watershed is private. Future reports and proposals might address to what extent private landownership is constraining habitat actions in priority reaches and, if so, what actions are being taken to address the issue.

4. Deliverables, Work Elements, Metrics, and Methods

The project proposes to inventory and prioritize road crossing in steelhead priority tributaries that limit passage. Priorities will be given to Little Bear Creek following the removal of the abandoned dam owned by the City of Troy and the East Fork Potlatch River where high quality

steelhead habitat is located within a heavily forested watershed owned by the U.S. Forest Service, State of Idaho, and one industrial forest landowner.

Four deliverables are identified but were stated only in vague terms without quantitative metrics. The sponsors are urged to work toward the incorporation of quantitative metrics in future and should also be more specific regarding how they are tied to the primary limiting factors and when results are anticipated.

DELV 1 monitoring of vegetation and groundwater, and project maintenance seems appropriate.

DELV 2 to remove Dutch Flat Dam is a project component that should provide substantial benefit for steelhead. The proposal states the dam is scheduled for removal in 2103 but that date is hopefully a typo.

DELV 3 improve East Fork passage and habitat is very general, but reviewers feel that enough information was conveyed during the tour to enable their support of this deliverable.

There appears to be a monitoring program in place, but it is not fully described. There is no mention of AEM or CHaMP despite the fact that there is a NOAA IMW in the watershed.

There is mention of a series of stream habitat assessments that have been done, but methods for these are not described nor is there a summary of findings. What protocol was used and what were the findings?

[200207000](#) - Lapwai Creek Anadromous Habitat

Sponsor: Nez Perce Soil and Water Conservation District (SWCD)

Short Description: The project goal is to restore the Lapwai Creek aquatic ecosystem, so that the physical habitat no longer limits recovery of the ESA Threatened Lower Clearwater Steelhead population. As a part of an ongoing partnership with the Nez Perce Tribe, the Nez Perce Soil and Water Conservation District, proposes to implement habitat improvement projects to address primary limiting factors in order to increase the productivity and viability of the watershed's steelhead population.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP has two concerns, both of which can be dealt with in contracting and future reviews:

- 1) ensure that ongoing monitoring is consistent with and can be efficiently utilized by monitoring programs that will begin in a few years (CHaMP in 2018),

2) further consider the issue of how private landownership inhibits high priority projects and develop additional approaches that encourage private landowners to participate.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal provides excellent technical background information that demonstrates the significance of the project to regional programs. A map with overview of landownership helps describe the physical setting. The descriptive summary of existing habitat and fundamental habitat problems is generally well done. Efforts in Lapwai Creek are conducted jointly by this project on private lands and by project #199001700 on land owned by the Nez Perce Tribe, tribal members, and public lands. Objectives for the two projects are the same and work is based upon the 2009 Lapwai Creek Restoration Strategy, developed by both organizations that delineated the priority stream assessment units in the watershed.

Limiting factors were identified and standards were established for reducing their impacts. Importantly, quantitative deliverables and objectives were presented so reviewers and stakeholders have a good idea of what may be accomplished by this effort.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The proposal provides an excellent, detailed, photographic and quantitative description of accomplishments associated with each objective during the past 10 years or so. Other proposals should take notice, as often other proposals simply provide reference to project reports. This approach makes it easy for reviewers and stakeholders to see that this effort has been successful in past efforts. The description of the prioritization process and the flow charts used are clear and nicely done.

The proposal indicates it will develop a robust adaptive management program that addresses concerns raised by the ISRP with regard to adaptive management in general. This is good, but given that the project has been in operation for many years it is not clear why a robust adaptive management plan has not already been developed. In the adaptive management section, the proposal provides examples of how it has learned from its ongoing activities.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The project has its own monitoring program, and the program discusses linkages to the Nez Perce Tribe's effort, action effectiveness monitoring, and the CHaMP effort that will begin in 2018. It would be good if the sponsor can directly address the issue of whether its proposed monitoring overlaps or duplicates that of other monitoring, and how well the proposed monitoring will contribute to programs that will begin in a few years, that is CHaMP.

The proposal provides a good discussion of several potential emerging limiting factors such as climate change impacts on temperature and flow, nonnative species, predators, and toxic chemicals. The proposal did not fully discuss, based on past experience, whether private landownership constrains implementation of the high priority projects; the sponsors did state that the success of certain objectives is dependent on cooperation by private landowners. This leads to high uncertainty. Past experience, as communicated on the site visit, is that landowners approach the SWCD for assistance during emergencies like the 1996 flood. The ISRP encourages the sponsors to continue their consideration of possible inducements.

4. Deliverables, Work Elements, Metrics, and Methods

Seven deliverables are proposed to support the objectives. They are presented in sufficient detail, with specific design criteria. Excellent benchmarks are provided with the proposed deliverables. Methods are briefly mentioned with each objective.

199901700 - Protect and Restore Lapwai Creek Watershed

Sponsor: Nez Perce Tribe

Short Description: The overall goal of this project is to restore the Lapwai Creek aquatic ecosystem so the physical habitat within this watershed no longer limits recovery of the ESA Threatened Lower Clearwater Steelhead population. In partnerships with the Nez Perce Soil and Water Conservation District, state entities, and Nez Perce Tribal landowners, the Nez Perce Tribe (Tribe) proposes to implement habitat improvement projects to address primary limiting factors that will increase productivity and viability.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

For fish passage, it is stated that 60% of the historical habitat has been blocked and that two of the highest priority projects, out of a total of twelve, have been completed and two additional ones are awaiting agreement with the Bureau of Reclamation (BOR). Reviewers note that priority passage work other than that identified with BOR does not seem to be incorporated into the current five year plan and this seems out of line with a comprehensive restoration program. The ISRP realizes that passage projects might indeed be planned but not mentioned in the proposal or, if perhaps habitat above barriers also needs restoration, the sponsors might choose to focus first on that habitat. This issue can be resolved during the contract process.

Comment:

The sponsors were indeed correct in their concern that part of the results section of the original proposal was not seen by reviewers prior to their preliminary response; reviewers were not

aware during the initial review of a comment in the “Notes” section or the availability of a hotlink.

The sponsors’ response was comprehensive and adds sufficient detail to the original proposal to effectively address nearly all of the issues raised by the ISRP. There was a good deal of additional data provided, and it is apparent that the sponsors want to work in a strategic manner. Selection of three top priority watersheds is an excellent start.

The summary of the prioritization process to rank activities (to work initially in highest ranked Assessment Units according to the 2009 Strategy document, then work from the top of a subwatershed down, with focus on major limiting factors) is more informal than that used in other areas (where many more jurisdictions are involved). Detail of how the rankings were generated was not described, except to indicate that they are generated from the Expert Panel process.

What seems incomplete is a better discussion and listing of the full suite of priority work requiring completion in these watersheds before moving into the next tier of priority watersheds. Currently, work is focused on three limiting factors and is reportedly achieving the benchmarks established by the technical team. How it was determined that the planned work will meet these benchmarks (stated as percentage increases) remains a bit of a mystery. In the response, only water temperature was discussed. A similar discussion is needed to address flow increases and for riparian vegetation/floodplain restoration. Further, there needs to be additional discussion on addressing fish passage (see Qualification) and increased sedimentation. These limiting factors are rated nearly as high as the priority limiting factors (10% each vs. 15%) yet are really not incorporated beyond past work that has occurred.

There were no changes in the stated project objectives to include a time element, as recommended by the ISRP. Also, the description of ecological results from past restoration project work is very limited, despite nearly 10 years of work.

Goals for restoration were presented. The goals, if reviewers interpreted them correctly, were ambitious. However, habitat monitoring will not occur until 2018, and therefore it will take considerable time before we will know how much of the proposed goal has been achieved. Plus, we know little about monitoring efforts that might occur in 2018.

Evaluation of Results

The following documents were prepared under the project:

- 1) a comprehensive watershed analysis using the Oregon Watershed Assessment Manual
- 2) Clearwater Subbasin Assessment and Plan
- 3) the Lapwai Creek Watershed Ecological Restoration Strategy
- 4) Road Erosion Survey - Lapwai Creek Watershed
- 5) Lapwai Creek Watershed Ecological Restoration Strategy that prioritizes where restoration work should occur within the Lapwai Creek watershed.

The projects implemented by the sponsor between 2009 and 2012 are as follows:

- 1,5800.0 feet of riparian exclusion fence
- 850.0 ft of levee removal
- 720.0 ft of bank stabilization
- 25.0 acres planted to native grasses
- 9.0 acres of riparian shrub and tree planting
- 7.0 acres of restored wetland

Preliminary ISRP comment requesting a response:

A response is requested on the following items:

- 1) Describe how deliverables were ranked in the prioritization process.
- 2) Give examples of restoration actions that were considered but not implemented.
- 3) Provide responses to additional questions embedded in review comments.

This is a generally well-organized project. However, a response is requested to provide additional detail on past results and prioritization of future actions. The presentation and site visits were helpful on these issues, but they should be better documented in a response.

It was not clear how each of the specific deliverables were ranked in the prioritization process and how much effect the deliverable might have, for example move road rest stops to non-creek side. The selection of focus stream assessment units appears to have been a solid strategic approach, and additional information describing the suite of planned activities in these areas would have been useful. What are the alternative restoration actions that were considered and not adopted?

This is a good proposal in many respects that includes quantitative deliverables for a variety of specific habitat projects. The deliverables are categorized under three objectives that relate to limiting factors in the watershed, as described by previous efforts. However, the sponsors did not discuss the extent to which each limiting factor will be improved after completing the deliverables. Are these proposed projects the highest priority projects? This type of information would provide managers with some information on how much more effort is needed.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is a coordinated proposal, along with its companion proposal from the Nez Perce SWCD, for a tributary that is a primary producer of A-run steelhead in the Clearwater River system. It is well organized and provides solid focus on three high priority stream assessment units within Lapwai Creek. This proposal provides good technical background information that demonstrates the significance of the project objectives to regional programs.

A list of 10 limiting factors is presented, and it is stated that the proposal will address the primary ones. These are not listed. Three main objectives are provided: restore flow/wetlands, reduce stream temperature and improve habitat diversity. To some extent, quantitative deliverables and objectives were presented so reviewers and stakeholders have a good idea of what may be accomplished by this effort. However, temperature and habitat objectives are stated in quantitative terms but have no stated time frame for accomplishment. Objectives are basically reasonable, but the temperature goal of reducing temperature below 16 C, a State of Idaho water quality metric is overly conservative, especially in view of actual Lapwai Creek fish data: the Nez Perce SWCD proposal states "Significantly, wild steelhead of the Lower Clearwater basin have seemingly adapted to survive abnormally warm water temperatures. High juvenile steelhead densities have been recorded within monitoring sites in which summer water temperatures exceeded 20° C (68° F) on a daily basis." Reviewers challenge the NPT Watershed staff to craft more meaningful success criteria for habitat attributes like temperature as these projects evolve.

Importantly, the proposal is based upon and justified by the Lower Clearwater Watershed Ecological Restoration Strategy developed jointly with the SWCD. The Strategy was apparently developed in 2009 and is reported to, and does address a number of issues previously raised by ISRP. Because of this critical dependence of the proposal on that document, a serious effort should have been made to facilitate its access for reviewers. It was available in the Project Documents section but that required additional effort to locate it. Ideally excerpts from the Strategy would have been incorporated into the proposal. Next best would have been a hot link directing reviewers to specific sections.

The proposal notes that there has been little hatchery influence in Lapwai watershed, yet coho have been recently introduced. Approximately 400 adults return per year, but no mention of hatchery/natural origin components is included. The proposal does not mention how ecological interactions between coho and steelhead might affect steelhead recovery.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The project has been ongoing since 1999. Accomplishments during each year were very briefly mentioned. Instead of providing detail, sponsors make the statement that "Projects implemented since 2009 have followed the guidance produced by the Lapwai Creek Watershed Ecological Restoration Strategy." This is reassuring but does not contain enough detail to be helpful to reviewers.

There is not a formal Adaptive Management strategy, but there is a discussion of lessons learned for project and management activities. The discussion on management considerations is vague as to lessons learned or changes in organization or approach. The proposal did describe how sponsors have learned from previous projects, for example use larger plants and water them as a means to increase survival. The project should document percentage survival of its planting efforts.

The adaptive management section also describes use of Expert Panels to prioritize actions, following the Restoration Strategy. A commendable inclusion was incorporation of the assessment of both current and potential, as a percent of optimal, status of limiting factors addressed by a project. Examples of this would have been very helpful. For example, reconnecting and restoring wetlands is a primary strategy for increasing water storage and increasing base flows, but there is no discussion of the extent to which past treatments appear to be doing that.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There is an efficient division of duties with the NPT dealing with Tribal and public lands and the SWCD addressing private lands.

The use of the general and aquatic limiting factors shown above in the assessment provides a starting point for the identification and treatment of problems affecting anadromous populations throughout the Clearwater. Climate change and non-native species were identified as emerging limiting factors. The project has been in operation for more than 10 years. It would be interesting to know whether or not there seems to be improvement in some of the overall habitat metrics and even steelhead productivity. In other words, based on the restoration plan and analysis of limiting factors, has the program achieved 5% or 50% of its habitat goals? What is the timeline for achieving the habitat goals?

4. Deliverables, Work Elements, Metrics, and Methods

There are three primary deliverables that are stated in clear, quantitative terms. However, they appear to address only the first year of implementation. Other deliverables were described in a couple of sentences and are impossible for reviewers to evaluate without more detail, photos, and maps. The deliverables should have been more closely linked to limiting factors, including to what extent each deliverable might help reduce that limiting factor. Is the impact small or significant, in the opinion of the sponsors? Some detail is needed on why the secondary deliverables received their given priorities.

A fish passage assessment was completed in either 2004 or 2005 and will presumably provide a foundation for future project work.

Monitoring (and associated methods) is largely associated with other programs within the Tribe and by other agencies, and therefore there was little discussion of methods. There is a clear description of future incorporation of AEM and CHaMP into watershed activities. It is noted that BOR has the lead responsibility for fish population monitoring although there is little discussion how this work links to the location and application of various restoration treatments.

199607702 - Lolo Creek Watershed Restoration

Sponsor: Nez Perce Tribe

Short Description: The overall goal is to restore the Lolo Creek Watershed aquatic ecosystems, addressing all limiting factors, so that the physical habitat within these watersheds no longer limits recovery of ESA Threatened Lolo Creek Steelhead populations. As part of an ongoing partnership with the Nez Perce-Clearwater National Forests (NPCNFs), the Nez Perce Tribe (NPT) proposes to implement habitat improvement projects to address primary limiting factors that will increase the productivity and viability.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The sponsor should address the ISRP's concerns specific to this project in contracting and in future reviews.

This is a well-written and organized proposal. It is a good example of whole watershed restoration and the use of partnerships. Documentation and rationale for most program elements are adequately discussed. There are a number of issues that appear important to future success and that were developed in response to past ISRP comments. These are not totally resolved in the current proposal. They include:

- 1) Status and details regarding the "to be completed" NPT Monitoring plan. These comments are contained in the discussion of programmatic comments.
- 2) It is unclear whether there has been a comprehensive review of treatments and results and a strategy for the identification and prioritization of future work needed to achieve the stated 12-14% increase in habitat productivity. Given its long history, it would be interesting to see an estimate of what is needed to accomplish this. There are fish passage and road condition assessments that have to be completed and prioritized into the broader program of work. There is a reference to protocols to be used, but a better explanation of why these are needed, how long they will take, and how the information will be used would be useful. A more complete documentation of plans for this work would be useful and perhaps a review of completed documents accomplished in the future (1-2 years).
- 3) The sponsors need to provide a more serious discussion of past restoration project results and provide more details regarding anticipated benefits to fish and wildlife resources in a plan for future work.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Methods

The proposal describes a well-organized and long term watershed scale restoration program that integrates upslope, floodplain/riparian, and instream treatments. It is a very successful partnership between Nez Perce tribe (NPT), the U.S. Forest Service, Potlatch Corp, and others. Work accomplished over the past 15 years, by the project, makes it a regionally important program. Additional detail and supporting information would provide the reader with better insights into the setting for the project. A location map and information on factors such as geology, ownership, legacies of historical land use would be useful.

A solid conceptual and technical background is provided, and there is a generally clear explanation and use of a variety of plans and assessments to drive selection of restoration work. It remains a little unclear on how projects were identified and prioritized in the first 10-15 years. Also, the proposal states that additional assessments for fish passage and road condition are needed. This seems a bit odd given that the project has been underway for over 15 years. There is a reference to protocols to be used, but a better explanation of why these are needed, how long they will take, and how the information will be used would be useful.

The proposal also notes that an MOA is being developed that will commit the U.S. Forest Service to provide at least 20% of the project cost presumably to qualify to receive BPA funding. This does not appear to be a requirement for any other state or federal agencies involved in the program and would be useful to find out the rationale given that a large share of the accessible habitat in this area is on NFS lands.

Five of the eight objectives provide a quantitative description of desired results however, there is no time element provided describing when the results are anticipated. Also, it is noted that a minimum level of increase in habitat productivity of 12-14% is needed in this watershed. There is no estimate or discussion of how the proposed work contributes toward reaching that increase or how much additional treatment is needed after the current round of funding (2014-18).

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This project has a long list of project accomplishments that appear well linked to analysis of watershed, key processes, and habitat conditions. It has a long history and demonstrates a large amount of varied implementation and effectiveness monitoring that has been conducted. There are a number of results discussed that are based on the monitoring including: stream temperature reductions, reductions in substrate embeddedness and sediment source areas (roads), and an increase in habitat accessible to adult and juvenile salmonids.

There is a good discussion of how evaluation of results has led to changes/improvements in a variety of treatments including fish passage, road decommissioning and improvement, and

riparian planting. An adaptive management approach of “assess, design, implement, monitor, evaluate, adjust, and repeat” is being used. To help evaluate biological responses to restoration work the project will use data collected by the Nez Perce Clearwater National Forest, IDFG, and BLM who are performing on the ground monitoring in the basin. Photos of completed actions were helpful, but dates taken should be indicated. It is not possible, however, to tell if the project is meeting expectations.

There is acknowledgement of previous ISRP comments regarding development of a more robust adaptive management approach, and it is stated that the NPT is in the process of developing a more formal plan that will be completed by December 2014. Some questions regarding project monitoring include:

1) The current discussion of fish data is not clearly described, but it is good to see data included. A better description is needed of the intent and protocols for snorkeling surveys that are conducted on an annual basis to assess population abundance, species composition, and age distribution. All values are based on presence/absence observations and are not necessarily reflective of true population estimates.

2) There are no clear indications of success from efforts to reduce sedimentation, although there is perhaps a minor positive change to water temperature. It is suggested that a treatment versus reference site comparison is needed.

Evaluation of Results

This project appears to be well thought out and coordinated, technically sound, and able to identify a number of possible, ecological results tied to major limiting factors. The project partnership has made good use of multiple funding sources and technical skills and resources from the primary partners. It remains a little less clear whether there has been a comprehensive review of treatments and results and a strategy for the identification and prioritization of future work needed to achieve the stated 12-14% increase in habitat productivity. Given its long history, it would be interesting to see an estimate of what is needed to accomplish this.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Climate change and invasive species were identified as emerging limiting factors. There is an excellent discussion regarding climate change, its likely effects to this watershed, and actions that have and will be taken in response. This discussion could serve as a model for other proposals as they examine implications of climate change. The sponsors are planning for possible effects by designing culvert and fish passage project for 100 year flood events and feel floodplain reconnections, riparian plantings, and other actions will help dampen the effects of warmer temperatures and altered precipitation patterns. Additional information and discussion on climate change effects to upland vegetation and future forest health and fire risk would have been useful. Also, some discussion of future development on private and industrial forest

land and potential effects on this effort would have added to the discussion. Brook trout are identified as an invasive species that could negatively interact with native salmonids. No strategies are suggested for how this species should be managed in the future to reduce its potential impacts.

4. Deliverables, Work Elements, Metrics, and Methods

There is a list of 10 deliverables that include reasonable stated methods and metrics. Actions are listed that will be used to accomplish each deliverable and specific planned projects are mentioned. A couple of exceptions include riparian planting where only the number of plants to be planted is provided rather than riparian/floodplain area or length and a section on assessments which includes fish passage and road condition, each with no description of numbers or geographic area to be assessed. Given the large amount of work that has already occurred, it would have been useful to include a better discussion of why future assessments were needed, where they are to occur, when they will be completed, and how they will be integrated in to the ongoing list of project work.

Specific comments on protocols and methods described in MonitoringMethods.org

This includes a very good discussion about past monitoring and the use of results to inform the direction of the program. Five RM&E protocols are listed. Four of them plus their associated methods were developed by Washington State's Salmon Recovery Funding Board. There is also a very complete discussion which addresses integration of ISEMP, CHAMP, and AEM in the future. It is unclear how PIBO monitoring, which has been ongoing for a number of years, will be coordinated or integrated into future CHAMP monitoring and whether the several years of data will be used. It appears that not doing this would be a waste of a significant long term data set and a missed coordination opportunity.

[200709200](#) - Restore Selway River Watershed

Sponsor: Nez Perce Tribe

Short Description: The overall goal is to restore the Selway River Watershed aquatic ecosystems, addressing all limiting factors, so that the physical habitat within these watersheds no longer limits recovery of ESA Threatened Selway River Steelhead populations. As part of an ongoing partnership with the Nez Perce-Clearwater National Forests (NPCNF), the Nez Perce Tribe (NPT) proposes to implement habitat improvement projects to address primary limiting factors that will increase the productivity and viability.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

See the ISRP's programmatic comments on NPT RM&E program and BiOp gaps. They plan to have the status and trend monitoring plan done by summer 2014.

The ISRP specific qualifications on improving this proposal can be addressed in contracting and evaluated in the next review.

- 1) success criteria for several of the project's objectives need to be developed plus several inconsistencies in deliverables (identified in section 4 below) need to be resolved.
- 2) success criteria for achieving Objective 1, "increase anadromous fish productivity and production" need to be developed. Overall, results should be judged in terms of improvements to fish productivity and production.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Selway River is an attractive site for habitat restoration because private landownership is mainly in the lower 10% of the basin and the remaining 90% of the river is situated in the federally designated Selway Wilderness Area. Federal ownership should help ease the implementation of restoration actions. Also, the B-run steelhead of the Selway represents an important metapopulation in the Clearwater Basin as this population has never been supplemented with hatchery fish. The FCRPS Expert Panel Process for the Selway identified four limiting factors for the basin, and by far the most important was sedimentation which was given a weighting factor of 78%, followed by water temperature (10%), passage barriers (8%) and riparian vegetation (5%). The Nez Perce Tribe and Nez Perce Clearwater National Forest (U.S. Forest Service) have prioritized restoration actions in the Selway based on the Clearwater Subbasin Plan, the Selway and Middle Fork Clearwater Rivers Subbasin Assessment, the Expert Panel Process and current watershed surveys. The overall goal of this proposal is to restore the Selway River watershed so the physical habitat of the basin no longer limits the recovery of

ESA-listed steelhead. The project is important regionally because of its potential to restore the Selway River steelhead population to viable status.

Particularly helpful for this review were the concise summaries of the population units being targeted, their status, and their relationship to MPG and ESU viability assessments; however, it seems redundant to include this information under both Project Significance and Problem Statement. Note on page 4, ESU refers to “evolutionarily” not “ecologically” significant units.

The project has five objectives to: 1) increase anadromous fish abundance and productivity, 2) reduce sedimentation, 3) reduce fish passage barriers, 4) reduce the impact of roads and, 5) protect and restore riparian habitats. Objectives 2, 3, and 4 have success criteria that can be measured. No productivity or abundance goals were produced for Objective 1. Similarly, no success criteria were established for Objective 5 which deals with restoring riparian habitat.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Even though this project began recently, in August of 2011, a number of actions have been completed. Two culverts were replaced and opened approximately 9.5 miles of habitat. A road inventory using the Geomorphic Road Analysis and Inventory Package was started. This process was used on the O’Hara Creek Road and road segments contributing significant amounts of sediment were identified. Additionally four culvert surveys were completed in the Selway subbasin to identify which were likely to fail or block fish passage.

This proposal demonstrates that advice from the ISRP’s review in 2006 has been taken seriously as the monitoring and adaptive management components of the proposal are much improved. However, the description of adaptive management refers to a “passive” approach. The ISAB (see ISAB 2011-4) and ISRP promote *active* adaptive management, consistent with the original definition of the term, in which experimentation is deliberate in order to reduce key uncertainties, with the goal of improving *future* decisions. This approach places a value on knowledge to reduce uncertainty in the future as an outcome in itself, and requires formulation of alternative hypotheses and an experimental design to test those hypotheses.

The description of proposed monitoring under the Problem Statement and Monitoring (as DELV-5) is generally good. The main deficiency is that the proposal does not include provisions, or at least a description of such provisions, for measuring success in achieving Objective 1, increase anadromous fish productivity and production.

The proposal states that all the habitat actions will be monitored to determine if they meet expected goals. Results from this monitoring will be used to change or refine how restoration actions occur in the future. This approach was used to change how culverts are being replaced. The project is now using bottomless arch culverts or bridges as opposed to typical squash type culverts because the bottomless culverts are better able to pass flood waters and retain substrate. The Expert Panel Process also caused the project to key on populations in the Selway and on the factors that are limiting their abundance.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

This is a collaborative project with personnel from the U.S. Forest Service's Nez Perce Clearwater National Forest. The project complements a number of ongoing projects, including the Nez Perce Tribal Hatchery Monitoring and Evaluation, Clearwater River Subbasin Focus Watershed programs, and the Clearwater Basin Collaborative Forest Restoration Act. The sponsors are also working with P. Roni and colleagues at NOAA Fisheries to develop a monitoring and evaluation plan that will be used in the Selway and in other areas where the Tribe is conducting habitat restoration work.

Two emerging limiting factors are identified, climate change and invasive species. The possible effects of climate change are clearly stated. The sponsors are designing their restoration actions to account for impacts caused by climate. For example, culvert and bridge replacements are designed to accommodate 100-year flood events. Additionally it is hypothesized that riparian planting, improving stream complexity, reconnection of the floodplain, and improving fish passage will help dampen climate change effects.

Possible impacts caused by invasive plant and animal species were also identified as emerging limiting factors. In this case, a number of nonindigenous species of fish residing in the Selway River were identified. But no mention is made of how they might interact with native fish species and how such interactions might be addressed in the future. The possible consequences of invasive plants or weeds are described and some examples of the species of concern are given. Yet, no mention is made on how the effects of weeds might be dealt with in the future.

4. Deliverables, Work Elements, Metrics, and Methods

Five of the six project deliverables, road decommissioning, fish passage, road improvements, inventory assessments, and project management are fairly well defined. For example, in the passage and road decommissioning and improvement deliverables specific future restoration actions are described. Inventories on culverts, bridges, and fords have taken place in the Selway subbasin. The deliverable for conducting inventories also presents future work, indicating that additional inventories on riparian and instream habitat condition, fish passage, and existing road network will occur. That being said some simple editing would improve the proposal as the aims of three of the deliverables change depending upon what portion of the proposal is examined. For instance in the proposal summary the deliverable for road decommission is 48 miles while in the Deliverable Section it equals 24 miles. Similar inconsistencies in the proposal summary and deliverables sections exist in the aims of the fish passage and road improvement deliverables. These conflicts need to be corrected. The deliverable that describes the monitoring efforts that are planned states that implementation and compliance as well as action effectiveness monitoring will take place. No mention, however, of status and trends monitoring is made. This type of monitoring should take place, and the sponsors need to indicate the methods that will be used to accomplish this activity. Additionally, even though the proposal has an objective to restore riparian habitat, none of its deliverables really address this need.

[200739500](#) - Protect and Restore Lochsa Watershed

Sponsor: Nez Perce Tribe

Short Description: The goal of the Protect and Restore Lochsa Watershed Project is to protect and restore ecological processes and functions necessary for recovery of the Lochsa population of the threatened Snake River Basin steelhead Distinct Population Segment. The primary factors limiting the abundance and productivity of the Lochsa population of threatened Snake River Steelhead are sediment, temperature, loss of large wood and structural complexity, and inadequate fish passage.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This is a well-written proposal that reflects current science and the application of landscape scale/whole watershed restoration. The ISRP's qualifications listed below can be addressed in contracting and evaluated in future reviews.

- 1) More details are needed about specific, quantitative accomplishments that are expected over the life of the proposal. Currently, these are not provided for most deliverables. The objectives and deliverables need to be expanded to indicate explicit end points. The total amount of work that is expected to occur is clearly stated, it simply needs to be allocated to project years and specific deliverables.
- 2) A listing of the current focus watersheds that are a priority for treatment, a discussion of how they were selected and a summary of the strategic considerations would be useful.
- 3) It is pointed out that roads and associated issues are the primary factors limiting habitat productivity and that a large share of the worst road issues are on private land or located in valley bottom areas, both having major socio-economic issues impeding their correction. It would be useful to see a discussion as to whether the target of 16% habitat improvement can be achieved without treating these areas, and what groups of other treatments, on other areas, could provide the greatest benefit. Basically, this would be an alternative strategy/contingency plan to be followed if negotiations for a conservation easement or purchase are unsuccessful.
- 4) Additional detail is needed on monitoring and evaluation as tied to the NPT Plan that is currently in development. This is discussed in more detail under Programmatic Comments.
- 5) Consideration should be given to having the ISRP review the watershed restoration monitoring plan that will be completed within a year.

Comment:

The proposal provides a well designed and thoughtful approach for the restoration of the Lochsa. It is process-based and provides a multi-disciplinary approach to implementing whole

watershed restoration. It builds on a long standing and successful partnership between the NPT and the U.S. Forest Service and others. It has a solid track record of performance and has made positive changes over time, many apparently prompted by past ISRP review. The proposal provides a very complete and science-based approach for restoration that could be used as a template for other proposals in the basin. It is excellent to see such an improvement on experimental design and analysis.

The following paragraph from the Results section seems to hold several key issues. The ISRP believes the issues raised pertain to program-wide RM&E issues but feels the issues are worth stating here for the project sponsors to consider. "As shown in the *Significant to Regional Programs* and *Technical* sections, a substantial quantity of fisheries data has been collected in, and assessments developed for, the Lochsa River watershed. As these data were collected by other agencies for supplementation monitoring, fisheries abundance monitoring, U.S. Forest Service Clearwater National Forest Plan and EA/EIS and TMDL development, they provide useful baseline information but are not response signals to discrete restoration activities. As such, while this information is displayed to reflect data currently available within the project area, it is not suitable for evaluating efficacy of ongoing implementation actions. Future PRLWP implementation, compliance and action effectiveness monitoring will be addressed through the programmatic monitoring plan currently under development by the NPT Watershed Division and the programmatic action effectiveness monitoring program currently under development by BPA. Additionally, the PRLWP is hopeful that CHaMP surveys may be conducted in future years to address the relative lack of status and trend data available for the project area." We agree that fish population changes reflect many things going on in the fishes' universe and stream habitat is just a part. BUT changes in fish survival prior to smolting, their growth, and their distribution in rearing habitat are clearly the best indicators of habitat quality and quantity, including how it is altered and protected by the sponsors. So is it not the best indicator of what is really limiting and thus the best indicator to guide future actions?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project is an important component of the effort to restore fish and habitat in the Clearwater subbasin. It is a merging of three prior individual projects (1996, 2002, and 2007) to increase administrative and financial efficiencies. It is a partnership effort between the Nez Perce Tribe and the U.S. Forest Service but involves others including the Idaho Department of Environmental Quality which has established TMDL's for sediment and thermal loading. There is a long record of cost sharing and development of a strong multi-disciplinary staff by the sharing of a wide array of diverse technical skills including engineering, soils, hydrology, and forestry in addition to fisheries scientists.

About 95% of the drainage is in National Forest System ownership and 5% in private industrial forest land, mainly in the headwaters. The proposal is clearly designed to establish a strategic foundation for restoration using an impressive array of the current science and literature regarding landscape and ecosystem restoration. There is a clear linkage discussing the prioritization of key processes to target for restoration including sediment introduction and

transport and thermal loading of the streams and the development of priority projects using a variety of assessment tools and plans. A solid case is made that high road densities and steep slopes and erosive soils lead to high rates of sediment delivery to streams, particularly via mass wasting. The proposal employs a ridgetop to ridgetop approach of whole watershed treatments, and there is good use of citations throughout the introduction and description of objectives.

There is excellent use of the selected technical tools in the development of treatments and project plans including LIDAR imagery for roads analysis, temperature modeling for identification of priority treatment areas, and GRAIP modeling to select the most cost effective suites of road treatments for decommissioning and improvement.

There is very good use of past project-scale monitoring and evaluation to inform location and design of treatments. A particularly good example is the assessment of log sills which were installed in the 1990s for restoration and how information from that work has been used to alter the overall focus of the program such as targeting upslope sediment sources mainly due to roads and to confirm the viability of wood structures when used in the stream environment and the modification of their design to ensure juvenile fish passage.

An objective of at least 16% increase in habitat quality by 2018 is provided, but there is no discussion of how or when that is to be measured and by whom. It mentions a target of 3% for 2010-2012 but does not provide any information on if, or how well, that objective was met. It is offered that some increase in habitat quality has been found using 6 habitat attributes through PIBO monitoring, but the proposal is silent on whether that monitoring will continue or if/how it will be coordinated and integrated with CHAMP.

Second, the proposal talks about the benefits of focusing restoration in priority areas citing Reeves et al. 1995 and Frissel and Bayles 1996 that discusses identification of refugia and then building upon them. The proposal also discusses a Watershed Condition Framework and Action Plans that uses selection and focus of essential work in a single focus watershed. The proposal, however, does not identify which watersheds or Assessment units are the highest priority and which have been selected for near term treatment.

Seven objectives are identified, presumably for the time period 2014-2018. Three of these utilize quantitative measures and the remainder only provided metrics that will be used to measure them. There is no discussion of how these will be used or weighted in determining success or how or when that is to be done.

It appears that a good deal of project location, prioritization, and design is contingent upon ongoing assessments, especially for road decommissioning/improvement and fish passage restoration, yet there is no timeline provided for their geographic focus, timing or expected completion. Their phased completion for priority watersheds or their completion for the whole watershed would seem to be critical to ensure that the full suite of conditions are known at the

time of project identification. Additionally, there is little quantification for each of the 13 deliverables that are identified which is likely a result of this situation.

The project has seven objectives. Each has a stated goal, but quantitative success or end points are often lacking. Objective 4 for example, is to restore vegetative diversity. Success is defined as number of acres planted, percent survival of transplanted plants, and control of noxious weeds. However, no quantitative end points are provided, how many acres might be planted per year, what is the survival goal of transplanted plants, what type of plant diversity and density per unit of area are being sought after, and how many acres might be treated for weeds on a yearly basis. Details like this help flesh out these objectives and provide a means for the project to assess its performance.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The current project started in 2007 but is a combination of 3 projects that were being implemented separately with the oldest dating to 1996. A good deal of excellent ecological assessment, restoration, and implementation and effectiveness monitoring has been completed. It appears that there is some indication that past treatments are resulting in improved conditions, especially fish passage habitat quality (PIBO trend) and fine sediment less than 2mm (PIBO). Also, numerous improvements to the location and design of road, culvert, and instream LWD are reported as a result evaluating and utilizing data from past monitoring as well as the use of new science and technology including LIDAR, GRAIPS and ARC GIS Model Builder to improve the location and design of various road restoration treatments. Additionally, there have been changes in project direction and scope and a refinement of limiting factors through completion of the FCRPS BiOp and use of an Expert Panel.

There is a good discussion of the sponsor's response to past ISRP comments. Specific changes associated with monitoring and application of results and design of fish passage at road-stream crossings are described. Percent fines are measured at pool tail-outs, an approach that is probably more appropriate biologically than is often done by other projects, but seems to remain a consistency issue. "Despite ongoing sediment reduction efforts in the Imnamatnoon subwatershed, no conclusions can be drawn in relation to the WRP restoration efforts, due to location and the limited number of sample sites." It is also not clear how complete the response has been in addressing definitions for determining habitat diversity and complexity.

Evaluation of Results

There is a solid track record of results including an improved understanding of the watershed and implementation of a whole watershed suite of integrated, restoration treatments; evaluation and application of past monitoring to improve the design and effectiveness of many restoration treatments; and application of new science and techniques to improve the design and scope of the restoration program.

There appear to be serious impediments to completion of priority work relating to reducing road densities in key areas, with much of those areas in a checkerboard of private and National Forest Service ownership, and in the re-alignment and/or decommissioning of numerous valley bottom, stream adjacent roads which are reported to have significant socio economic issues. These are reportedly being worked on.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Three emerging limiting factors were identified, climate change, invasive species, and spills of fuel or chemicals. The potential effects of all of these limiting factors were clearly presented. Specific strategies to mediate their potential effects were not presented, however. Instead, it is hoped that restoring natural functions, for example, longitudinal and lateral connectivity in the riparian zone, eliminating passage barriers, and decommissioning roads will lessen the potential impacts of these factors. Another potential source of limiting factors, the failure to purchase private forest lands in the upper Lochsa was not specifically mentioned as an emerging issue. Some discussion should be directed to what steps the project may take if private forest lands cannot be purchased and instead are logged or developed. Impacts from these activities could compromise many of the downstream actions being proposed.

4. Deliverables, Work Elements, Metrics, and Methods

The project has 13 deliverables and includes a number of important items, not often included in other proposals including the treatment of dispersed recreation sites, an outreach and education component and a program for conservation easement and land acquisition. However, most of these are not described in quantitative terms apparently due to the fact that many projects are waiting the completion of various assessments or have not been fully-identified and designed. Explanations for why the work needs to be accomplished are provided, and in some cases, a general description of methods is also given. Elsewhere in the proposal specific goals, for example the number and location of planned culvert replacements, are provided. None of the actual work goals that would fall under a deliverable are mentioned making it difficult to determine how work will actually proceed over the course of the project. This type of detail should be included in the deliverables. Additionally, one deliverable covers project management. The activities described in deliverables 2, 5, and 7 should be combined into this deliverable as all of them appear to deal with project management topics.

Specific comments on protocols and methods described in MonitoringMethods.org

There has been a wide variety of past implementation and effectiveness monitoring. There are good examples of how this has provided findings that have had direct relevance in improving current project location, design, and effectiveness. It is mentioned that habitat status and trend information has been useful in this regard and is being provided by the PIBO monitoring program. Unfortunately, there is no discussion of the future status of this monitoring as the program begins using CHAMP.

There is recognition of new programmatic monitoring (AEM, CHAMP and ISEMP) and reported development of a watershed restoration monitoring plan to detail future integration into the ongoing program. This plan is to be delivered in the next 6-8 months, but there is no discussion as to its current status. This is mentioned in Programmatic Comments and review of this plan by ISRP would likely be beneficial.

[201000300](#) - Lower South Fork Clearwater River Watershed Restoration

Sponsor: Nez Perce Tribe

Short Description: This project's goal is to restore the Lower South Fork Clearwater River (LSFC) aquatic ecosystems so that the habitat within these watersheds no longer limits recovery of the ESA Threatened South Fork Clearwater Steelhead population. As an ongoing partnership with the Nez Perce-Clearwater National Forests (NPCNF), the Nez Perce Tribe (NPT) proposes to implement habitat improvement projects to address the primary limiting factors that will increase the productivity and viability of the LSFC.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The ISRP recommends that the project sponsor provide additional information on the amount and quality of habitat for the Leggett Creek fish passage project.

Without additional clarification, the ISRP continues to have questions about the value of the Leggett Creek restoration work, particularly the fish passage project at Highway 14. These questions are due especially to the high average gradient (7.3%) for the 5.6 miles of the mainstem that provide anadromous fish habitat. This steep a gradient would normally indicate less than optimum habitat for steelhead and spring Chinook salmon. The high average gradient also suggests a relatively high potential for upstream barriers both natural and anthropogenic. It is requested that the following additional information be provided at the time of contracting.

1. Length of anadromous fish habitat that will be accessed by the fish passage project.
2. Identification of any other natural or anthropogenic barriers that are blocking historical or potential anadromous habitat on the mainstem or major tributaries.
3. Additional discussion regarding the quality and productivity of the accessed habitat, particularly for steelhead and spring Chinook salmon. Also any details that may be available on current and historical salmon populations would be helpful. This information will be particularly helpful to better understand the sponsors statement "For both spring Chinook and steelhead, Leggett is considered a 'historic stronghold' for habitat and population status and rates a 'very high' in potential for habitat."

Comment:

It appears that there is a generally solid strategic basis for selection and development of this project. The use of subbasin and watershed scale assessments help to provide a foundation for restoration planning. However, given the high average gradient of the mainstem (7.3%), it seems likely that there are potential, natural and/or anthropogenic passage issues that have not been fully addressed. Planning documents indicate Leggett Creek is a high priority and an important stream for Chinook and steelhead. Additional information on how many miles of stream habitat will benefit from the proposed restoration, and some estimate describing the number of adults currently using the stream and/or juvenile densities would have been helpful. Based upon the current information, the proposed work appears to have some potential for fish benefits, but its priority would appear relatively low.

There was some question to understand why "excess fill from FS Road 469" was on the opposite side of the stream from the road. This material must be from dredge mining? Additional clarification would have been useful.

Preliminary ISRP comment requesting a response:

This is a solid proposal with a strong conceptual basis for restoration work. There is good use of a variety of planning documents including a broad scale landscape assessment. The project includes excellent delivery of projects and cost and skill sharing with partners. The proposal actually reflects many of the desired features of ecosystem restoration at the watershed scale. Their appears to have been substantial work to respond to ISRP comments on Technical and scientific methods and on project prioritization, although some questions remain on timing and prioritization of watersheds and related assessments that are planned.

Response requested: More detail is needed to justify why the reconstruction of 1/3 mile of new channel in a previously dredged site on Leggett Creek is expected to be worthwhile, how the reconstruction is to be done, and what alternatives to the reconstruction were considered and why were these alternatives not implemented.

Some additional items, that can be dealt with in contracting include:

- 1) How much habitat quality and quantity might be gained by this major restoration effort at the end of the proposal period (2018) and how does this compare with the habitat improvement goal of 14%, as required by the RPA? Do the sponsors think this effort will achieve the RPA goal? If not, how much more work is needed?
- 2) There are questions regarding the timely completion and content of the NPT Monitoring Plan that is under development.
- 3) Regarding road decommissioning and improvement, NOAA's goal is 1 mile of road per square mile or less. The sponsor has demonstrated that they have the tools to refine this target based

on local information. In discussions, it was agreed that the NOAA number is highly unlikely to be reached and a more strategic approach will be needed with the key being to look at which road will give the best sediment reduction response. Additional discussion on this would be useful.

4) More discussion on what are the strategies to avoid weed control in perpetuity? The sponsors are looking at biocontrol methods, and a primary strategy is planting trees. They are also looking at prevention such as wash stations for equipment. Their weed spray contracts with the County have not had great success. It appears that there is a need for a cottage industry that targets spraying rather than doing broadcast spraying of entire hillsides. An advantage is that Weed Management Areas (WMAs) have been identified.

See the ISRP programmatic comments on the Clearwater River projects.

There were initial ISRP questions regarding whether there were active efforts to prevent further degradation of habitat associated with ongoing and future management activities. A good discussion of this was provided in the presentation portion of the review.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is a long term project that has recently been expanded to provide for treatment of a larger land area in the South Fork Clearwater. The rationale for this expansion appears to be well-founded. The project is well-organized and generally strategic in its approach to restoring aquatic ecosystems. The strong partnership allows access and use of a broad range of multi disciplinary skills and is a major strength of the work to address issues at the watershed scale. There is a solid technical basis provided for the work and a good discussion of key processes and associated approaches for treating them. Use of a broad scale landscape assessment is an excellent tool for understanding conditions and processes and to provide a context for watershed and project scale planning. Good examples of this include the discussion about roads as a primary source of sediment and the focus of riparian treatments on tributary streams to more effectively address elevated stream temperatures.

The proposal also noted that IDEQ has done extensive work to establish Total Maximum Daily Loads (TMDLs) for temperature and sediment for the water quality limited streams and segments. It would be helpful to know if a Water Quality Restoration plan has been developed and if it has been integrated into the current proposal for restoration treatment.

The prioritization of limiting factors provides a good basis for understanding the context of the work. However, the limiting factor summary as weighted by the BiOp Expert Panel is the keystone of the limiting factors section. If, as shown, sediment is given a 38% value (twice that for temperature, barriers, or riparian condition) does that not mean sediment is the dominant problem and should receive priority in designing rehab actions? The proposal seems to give all putative limiting factors equal weight. Further discussion of the link between the focus of restoration work and the listed limiting factors and weights would be useful.

It is stated that the NPT have had numerous discussions on which watersheds are priority for treatment, yet no results of those discussions are provided. A summary would be helpful.

The proposal described its significance to salmon recovery and to programs in the region. Limiting factors were described and used in a process to identify and prioritize habitat restoration and protection activities. The goal for habitat quality improvement in the watershed as described in the BiOP RPAs (14%) was described. Quantitative objectives and deliverables for habitat restoration actions were described, thereby allowing reviewers to have an idea of how much improvement would be accomplished with the \$4.37 million during the next five years. A monitoring program and linkages to associated monitoring efforts were described. Overall, the proposal was well written, and the significant effort was justified. However, it would be good to know how much habitat quality and quantity might be gained by this major effort at the end of 5 years, and how this compares with the goal of 14%, as required by the RPA. Do the sponsors think this effort will achieve the RPA goal? If not how much more work is needed?

This project's stated goal is to restore the Lower South Fork Clearwater River (LSFC) aquatic ecosystems so that the habitat within these watersheds no longer limits recovery of the ESA Threatened South Fork Clearwater Steelhead population. There are some questions regarding Chinook and other fish species. Do they receive specific consideration during planning? From other portions of the proposal, it appears not. Additional review might indicate if anything is being missed that might be critical to bull trout or Chinook?

Additional maps would have been useful in better understanding the proposal and the locations of various past and proposed treatments.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

A long list of accomplishments is provided, and a good track record of efforts to quantify the results is demonstrated, especially for sediment and temperature. Not presented in the main body of the proposal, although a hot link is provided, is some very informative effectiveness monitoring of physical parameters associated with fish passage restoration. This appears to be very thorough and to provide some excellent insights into the functioning of the treated sites. There was less information provided on the results of riparian planting. Of the 71 thousand trees and shrubs planted since 1996, what percent are alive now?

The material on stream temperatures over time is useful but needs additional evaluation to determine whether real declines in temperature have occurred. Figure 7 showing conditions Before/After treatment, but at different seasons, should be deleted. A more powerful assessment would have been between treatment and control locations over time. The design and justification of the temperature objective needs some substantial strengthening. The use of some basic temperature modeling, like that used by the former Potlatch Corporation, needs to be incorporated. It is not clear if that has occurred as part of the IDEQ work.

Some indications of positive results are shown for Meadow and Mill creeks where work has been ongoing for ca. 18 and 13 years, respectively. The sediment criterion being used is 30%, versus a 20% target given in the objective. What is basis for the discrepancy? More importantly, what are sediment conditions throughout the project area where cobble embeddedness is measured? Is it a useful metric? What is the percentage of fines in locations where spawning is actually occurring? Perhaps a more focused objective regarding conditions for spawning habitat would provide a more realistic and useful target.

There is a good discussion of adaptive management as related to project level work. This helps to show how lessons learned have been incorporated into the current and proposed restoration activities. Programmatically, it is stated that a formal adaptive management process will be provided as one section of a watershed scale monitoring plan (NPT). This plan is currently under development and a review draft scheduled for June 2013 and a final by December 2013. It would be helpful to know the current status of the plan relative to this schedule. This issue is discussed more in the Programmatic Comments.

Evaluation of Results

There is useful information provided on results of work for fish passage, sediment delivery/deposition, and elevated stream temperatures. Unfortunately, the watershed-wide context of the fish passage improvements is incomplete due to the need for additional assessments of a large number of road stream crossings in the treatment area. There is information provided to show some positive trends in stream temperature while results for fine sediment are not entirely clear at this point. Some improvements in this monitoring are discussed in item 2 above.

It is stated that PIBO has been monitoring habitat status and trend in the watershed for many years, yet no information is provided to show any potential results from this work. This information would help to better understand any changes in habitat quality and complexity over the period of active restoration.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There is a good discussion of climate change, non-native terrestrial plant effects, and the design of treatment strategies to respond. There is mention of non-native aquatic species, specifically brook trout, but little further discussion is provided on this topic other than they do not appear to currently represent a major problem. Further discussion of potential issues associated with non-native species would be helpful, particularly given the presence of bull trout in the area.

It would be useful to see some additional discussion of climate change and forest health, which appear to be potential major areas of concern given the possible risk of larger, more intense wild fires and related effects to riparian and aquatic habitat.

For the proposal area, it appears that nearly all of the land is on federal or Tribal properties. If some land is privately held, it would be good to know if private landowners will hinder or help the restoration efforts. Also, are there ongoing activities on Tribal and Forest Service lands such as logging and road building that might impact stream habitat quantity and quality? This and other proposals seem to ignore ongoing activities that might offset the improvements that are being made. This concern was discussed in more detail on the site visit portion of the review.

Also, hatchery supplementation efforts were briefly described. Additional discussion of this effort would be beneficial. How many fish are stocked? How many hatchery and wild fish return as adults? Is there evidence of density dependent growth, migration, or survival? How long will hatchery supplementation continue and to what extent does it contribute to harvests? What are the harvest goals for hatchery and wild salmonids in the watershed, and how are harvests managed now to conserve the wild stock?

4. Deliverables, Work Elements, Metrics, and Methods

There is a detailed list of deliverables and their linkage to key processes and associated limiting factors. The metrics for the deliverables appear to be appropriate except for riparian planting where numbers of plants is provided yet the objective relates to 75% expected plant communities. There is no linkage between the two items provided. There is good use of GRAIP to identify and prioritize road segments for improvement. It would be useful to know if this information is also used to identify roads/segments selected for decommissioning. There remain some questions on the background and justification for Deliverable 5, Leggett Creek. This is discussed in initial comments regarding the response requested by the ISRP. Additional maps would have been useful in better understanding location and details of work described.

Specific comments on protocols and methods described in MonitoringMethods.org

Current implementation and effectiveness monitoring has demonstrated some results. There is acknowledgement of the need for improvement and response through development of a watershed monitoring plan. Transition to ISEMP/CHAMP and AEM is discussed and is to be incorporated into this plan. This approach appears to be sound. It would be useful to know if this effort is on track for a June 2013 draft, and for the draft to be reviewed. This suggestion is discussed in the Programmatic Comments.

It is less clear how non-BPA funded monitoring will be integrated into the program in the future. Of particular note, given CHaMP, is the lack of consideration of future plans for PIBO despite its long history of monitoring in the watershed. This appears to be a major opportunity to examine the potential benefits of coordination and partnerships between the two programs.

[200003500](#) - Newsome Creek Watershed Restoration

Sponsor: Nez Perce Tribe

Short Description: Newsome Creek is a main tributary to the South Fork Clearwater River and has historically been a stronghold for steelhead and Chinook salmon. Past land management activities, in particular, dredge mining, have severely degraded spawning and rearing habitat for these species. This project proposes to restore degraded habitats through a comprehensive restoration program focusing primarily on the mainstem channel, floodplain, riparian corridor, and other needs in the drainage.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

This strong proposal represents a significant move forward by explicitly integrating fish metrics into the objectives for habitat rehabilitation. The following qualifications are offered as advice to improve project design and monitoring, and should be addressed during contracting and subsequent proposals. No immediate response to the ISRP is required.

Note the ISRP's programmatic comments on the South Fork Clearwater projects and the NPT M&E Plan. Those comments reflect concerns about:

- 1) how to achieve adequate status and trends monitoring given cessation of Idaho Supplementation Study in 2013, and uncertainty about initiation of CHaMP in this area, which would support inferences from ISEMP.
- 2) how to justify habitat restoration given that past obstructions by Lewiston and Harpster dams have reduced current abundances of Chinook and steelhead adults in the South Fork Clearwater River and its tributaries to levels that are likely too low, even with supplementation, for their reproduction and growth to be limited by the spawning and rearing habitat currently available in these watersheds. Justification for habitat restoration in these watersheds appears to rest on the conviction that adult abundances will increase to recolonize available habitat ("build it and they will come"). Such an increase seems plausible, but no compelling evidence was presented to indicate that it is likely.

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal for Newsome Creek, along with those for the Red River, and Crooked and American Rivers, is designed to restore habitat in the upper tributaries of the South Fork Clearwater River. The proposal includes a good summary of information relevant to the problems and limiting factors being addressed. Particularly helpful for this review were the concise summaries of the population units being targeted, their status, and their relationship to

MPG and ESU viability assessments. The ISRP appreciated seeing consideration of Pacific lamprey and other trout species.

The objectives of the proposed work are clearly significant to regional programs. Two evaluations, the South Fork Clearwater Landscape Assessment and the Nez Perce Forest Plan, state that the South Fork and its upper tributaries have high potential for spring Chinook and steelhead production, mainly due to topography and lack of human development. Factors limiting the production of these species in Newsome Creek were recently updated by the FCRPS BiOp Expert Panel Process and presented in the Newsome Creek Ecosystem Analysis at the Watershed Scale (EAWS). The primary limiting factors are impacts caused by instream mining and dredge tailing placement, sedimentation due to roads, and fish passage barriers.

Of the project's nine objectives, eight address the limiting factors listed above, and six explicitly list success criteria that can be measured. Desired end points for three other objectives, removing anthropogenic barriers, restoring wetlands, and reducing the impact of existing roads, were quantitative but not as fully developed. Criteria for Objectives 3 and 4 need continued refinement to tie them more directly to fish production in the project area. Also note that for Objective 4 there is a discrepancy between the success criterion in the objective (<20% cobble embeddedness) and the goal stated in the Results on page 12 (<30% cobble embeddedness). It remains unclear how the embeddedness criterion was developed.

The section on the proposed monitoring plan (pages 7-8) is well organized and helpful. The proposed case study for action effectiveness monitoring following mine tailing reclamation and stream reconstruction is good to see.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The Newsome Creek Restoration project was planned as two phases. The goal of Phase One was to restore approximately 4 miles of stream in the upper watershed. So far, 2.25 miles of the stream has been restored, 106 LWD structures were added to the stream, and over 44,000 cubic yards of dredge mining tailings were removed. Two new meanders and five new side channels were constructed. The project also decommissioned 26 miles of unneeded roads and improved an additional 18 miles of roads to reduce instream sedimentation. An inventory of all the road crossings in the Newsome Creek project area was completed and passage barriers were prioritized. The two highest rated barriers, one at Mare Creek and another at Mule Creek, were corrected to open up six miles of habitat for anadromous salmonids. Phase Two will address 7 miles of channel from the town site downstream to the confluence with the South Fork Clearwater River.

This proposal demonstrates that advice from the ISRP's review in 2006 has been taken seriously as the monitoring and adaptive management components of the proposal are much improved. Personnel involved with this project were also monitoring and evaluating restoration projects in other parts of the South Fork Clearwater. Lessons learned there have helped to refine how new restoration work occurs in Newsome Creek. For example, tactics for placing large woody debris

have changed from placing logs as point features to placing logs throughout the entire restored portion of the stream. The approach for removing and using mine tailings has also been adjusted. Initially, some tailings were to be left in the floodplain, but this plan was modified in favor of complete removal in order to restore the entire valley bottom.

An important statement is also made regarding this adaptive management: "Being able to use immediate adaptive management on this project has been a huge benefit, and has taken a 'ho-hum' conservative design with a high safety factor into a dynamic, connected stream system that has seen immediate benefits (which are discussed in the results section)." This is an excellent observation and a reminder to all involved, including reviewers, regarding the value of being able to think outside the usual guidelines to make adjustments.

It should be noted, however, that the description of adaptive management in the proposal implies a *passive* approach whereas the ISAB (see ISAB 2011-4) and ISRP promote *active* adaptive management. In the original definition of the term, adaptive management involves deliberate experimentation to reduce key uncertainties, with the goal of improving *future* decisions. This active approach places a value on knowledge to reduce uncertainty in the future as an outcome in itself and requires formulation of alternative hypotheses and an experimental design to test those hypotheses.

Evaluation of Results

This project first received funding in 2011 and has a strong performance record to date.

Phase One restoration of 2.25 miles of Newsome Creek, together with the obliteration of 26 miles of unneeded roads and improvement of 18 miles of remaining roads, has significantly decreased instream embeddedness and increased in pool depth. These rapid improvements are attributed primarily to modified flow due to the addition of LWD.

Floodplain area within the Phase One restoration site has been increased by 45%. Note that the EWAS grossly underestimated the quantity of dredge tailings in the watershed.

Removal of the two highest-priority barriers has opened up six miles of new habitat for anadromous fishes.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Collaboration with U.S. Forest Service staff stationed at the Nez Perce Clearwater National Forest is an important component of this project and the other three NPT restoration projects in the South Fork Clearwater River (Protect and Restore the Crooked River and American River Watersheds, Lower South Fork Clearwater River Watershed Restoration, and Red River Watershed Restoration) all of which share resources, personnel, and equipment with the Newsome Creek Watershed Restoration Project. Other projects that complement the Newsome Creek project are: The Nez Perce Tribal Hatchery, IDFG's Red River Satellite Fish Hatchery, NPT's

B-run Steelhead Supplementation Effectiveness Research, and NPT's Clearwater River Subbasin Focus Watershed Program.

Two emerging limiting factors, climate change and non-native species, were identified. The proposal includes some thoughtful consideration of how proposed actions could ameliorate predicted effects of climate change. Culvert and bridge crossings are designed to withstand 100-year floods. Removing passage barriers has been given a high priority to provide access to cool water refuges in higher portions of the watershed when needed. Riparian plantings and reconnections to the floodplain are expected to help dampen the effects of climate change and provide some cooling influence.

Invasive plants are currently not regarded as a significant problem in Newsome Creek, but weed treatment is routine on project sites where ground disturbance has occurred. Interactions between native salmonids and brook trout were mentioned as another possible emerging limiting factor. Brook trout are euthanized whenever they are captured in the project area to reduce the likelihood of deleterious interactions.

4. Deliverables, Work Elements, Metrics, and Methods

The project has six well-defined deliverables. The first deliverable, for example is to restore the Newsome Creek stream channel. To accomplish this, the sponsors will remove approximately 104,000 cubic yards of mine tailings, create at least five new meanders and side channels plus add LWD. Other deliverables are to re-vegetate riparian areas; decommission and improve roads, replace stream crossings that may interfere with fish passage, and perform effectiveness monitoring using the "Action Effectiveness of Tributary Habitat Improvement: a Programmatic Approach for the Columbia River Basin Fish and Wildlife Program" recently developed by Phil Roni and colleagues. The sponsors are currently working with Roni and other NOAA-Fisheries personnel to develop a monitoring plan specifically for Newsome Creek.

[200207200](#) - Red River Watershed Restoration

Sponsor: Nez Perce Tribe

Short Description: Red River is a main tributary to the South Fork Clearwater River and has historically been a stronghold for steelhead and Chinook salmon. Past land management activities have severely degraded the habitat available for spawning and rearing for these species. This project proposes to restore degraded habitats through a comprehensive restoration program focusing primarily on the mainstem channel, floodplain, riparian corridor, road decommissioning/improvements, and other needs in the drainage.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Comment:

The following qualifications are offered as advice to improve project design and monitoring, and should be addressed during contracting and subsequent proposals. No immediate response to the ISRP is required.

The end points for objective one, “to increase anadromous fish productivity and production, and life stage specific survival through habitat improvement” need to be defined. Targets for survival and productivity should be stated and the rationale used to establish them explained. In short, a better justification is needed. That is, what is the overall plan?

Also note the ISRP's programmatic comments on the South Fork Clearwater projects and the Nez Perce Tribe's (NPT) plan for monitoring and evaluation. Those comments reflect concerns about:

- 1) how to achieve adequate status and trends monitoring given cessation of Idaho Supplementation Study in 2013, and uncertainty about initiation of CHaMP in this area, which would support inferences from ISEMP.
- 2) how to justify habitat restoration given that past obstruction by Lewiston and Harpster dams have reduced current abundances of Chinook and steelhead adults in the South Fork Clearwater River and its tributaries to levels that are likely too low, even with supplementation, for their reproduction and growth to be limited by the spawning and rearing habitat currently available in these watersheds. Justification for habitat restoration in these watersheds appears to rest on the conviction that adult abundances will increase to recolonize available habitat (“build it and they will come”). Such an increase seems plausible, but no compelling evidence was presented to indicate that it is likely.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal for the Red River along with ones for Newsome Creek, and Crooked and American Rivers is designed to restore habitat in the upper tributaries of the South Fork Clearwater River. The proposal includes a good summary of information relevant to the problems and limiting

factors being addressed. Particularly helpful for this review were the concise summaries of the population units being targeted, their status, and their relationship to MPG and ESU viability assessments. The ISRP appreciates seeing consideration of Pacific lamprey and other trout species.

Two evaluations, the South Fork Clearwater Landscape Assessment and the Nez Perce Forest Plan, state that the South Fork and its upper tributaries have high potential for spring Chinook and steelhead production mainly due to topography and lack of development. Factors limiting the production of these species in the Red River were recently updated by the FCRPS BiOp Expert Panel Process and were also presented in the Red River Ecosystem Analysis at the Watershed Scale (EAWS). The limiting factors for Red River were identified as impaired channel complexity, elevated stream temperatures, passage barriers, and excessive sedimentation.

Of the project's nine objectives, eight address the limiting factors listed above, and four objectives, specifically reducing stream temperatures, reducing instream sedimentation, improving aquatic habitat diversity and complexity, and protecting and restoring riparian habitats list success criteria that can be measured. Desired end points for three others, removing anthropogenic barriers, restoring wetlands, and reducing the impact of existing roads, were not as fully developed. The end points for objective 1 (to increase anadromous fish productivity and production, and life stage specific survival through habitat improvement) still need to be defined. Targets for survival and productivity should be stated and the rationale used to establish them explained. Also, Objective 7 refers to Newsome Creek instead of Red River, which is presumably a typographic error.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Approximately two miles of channel was reconstructed at the "Red River Narrows." To complete this project, two acres of mine tailings were removed and the floodplain was re-graded to increase the width of the floodplain from 30 feet to over 100 feet. Stream sinuosity was also increased from 1.0 to 1.3, and three meander bends were added. Forty-one instream structures consisting of LWD, log jams, cobble fans, rock vanes, and other arrangements were added.

To reduce sedimentation, 43 miles of unneeded roads were decommissioned and 13 miles of roads were improved. Working with the U.S. Forest Service, five fish passage barriers have been replaced or removed, and an inventory of road crossings over streams in the Red River subbasin has been completed. Riparian zones have also been replanted. For example, in the Red River Narrows project area approximately 27,000 herbaceous plants of the 1 to 5-gallon size were planted along with 1,654 confers. In another restoration site, the Red River Meadows, approximately 26,000 ten to twenty cubic inch herbaceous and woody stock were planted along with 5,461 woody plants.

Onsite evaluations and results from monitoring programs are being used to adjust restoration approaches. Project monitoring allowed adaptive changes to the size of trees, shrubs, and

herbaceous plants placed in riparian zones, and to the techniques used to plant them. Larger plants are being used, and they are now planted in terraced rows and protected by sod embankments. Culvert replacement has also changed since the project began. Bottomless culverts or bridges are used instead of typical squash pipe culverts so that flood level flows may pass without a large increase in velocity. Additionally, the sponsors are also installing control structures above, below, and in replacement culverts to reduce head cutting. Road decommissioning techniques have also evolved with fertilizer application to disturbed areas being discontinued in favor of pre- and post-weed treatment to reduce the presence of noxious weeds. Finally, changes in project direction and scope have occurred to meet the provisions of the FCRPS 2008 BiOp.

This proposal demonstrates that advice from the ISRP's review in 2006 has been taken seriously as the monitoring and adaptive management components of the proposal are much improved. However, the description of adaptive management refers to the "passive" approach. The ISAB (see ISAB 2011-4) and ISRP promote *active* adaptive management, consistent with the original definition of the term, in which experimentation is deliberate in order to reduce key uncertainties, with the goal of improving *future* decisions. This approach places a value on knowledge to reduce uncertainty in the future as an outcome in itself, and requires formulation of alternative hypotheses and an experimental design to test those hypotheses.

Evaluation of Results

This project first received funding in 2007, but the year of reconstruction of Red River Narrows was not mentioned. Significant changes in sinuosity and the presence of instream structure are evident in aerial photographs following reconstruction of two miles of channel in the Red River Narrows. However, it is not clear to what extent the reconstruction efforts have been successful according to the project's criteria. The limited temperature data were not helpful. Information on survival of plantings was more informative and indicates some success.

The extent to which Chinook and steelhead populations benefitted is also unclear and presumably unknown.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Collaboration with U.S. Forest Service staff stationed at the Nez Perce Clearwater National Forest is an important component of this project and the other three NPT restoration projects in the South Fork Clearwater River (Protect and Restore the Crooked River and American River Watersheds, Lower South Fork Clearwater River Watershed Restoration, and Newsome Creek Watershed Restoration) all of which share resources, personnel, and equipment with the Red River Watershed Restoration Project. Other projects that complement the Red River project are the Nez Perce Tribal Hatchery, IDFG's Red River Satellite Fish Hatchery, NPT's B-run Steelhead Supplementation Effectiveness Research, and NPT's Clearwater River Subbasin Focus Watershed Program.

Two emerging limiting factors were identified: climate change and non-native species. The proposal includes some thoughtful consideration of how proposed actions could ameliorate predicted effects of climate change. Culvert and bridge crossings are designed to withstand 100-year floods. Removing passage barriers has been given a high priority to provide access to cool water refuges in higher portions of the watershed when needed. Riparian plantings and reconnections to the floodplain are expected to help dampen the effects of climate change and provide some cooling influence.

Invasive plants are currently not regarded as a significant problem in the Red River, but weed treatment is routine on project sites where ground disturbance has occurred. Interactions between native salmonids and brook trout were mentioned as another possible emerging limiting factor. Brook trout are euthanized whenever they are captured in the project area to reduce the likelihood of deleterious interactions.

4. Deliverables, Work Elements, Metrics, and Methods

The project has seven deliverables. Four of them are directed toward resolving limiting factors for salmon in the Red River subbasin. Three of these, riparian planting in Red River Meadows, stream and floodplain restoration, and road improvement and decommissioning are well defined. Deliverable 1 (Stream crossings replacements) needs further elaboration. An inventory of creek crossings was completed and several processes were used to identify 56 apparent barriers. How these barriers will be prioritized for replacement or removal is not presented.

The remaining three deliverables deal with project management, potential property acquisition, and action effectiveness monitoring.

[201008600](#) - Protect and Restore the Crooked and American River Watersheds

Sponsor: Nez Perce Tribe

Short Description: The overall goal of this project is to restore the American and Crooked River aquatic ecosystem, addressing all primary limiting factors, such that the physical habitat no longer limits the recovery of ESA-listed Snake River Basin steelhead. As a part of an on-going partnership with the Nez Perce-Clearwater National Forest, the Nez Perce Tribe Watershed Division proposes projects to restore ecological functions to increase abundance and productivity of the focal species and secondary species.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications: There are two qualifications regarding the American River component of the project and one regarding both the Crooked River and the American River component. All should be resolved during contracting:

1) For the American River, FishXing model runs were performed to estimate the effects of two existing culverts on the ability of adult steelhead to migrate into the American River under different flow conditions. Similar runs for adult spring Chinook and juvenile salmonids should also be performed to further delineate the potential impact these structures play on access to the American River at different times of the year and on different salmonid species.

2) The response does not refer to any information from the Idaho Supplementation Study (ISS) or from any steelhead or Chinook tagging/marking/tracking that might have been done in the past that either supports or calls into question the assumption that the American River culverts are impeding fish movement. If any information exists it should be incorporated into the feasibility analysis.

3) The sponsors need to indicate the statistical approaches, e.g., BA, BACI designs, that they plan to use to measure hypothesized increases in anadromous fish productivity and production generated by their restoration actions. Success in achieving Objective 7 (increase anadromous fish productivity and production) will be difficult or impossible to demonstrate if "fish in - fish out" monitoring by IDFG were to be discontinued before 2018. Regional coordination is needed to assure effective monitoring.

The two Clearwater Programmatic Comments also apply.

Comment:

Responses to each of the three ISRP requests were well reasoned, well written, well referenced and generally compelling given the information available. The response satisfactorily addressed the bulk of the ISRP concerns.

The American River culverts were adequately described. Estimates of American River discharge when adult steelhead were expected to migrate into the stream (mid-April through May) were

shown. FishXing software was used to estimate the percentage of time adult steelhead could pass through the existing culverts and enter the American River. The FishXing model runs suggested that a flow greater than 248 cfs through the culverts would block passage by adult steelhead. Table 1 indicates that 64% of the daily discharge rates from mid-April through May during the years 2007-2012 exceeded 248 cfs. In some years (e.g. 2007, 2010, 2011, and 2012) flows exceeding 248 cfs occurred over multiple consecutive days. The assumptions used to estimate stream flow and swimming capacity of adult steelhead were based on available information and were clearly articulated. If they are correct, the existing culverts represent a passage barrier for steelhead adults at flow rates that commonly occur during the spawning migration period. A similar analysis was not done for adult spring Chinook. Such an analysis would have been informative because the arrival dates and swimming capability of this species may differ from steelhead. Additionally, it is stated that the American River could act as a refuge during the summer due to its generally cooler waters and also serve as an overwintering location for salmonids. During these time periods flows would likely be at base levels or slightly higher. It would be useful to perform FishXing model runs at these times of year for juveniles to see if flow and waterfall conditions at the culverts are potentially blocking these fish as well. Results from such modeling efforts would further delineate the effects of the existing culverts on salmonids and other fishes.

Limited stream habitat surveys plus water quality data and stream gradient information were used to estimate the amount of steelhead and spring Chinook spawning and rearing area potentially available in the American River drainage. A figure showing the distribution of these areas in the watershed was provided. The sponsors estimate that about 53 stream miles of spring Chinook and 76 stream miles of steelhead spawning and rearing habitat would be available if passage at the culvert site were improved. Again the assumptions behind these estimates were clearly presented and appear to be reasonable given the current state of knowledge.

Installing a pre-cast concrete arch having a 40 to 50 foot opening with a natural stream bottom is being proposed to alleviate the fish passage problems at the culverts. A bridge and placing baffles in the existing culverts were the alternatives that were considered. The bridge option was rejected because of cost considerations. The use of baffles in the culverts was also overruled because of potential debris buildup and possible culvert failure during high flow events. The sponsors are seeking additional funding from NOAA Fisheries to purchase and locate the concrete arch.

Regarding Crooked River, the response gives additional justification for expecting substantial benefits to fish. The sponsors maintain that significant biological benefits for juvenile fish will be created by the project. Cobble embeddedness is expected to be significantly improved by restoring hydrologic functions. For example, fines will be deposited in reconnected floodplain areas or flushed out of the river. This reduction in cobble embeddedness should improve food production and enhance spawning areas. Additionally, large woody debris will be added to the restored stream to provide cover for juvenile salmonids. Currently stream temperatures during summer months can reach lethal levels for salmonids. Reconnecting hill slope groundwater

sources to the main channel, reducing stream width to depth ratios and planting in riparian areas is expected to ameliorate temperature impacts. A significant amount of floodplain area will also be reconnected to the Crooked River.

None of the potential biological benefits originating from these changes, however, can be realized without fish. Recently 350 to 800 HOR and NOR adult Chinook salmon have returned to the Crooked River. Experimental design constraints imposed by the ISS kept HOR adults from being released into the Crooked River. Those restrictions were ended in 2012, opening the river up to both HOR and NOR adult Chinook salmon. Additionally, 400,000 juvenile steelhead and 400,000 juvenile Chinook are annually released into the Crooked River. It is expected that these fish will benefit from the effects of the planned restoration of the Crooked River.

Two unpatented mining claims do exist in the Crooked River. The sponsors state that there are no plans to activate these claims. Additionally, they assert and that the high cost of a required habitat restoration bond imposed on claimants will prevent the mines from being developed.

The sponsors plan on using AEM to assess whether anadromous fish production has increased in the Crooked and American Rivers. They will use changes in habitat features, counts of adults and emigrating smolts as well as changes in smolt size in their analyses. In the Crooked River, NOAA Fisheries researchers will be developing an AEM plan specific to that project. Past data from a screw trap located close to the mouth of the American River plus historical redd counts within the watershed will be compared to information obtained after restoration to help evaluate how restoration actions in this basin may have influenced salmonid abundance and productivity. The sponsors need to indicate the statistical approaches, e.g., BA, BACI designs, they plan to employ with these data.

Evaluation of Results

This is a relatively new project, but some work has occurred in both the Crooked and American River basins. Three miles of roads were decommissioned in the American River watershed and approximately 6 acres were treated for weeds in the Crooked River in preparation for a riparian planting. Inventories of existing culverts, bridges, and roads were completed in the American River and started in the Crooked River. Starting in 2012, a project using LiDAR, GPS surveying, and other information was used to create a restoration design for the highly altered lower portion of the Crooked River. Another design study examined alternative locations for three miles of the “Narrows Road” which is situated in the floodplain of the Crooked River.

Preliminary ISRP comment requesting a response:

A response is requested regarding three items:

- 1) Further analysis is required to determine how much of a barrier the American River culvert(s) is to fish. More information is needed to justify this substantial culvert project (DELV 5). Refer to comments in section 4 below.

2) The proposed reconstruction of the lower 2 miles of Crooked River (DELV 6) will provide a more functioning watershed, but will the overall fish benefits be enough to demonstrate the effectiveness? Are anticipated returns of fish adequate to justify this kind of effort? What is the status of the mining claim?

3) Explain how success in achieving Objective 7, “increase anadromous fish productivity and production” would be measured. This is a strong proposal in some regards, but results should be judged in terms of improvements to fish productivity and production.

See the programmatic comments on the Clearwater projects.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This proposal is designed to address the limiting factors that were identified in the Crooked and American Rivers by the 2012 FCRPS BiOp Expert Panel process. Dredge mining and road development significantly impacted these two upper tributaries to the South Fork Clearwater River. Particularly helpful for this review were the concise summaries of the population units being targeted, their status, and their relationship to MPG and ESU viability assessments.

The South Fork Clearwater Landscape Assessment and the Nez Perce Forest Plan state that the South Fork Clearwater and its upper tributaries, the Red River, Newsome Creek, and Crooked and American Rivers have the potential to be important areas of steelhead and spring Chinook production after restoration. Restoration work is occurring in Newsome Creek and in the Red River basin. Addressing habitat limitations in the American and Crooked Rivers is of regional significance as successful restoration of these systems will help increase the abundance and persistence of summer steelhead, spring Chinook, Bull trout, and possibly Pacific Lamprey.

The project has nine objectives. They include increasing fish abundance and productivity; improving habitat diversity and complexity; reducing stream temperatures, the presence of fish passage barriers, sedimentation, and the occurrence of noxious weeds; restoring historic wetlands; and protecting riparian habitats and existing critical habitats that are under the threat of development. All of the objectives have success criteria, which is laudable. Some however, need further refinement or explanation. Two measures, an increase in egg-to-smolt survival and an increase in smolt size will be used to measure improvements in fish abundance and productivity. At some point, density dependence effects will reduce smolt size and density dependence may also induce migration from the project area which could disguise survival increases. How will these possible outcomes be taken into account, could other metrics be employed? The objective associated with protecting and restoring riparian habitats has a success criterion of creating a plant community with a 75% or greater species similarity to the natural community. No mention, however, is made of any plant density objective, for example, so many willows per ten square meters of habitat. The wetland restoration objective is not clearly stated, it appears that only historical or identified wetlands that are 5 or more acres will be restored. What was the rationale behind the 5 acre rule?

The overall description of the proposed monitoring plan (page 12) is well organized and helpful, but seems misplaced; it should be under RM&E.

Four objectives require further refinement or clarification. The "success criteria" listed for Objective 1 are not success criteria in the sense of those developed more appropriately for other objectives; instead they are metrics such as linear feet of treatments specific to the proposed reconstruction of lower Crooked River. They should be labeled as such. Objective 7, to increase fish production, should be the overall stated purpose of the project. A critical deficiency is that the proposal does not include provisions, or at least a description of such provisions, for measuring success in achieving Objective 7 (increase anadromous fish productivity and production).

For Objective 4, a success criterion is "to meet a < 20 percent cobble embeddedness metric for the watershed." This metric is vague and should include what particle size and where to be assessed. Reviewers challenge sponsors to become actively engaged in the details of sediment-fish survival relationships including recent studies and to work toward better connecting physical habitat in Crooked and American rivers to anadromous fish.

Similarly, Objective 3 is to reduce stream temperature to specific criteria. It seems time for the sponsors to think in terms of temperature goals that are specifically tied to dealing with limiting factors for a specific life stage of a specific fish species in a specific stream reach. That would entail knowledge of current habitat use and an understanding of how close a given physical attribute in each reach (say temperature) is toward **not** being a limiting factor. Then assess how to maximize the return for a range of possible restoration actions and choose the best.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Even though this is a new project some work has occurred in both the Crooked and American River basins. For example, 2.9 miles of roads were decommissioned in the American River Watershed and approximately 6 acres were treated for weeds in the Crooked River in preparation for a riparian planting project that will occur in 2013. Inventories of existing culverts, bridges, and roads were completed in the American River and started in the Crooked River. The lower two miles of the Crooked River were significantly altered by dredge mining. Starting in 2012, a project using LiDAR, GPS surveying, and other information was used to create a restoration design for this portion of the Crooked River. Another design study in the Crooked River examined alternative locations for three miles of the "Narrows Road" which is situated in the floodplain of the Crooked River. The costs and benefits of four alternative routes were assessed and a preferred route was determined.

Because the project is new, few opportunities have existed for adaptive management. However, the aforementioned Narrows Road project is an example of how data may be used to reshape restoration activities. Originally, the plan was to move the road completely out of the 100-year floodplain and place it on the surrounding hillside or alternatively to use an existing road to access the watershed from a different location. A feasibility analysis showed both of

these choices would be prohibitively expensive. This caused the sponsors to modify their preferred choice; the final alternative now has relocated the majority of the road out of the 50-year flood zone. The sponsors state that they will alter or change restoration actions when new information points them to more effective procedures or methods.

This proposal demonstrates that advice from the ISRP's review in 2006 has been taken seriously as the monitoring and adaptive management components of the proposal are much improved. However, the description of adaptive management refers to a "passive" approach. The ISAB (see ISAB 2011-4) and ISRP promote *active* adaptive management, consistent with the original definition of the term, in which experimentation is deliberate in order to reduce key uncertainties, with the goal of improving *future* decisions. This approach places a value on knowledge to reduce uncertainty in the future, as an outcome in itself, and requires formulation of alternative hypotheses and an experimental design to test those hypotheses.

The description of proposed monitoring under the "Problem Statement" and "Monitoring" (as DELV-13) is generally good. The main deficiency is that the proposal does not include provisions, or at least a description of such provisions, for measuring success in achieving Objective 7 (increase anadromous fish productivity and production).

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

U.S. Forest Service personnel stationed in the Nez Perce Clearwater National Forest are important partners in this project. Personnel, resources, and equipment from the Restore and Protect Red River Watershed, Restoration of Newsome Creek, and Lower South Fork Clearwater River Watershed Restoration projects are being shared with this project. All of these projects are led by the Nez Perce Tribe. Other ongoing studies that complement the American and Crooked River project are the Nez Perce Tribal Hatchery Monitoring and Evaluation, Red River Meadow Restoration (IDFG), and the B-run steelhead Supplementation Effectiveness Research projects. Coordination with the Bureau of Land Management, Idaho County Highway District, and Idaho Department of Transportation will also occur as projects are implemented. The sponsors worked with the River Design Group to create a restoration plan for a portion of the Crooked River. Currently they are working with NOAA-Fisheries researchers to develop a monitoring and evaluation plan for the Crooked River project.

Climate change, invasive species, and toxics were mentioned as possible emerging limiting factors. The possible effects of climate change are influencing proposed restoration actions. For instance, all bridge crossings and culverts are being designed to withstand 100-year floods. Removing fish migration barriers, restoring riparian vegetation, and reconnecting floodplains to their rivers were all given high priorities. These actions are expected to reduce stream temperatures or in the case of passage improvements provide fish with potential cool water refugia. Procedures for invasive weed control have been established. Brook trout are regarded as an invasive species. Their possible colonization of newly opened habitat is considered when fish passage barriers are being prioritized. Scans for heavy metals in the project area occurred

in the 1980s, 1990s, and again in 2010 to see if mining activities had left contaminants. These surveys found that heavy metal concentrations did not exceed expected background levels.

4. Deliverables, Work Elements, Metrics, and Methods

The project has fifteen deliverables. Ten are for specific restoration actions, six of these will occur in the American River, and four of the six are being conducted to improve fish passage. One of the remaining two American River deliverables is for planting trees in a riparian zone adjacent to a part of the stream that had undergone some restoration by the BLM. The remaining deliverable is a place holder for funds to purchase or obtain an easement on the Maines Estate. Prime rearing and spawning areas in the American River exist on the property which may be sold and developed unless the sponsors can negotiate an alternative arrangement with the owners. Four restoration actions will occur in the Crooked River. Two of these are linked to a planned restoration of 2 miles of the stream. One of these is for actual restoration while the other one is for the development of a monitoring and evaluation plan specifically for this restoration action. The other two Crooked River deliverables are for fish passage and road modifications. Three other deliverables (project management, inventories of stream habitat, and weed control) are for activities that will occur in both rivers.

The project has two very significant deliverables that are major efforts. One (DELV 5) is at the mouth of the American River where it is being proposed that two culverts be removed and replaced with a pre-cast concrete arch having a 40 to 50 foot opening with a natural stream bottom. More information about the size of culverts and stream flow information is needed to justify their replacement. A photograph of the culverts was provided, and it appears that they may be 12 feet in diameter, have corrugated bottoms and are undercutting the stream. The sponsors are seeking additional funds from NOAA to design and implement this replacement.

The proposal makes the sweeping assertions that the "barrier at the mouth of American River was identified as a barrier to adult steelhead at high flows and a barrier to juvenile steelhead and Chinook salmon at most flows" and "Replacing this culvert will provide access to around 100 miles of stream habitat at all flows." The statement that access would be provided to 100 miles of habitat at all flows seems doubtful because at some flows there is likely very little fish movement. Unfortunately, the tour did not visit the site. From the photo it appears dubious that this would be the barrier of the magnitude depicted. Justification of the assertions is needed, including a summary of FishX modeling results, a summary of current anadromous fish use, and a discussion of realistic gains if it was replaced. Also, discussion of those alternatives including modifications to existing structures that were considered should be presented, with the rationale behind rejection of each.

The second significant deliverable is DELV 6, the restoration of 2 miles of the Crooked River that had been severely impacted by dredge mining. Mining operations artificially increased the number of stream meanders, denuded the riparian zone, channelized the river, and reduced the floodplain. The sponsors have already worked with a subcontractor, the River Design Group, to develop a restoration plan. They are also working with P. Roni and colleagues at

NOAA to develop an Action Effectiveness Monitoring Plan specifically for this restoration action. Like the American River culvert replacement project, additional funds from NOAA are being sought to implement this project.

Although the sponsors state that action effectiveness and status and trends monitoring will be performed, it is unclear what types of before treatment data might be available. It is mentioned that the U.S. Forest Service, BLM and IDFG are collecting data. Having a brief summary of the types of information collected and how it might be used to help appraise the impacts of the restoration actions proposed here would have been a helpful addition to this proposal.

Again, no deliverables are listed in relation to Objective 7, increase anadromous fish productivity and production. No description of monitoring to measure progress toward objective 7 is provided.

U. Salmon River

[200726800](#) - Idaho Watershed Habitat Restoration-Custer District

Sponsor: Custer Soil and Water Conservation District (SWCD)

Short Description: This project is a multi-stakeholder effort covering hydrologic units that include the Upper Salmon, main Salmon and East Fork of the Salmon River watersheds (excluding the Pahsimeroi). The Custer Soil and Water Conservation District has coordinated this project since 1994 with participation from the Upper Salmon Basin Watershed Project (USBWP). The project scope is to implement high priority action items to maintain, enhance and restore fish habitat and fish passage in the Upper Salmon Basin.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

Although portions of the written proposal need improvement, the site visits and presentations enabled the ISRP to understand the scope, significance, and justification for the proposed work, and its linkage with other important projects. Accordingly, the ISRP is not seeking a response at this time, but the following comments and qualifications should be addressed during contracting and in future proposals.

- 1) Clarify the problem statement to indicate what populations are at risk and why.
- 2) Clarify the objectives, including criteria for success.
- 3) Describe any benefits to fish population status and trends that have been observed, or can reasonably be inferred, and that are attributed to activities in this project.
- 4) Describe provisions for monitoring and evaluation of benefits, and for adaptive management in the longer term.

Comment:

The written proposal could have been improved by including a summary of scores by the Expert Panel and Upper Salmon Basin Technical Team for benefits from past actions taken by the sponsor, together with a more thorough explanation of how restoration of the proposed streams is expected to improve population status of steelhead trout, spring Chinook salmon, bull trout, and west-slope cutthroat trout. The ISRP would also have appreciated a discussion of how increasing abundance of steelhead and spring Chinook in the target reaches and streams would improve the viability status of specific independent populations within Major Population Groups of each ESU.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The proposal refers to general needs for ESA-listed Chinook and steelhead populations as identified by the Expert Panel Process for the 2008/2010 FCRPS BiOp, the Salmon Subbasin Plan, and the Council's Fish and Wildlife Program. However, the background does not demonstrate the regional significance of the proposed projects. Reference to the subbasin plan is very general, identifying elements in the plan that are consistent with the proposed actions, rather than selecting actions in specific locations identified in the plan.

The problem statement begins appropriately by mentioning the number of anadromous salmonid populations in the Upper Salmon Watershed but does not provide a coherent description of current status and factors limiting population viability. The statement should establish the relevance of the restoration sites including Pole Creek and Garden Creek to the Viable Salmon Population parameters of abundance, productivity, diversity, and distribution, for spring Chinook and steelhead, and indicate how restoration at these locations will help meet the RPA 35 obligations and subbasin plan goals. The statement should then summarize the limiting factors and confirm these are based on watershed assessments; summarize the proposed actions to correct the limiting factors; and provide predictions of quantitative benefits in habitat and salmon VSP parameters. As it is, the proposal does not demonstrate that the tributaries to be restored would contribute much in terms of ESA viability for spring Chinook or steelhead or restoration of fisheries. Instead, the text describes components of the proposal with vague references to limiting conditions and streamflow objectives. Improving habitat conditions in lower reaches of tributaries is likely important, but the choice of tributaries for restoration is as important. The sites should provide restored conditions that are resilient and self-sustaining under the existing and anticipated landscape uses including recreation and grazing.

Much of the text on page 4 is misplaced in that it describes project relationships and is redundant to the same text that is repeated under Additional Relationships on page 12.

The objectives as written are not clearly defined. Some of the text within the objectives would be more appropriate as part of the problem statement. It seems that essentially the three objectives are: increase water flow, remove barriers to fish passage, and improve water quality. Note that TAURUS instructs sponsors to state objectives in terms of desired outcomes, rather than as statements of methods and work elements or tasks. Objectives 1 and 3 lack criteria for success.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The narrative provided does not completely answer the questions posed in the proposal form to list accomplishments, relate them to objectives, identify previous proposal objectives/deliverables, comment on whether they were accomplished, and finally, provide an evaluation of whether the deliverables achieved the objectives and restoration goals.

The CSWCD has worked with IDFG to provide alternative infrastructure for irrigation flows, and IDFG has then modified or removed barriers accordingly. These joint efforts have reconnected

flow to Duck Creek, Muddy Springs Creek, Patterson/Big Springs Creek below the #3 diversion, and provided 41 cfs instream flows in Patterson/Big Springs Creek and Pahsimeroi River. Efforts to open access to new spawning habitat in Patterson and Big Springs creeks were successful almost immediately. In 2009 IDFG found 69 redds above the P-9 cross ditch where only two had been found in previous years.

Also, through this project, the CSWCD has fenced areas of the lower Pahsimeroi River providing approximately 4 additional miles of riparian protection and enhancement to reduce temperatures and sediment and worked with landowners and partner agencies to increase vegetation by willow plantings. In the Upper Salmon, including East Fork, one diversion was removed on each of Elk Creek, Challis Creek, and Lyon Creek, and fencing was added along Challis Creek and Lyon Creek to further enhance and protect those systems.

Unfortunately, there is no evaluation of the extent to which habitat conditions have been improved and whether the completed work has yielded improvements in salmon VSP parameters. While the actual monitoring may be completed through other projects, or under the auspices of the Upper Salmon Basin Watershed Project, the results should have been incorporated into this proposal to justify continuing small tributary habitat restoration.

The text under Adaptive Management describes decision making for this project but does not provide much evidence of adaptive management. The sponsor discusses changes in approach and location of restoration actions over the past decade or so. The approach has shifted from actions to address specific issues such as fencing, to broader efforts to address multiple issues that interact within a watershed such as water diversions, fish screens, riparian fencing and stream reconnection. Past efforts have been largely in agricultural areas along lower tributary streams, but recent efforts are expanding to non-agricultural tributaries. Whether enough has been accomplished in small tributaries in agricultural lands or whether there is a lack of opportunity with existing landowners is not discussed. The whole watershed approach to restoration is an important aspect of the sponsors' strategy and more discussion is needed within the technical background.

This project has addressed limiting factors including inadequate water flows, high water temperatures, lack of streamside vegetation, high sediment levels, and physical barriers in the Upper Salmon and Pahsimeroi rivers.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Relationships with project partners are adequately described. The sponsor's ability to negotiate and work with private landowners and water users is probably the chief strength of this proposal.

Under Focal Species, Snake River Spring/Summer Chinook is incorrectly shown as "not listed" rather than "threatened."

Two emerging limiting factors, a decline in marine-derived nutrients and climate change, are discussed. Activities that directly affect natural channel processes that attenuate these emerging limiting factors are said to be “highly valued and pursued.” The sponsor also provides under Large Habitat Project a brief explanation of the solicitation, review, and prioritization process which involves both the Upper Salmon Basin Technical Team and the Action Agency Expert Panel.

4. Deliverables, Work Elements, Metrics, and Methods

The 10 deliverables generally provide adequate detail about the work to be done. The last deliverable, Improve passage and flows in the Upper Salmon Basin, is vague and appears to include miscellaneous activities additional to deliverables 1-9.

The rules for minimum downstream flow regimes (18, 12 or 15 cfs) specified in DELV-1 and repeated in DELV-2 are confusing and appear inconsistent.

It is not possible to assess whether the proposed work will be sufficient to achieve the project's objectives and restoration goals because benefits are not estimated and limiting factors are not clearly summarized in earlier sections of the proposal. Costs for some items, such as bridges, seem rather low. Without a more detailed summary, it is not possible to fully evaluate whether the deliverables can be met.

RM&E protocols are not identified in the proposal so it is not clear how the proposed work, or past work, is incorporated into Upper Salmon Basin habitat effectiveness monitoring. The IDFG monitoring efforts to date were described during the site visits and provided reassurance to the ISRP. However, the planned termination of the Idaho Supplementation Study in 2014 raises some additional concern and is identified elsewhere as a programmatic issue.

[199401500](#) - Idaho Fish Screening Improvement

Sponsor: Idaho Department of Fish and Game (IDFG)

Short Description: The objective of this project is to identify and develop projects that will be implemented under other BPA funded projects, such as 2007-399-00. Some non Capitalization projects will be completed such as diversion removals and stream re-channelization. Projects targeted for implementation include all habitat improvement projects, fish screens, fish passage, stream re-connections, water conservation, water usage efficiencies, and riparian restoration. Work is done in all anadromous waters.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This is a long-established program from a team that appears to have mastered the tasks involved and continues to improve. The detailed review of accomplishments was nicely organized and very impressive. The program appears to be functioning at a high level and providing major benefits to anadromous fish. Prioritization seems to be linked to land and water acquisitions.

It was clearly evident from the site visit that the screening projects are a linchpin in initiating restoration work. Establishing a defined and measurable control of stream flow in conjunction with screen installation enables multifaceted operations that have substantial benefits to anadromous and resident fish and wildlife. In that regard the project is appropriately a planning and coordination effort for restoration projects that are implemented by #2007-399-00.

The sponsor highlighted the need for O&M. To continue to secure the benefits of the screens, O&M costs need to be adequately considered via BPA and Mitchell Act funding.

A mainstem inventory has been completed, but a comprehensive inventory of water diversion and entrainment problems in tributaries and a plan to fix the problems should be developed as a means to guide this program into the future. The proposal notes that 50 tributaries were surveyed for problems and this information is used to prioritize projects.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This project continues to tackle a long list of screening diversions and providing passage at diversions in the study area. According to the proposal, there are over 700 diversions of which less than half have been screened or converted to pumping, so there is plenty of work to do yet. In the last 5 years, the program has expanded into the Clearwater drainage, especially the Potlatch River.

The proposal provides adequate information to show its significance to regional programs. Technical background is adequate in that it has some quantitative estimates of diversion dams

and what has been accomplished to date, including numbers of fish that have been impacted in some areas.

There was some mention that problems in 50 tributaries had been identified, and more information is being gathered about all of the remaining issues, including potential constraints that might hinder restoration and the overall benefit to salmon once the restoration is complete. Given that this is a planning and coordination project, reviewers will in future be expecting a more comprehensive list of potential projects, including information on whether landowner acceptance may be a hindrance.

Objectives need to be quantitative whenever possible. Although this project was largely a planning and coordination effort that facilitated the implementation of projects by BPA Project 2007-399-00, a proposed deliverable included a number of field activities (deliverable 1: realign Bayhorse Creek), which unfortunately was not seen or discussed during the site visit.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

There is a long list of projects that have been completed. The proposal indicates that some random inspections, in addition to O &M, are done to ensure that the screens are still working properly. There is a long list of learning that has taken place over the years on improving the design of the screens and dealing with problems at the diversions.

The proposal provides an informative table showing numbers of gravity diversions, diversion dams, and pump screens that have been treated during each year since 1994. Beginning in 2008 with one exception, this project only planned, coordinated, and designed projects. Unfortunately, the table did not list the number of projects by category that it successfully facilitated to completion.

A few examples of changes in management were described, with photos, and were helpful for reviewers, but no specific adaptive management approach was mentioned. A key issue seems to be the ability to convince landowners to work with the program to improve water diversions, entrainment, and fish resources. A recent publication in a fisheries journal was completed. This accomplishment is commendable.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal identified two emerging issues that are problematic: small hydro development and invasive bivalves. The sponsors note that they are working with the State of Idaho to adequately regulate small hydro and minimize its impacts on fish resources, including ESA listed species, but apparently they have not been fully successful. Given the millions of dollars spent in Idaho on salmon restoration and ESA salmon issues, the sponsor may want to raise this issue with the Council and examine the "Protected Areas" portion of the 2009 Fish and Wildlife Program, Appendix B: Hydroelectric Development Conditions, Section 2, Protected Areas (page 80).

4. Deliverables, Work Elements, Metrics, and Methods

A number of deliverables are listed. The nature of the deliverables is highly variable, ranging from “attend meetings” to “hydroseed disturbed ground” to “administrative oversight.” Quantitative deliverables should be estimated when appropriate, for example Deliverable 14: fish passage barrier elimination. How many barriers will be eliminated? This is reportedly a facilitation effort; how many fish screen restoration activities will it facilitate during the next five years?

Most deliverables did not require methods. A brief description of sampling for fish presence/absence was provided prior to project implementation. There was no referral to MonitoringMethods.org. The proposal should identify what is being done to determine success of the restoration project after completion or refer to the implementation project, assuming it has a monitoring component.

[200739900](#) - Upper Salmon Screen Tributary Passage

Sponsor: Idaho Department of Fish and Game (IDFG)

Short Description: The objective of this project is to implement Capital projects that were prioritized and developed under other BPA funded projects, such as 1994-015-00. Projects targeted for implementation include all habitat improvement projects, fish screens, fish passage, stream re-connections, water conservation, and water usage efficiencies. Work is done in all anadromous waters. These projects may complement other non Capitalization projects such as diversion removals and stream re-channelization.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

The ISRP identifies the following three comments for the decision making process and for the sponsors to consider in further developing the project.

- 1) The O&M costs associated with existing structures are increasing with time, but there are no funding sources identified to deal with these increased costs as structures near their end of their projected lifetimes. These costs should be considered as future screens are installed.
- 2) Objectives are qualitative and lack success criteria. Some success is expected given that screens have been proven effective in reducing salmonid mortality at water diversions elsewhere. During the site visit, the ISRP was provided with quantitative information of the percentage of salmonids saved by screens in the Lemhi and stated that approximately 95% of fish were now protected. The sponsors should identify this analysis in their next progress report and in future proposals.

3) The program should identify the number and percentage of additional significant fish screen or fish passage issues that will remain in the Salmon River basin following implementation of this effort.

Due to the nature of this project, the ISRP did not feel these issues needed to be captured as “Qualifications.” And a response is not requested on these items.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is the capital works list for projects identified in 1994-015-00.

This project is clearly important to regional programs and relates to multiple species of interest. Its relationship to regional priorities and recovery plans is well described.

Technical background is adequate with some quantitative estimates of diversion dams and what has been accomplished to date, including numbers of fish that have been impacted in some areas. The process for prioritizing activities or deliverables is clearly described and seems reasonable.

The objectives are important and reasonable but not expressed quantitatively; there are no criteria for success that would allow retrospective evaluation, for example repair x% of the remaining high priority water diversions in the Salmon River tributaries during the next five year period.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The proposal contains an excellent review of past projects and accomplishments with respect to physical factors like improved water flow, channel connectivity, irrigation efficiency, and screening. The proposal indicates that some random inspections, in addition to O&M, are done to ensure that the screens are still working properly. There is a long list of learning that has taken place over the years on improving the design of the screens and dealing with problems at the diversions.

The collaborative study with NMFS (Walters et al. 2012) quantified entrainment and bypass survival in the Lemhi River from 2003 to 2008. This journal publication is an excellent review of this project’s progress in the Lemhi River.

The narrative under Adaptive Management demonstrates convincingly that past investments in monitoring and evaluation, including surveys to create maps and inventories, have repeatedly paid off for this program in terms of prioritizing activities, identifying areas where usage exceeded water rights or where existing screens and irrigation methods were inadequate, and improving technology and policy for conserving water.

Information was presented on how fish have responded to removals of fish passage barriers and other habitat improvements.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal indicates that this project represents a single coordinated effort for the State of Idaho, and provides good evidence of cooperative relationships among interested parties.

Two emerging limiting factors, climate change and invasive species, are discussed. The proposal has focused on actions rated as high value in addressing threats from climate change by providing greater access to more habitat including cool water refuges. Steps have been taken to ensure staff vigilance to reduce the threat of nuisance aquatic species, especially zebra mussels and quagga mussels.

The program notes the need for O&M and the problem with continued funding for O&M of fish screens. The 1994 planning project identifies screens and diversions that will be maintained. Is more maintenance needed?

4. Deliverables, Work Elements, Metrics, and Methods

Individual projects are clearly identified and succinctly described as separate deliverables. However, the section showing how individual deliverables relate to objectives is repetitious and unhelpful. In most cases the numerous entries repeat a general description of the activity without indicating how, and more importantly, the degree to which it would help to achieve the objective in question.

Some monitoring effort was briefly described for tracking the response of fish after specific projects. The proposal said it would use the ISEMP approach to evaluate 1) changes in distribution of adult anadromous salmon, steelhead, and fluvial bull trout, 2) utilization of rearing habitat by juvenile salmonids in the Lemhi River, 3) changes in productivity, for example juvenile survival, of salmon and steelhead, and 4) changes in species composition, length, and age distribution of anadromous and resident/fluvial salmonids. The proposal should identify how much effort will go into ISEMP monitoring and whether all or a select number of projects will be monitored.

Specific comments on protocols and methods described in MonitoringMethods.org

This watershed is one of the ISEMP Intensively Monitored Watersheds.

[200860800](#) - Idaho MOA/Fish Accord Water Transactions

Sponsor: Idaho Department of Water Resources (IDWR), Idaho Office of Species Conservation

Short Description: The Idaho MOA/Fish Accord Water Transaction Program works to improve instream flow to enhance habitat for the benefit of threatened and endangered anadromous and resident fish species. Water transactions provide an effective and appropriate response to address inadequate stream flows, often cited as a key factor limiting the productivity of both anadromous and resident fish species.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

During the contracting period and for future reviews, the sponsor should develop quantitative criteria for successful fulfillment of its objectives, and it should provide more detail about the recently developed compliance monitoring protocols.

Comment:

This is an important project for improving salmonid habitat quantity and quality. The sponsors are thinking strategically on steps needed to maximize benefits for fish. For example, the sponsors demonstrated during the site visit how the water and land transactions were used to leverage additional transactions. When reading the proposal, the ISRP was concerned that unwilling landowners might constrain key water transactions but important water transactions in the recent past and in the near future were described during the site visit. In future proposals, it would be worthwhile to identify key water transactions that would have the greatest benefit for salmonids regardless of landowner cooperation.

It is understood that the IDWR will conduct compliance and flow monitoring and that other project partners, such as IDFG and ISEMP will conduct biological monitoring that will be used to evaluate both local and watershed level responses to this project. The information provided in the proposal is not sufficient to establish the gain in water in terms of aquatic habitat improvement and fish response. This information needs to be developed in future reporting.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The project is clearly important to regional programs and strongly guided by RPAs in the 2008 Biological Opinion, the Council's Fish and Wildlife Program, and the Salmon Subbasin Management Plan. The problem statement provides a good description of the over-allocation of water issue being faced, and the implications for salmon recovery. It also provides a strong statement about the need for improved monitoring protocols and clearly defined success criteria, and states that protocols for biological monitoring will be developed in 2013. The proposal provides an excellent review of basin-specific issues and collaborative efforts in the Pahsimeroi and Lemhi rivers.

Six objectives are identified, that are the same as the objectives in 2002-013-00, the Columbia Water Transactions project. Since the Idaho MOA/Fish Accord Water Transactions use the same scoring sheet and use 2002-013-00 as part of the screening process, these identical objectives are appropriate.

The objectives lack quantitative criteria for success; future proposals should include such criteria. For example, the paragraph on the Pahsimeroi states that the improvement goal is 41 percent improvement in egg to smolt ratio, but no assessment is given about how much water is needed. Importantly, the proposal does briefly indicate how the variables of interest would be measured.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Since its inception in 2008, this project has reportedly resulted in the completion of over 20 water right transactions that collectively have restored over 60 cfs of flow to key streams in the Pahsimeroi and Lemhi rivers. Two figures show water flow in the Lemhi River watershed including Lemhi L-5 Gage and Little Springs Creek, and a paragraph on monitoring that states that compliance monitoring is in place and compliance reports have been submitted. The proposal describes a process to identify and prioritize water transactions based on criteria approved by the ISRP and an Accounting Framework developed by the CBWTP to track the effectiveness of water transactions; each transaction is categorized by tier (1-4) to determine the appropriate type of monitoring. The proposal also indicates that new compliance monitoring protocols were developed last year, but insufficient detail is provided for an evaluation in this review. Linkages with CHaMP and ISEMP, and their relevance to the adaptive management loop are mentioned, but the design and results to date are not described.

Although flow increases are described in the proposal, the ISRP is unable to confirm that water is being delivered to provide aquatic habitat benefits. The figures are difficult to interpret with regard to additional water owing to water transactions from project 2008-608-00, and at least some actual compliance reporting data needs to be presented along with a graph or text that states how often compliance is assessed and how often standards were met.

For the Lemhi River watershed, the proposal states that the IDWR purchased 8 permanent conservation easements restricting 15 cfs of diversions on the Lower Lemhi River. It is not clear whether these conservation easements are attributable to deliverables for the Accord Water Transaction project 2008-608-00, or the Upper/Lower Lemhi Acquisition Easements project 2010-088-00. The proposal states that these easements provide about half the goal of establishing habitat conditions for passage in the Lemhi, and that the other half are provided by annual flow agreements. The ISRP believes the proposal should elaborate on the sustainability of the annual agreements, and whether these agreements rely on water transaction project funding.

The proposal provides modest details on restoration activities in Big Timber Creek and Little Springs Creek, both in the Lemhi River watershed. There is no specific statement, however, on

the actual cfs flow or total volume of water involved in any transactions. For Little Springs Creek there is a statement that water transactions occurred, but no such information is provided for Big Timber Creek. It is not clear to the ISRP which portions of the described accomplishments are attributable to the water transactions (2008-608-00), easement acquisitions (2010-088-00), watershed habitat (2007-394-00), or Lemhi River Restoration (2010-072-00).

A summary of monitoring of water transactions states that the Columbia Basin Water Transactions Program (CBWTP) has completed development of compliance monitoring and that biological monitoring protocol development is underway. An evaluation of CBWTP water transactions completed in 2007 (Hardner and Gullison 2007) recommended development of physical habitat and biological response monitoring protocols. The CBWTP reported in the RM&E and AP categorical review that those protocols were to be completed in FY 2011. Now it is reported those will be available in FY 2014. Why has effectiveness monitoring been delayed?

Adaptive Management: The information provided in the proposal is mostly a repeat of process and integration with other projects in the Upper Salmon River or Columbia River Basin Water Exchange, and does not explain adaptive management with the MOA/Fish Accord Water Transactions. The sponsor should provide succinct text directly addressing the points identified in the proposal Adaptive Management question.

Since its inception in 2008, this project has reportedly resulted in the completion of over 20 water right transactions that collectively have restored over 60 cfs of flow to key streams in the Upper Salmon River basin (Accord-funded projects). In the Lemhi River, 8 permanent conservation easements have resulted in minimum flows of 25-35 cfs in the lower mainstem. This is significant because flows in the lower river would otherwise be nil during irrigation periods. In the Lemhi River watershed, Big Timber Creek, Little Springs Creek, and Bohannon Creek have been partially reconnected. In the Pahsimeroi River watershed, the program has developed a number of projects that have increased flow and fish passage. These efforts have increased the quantity and quality of rearing and spawning habitat, though the cumulative increase in habitat quantity and quality was not described in the proposal. Salmonids have rapidly re-entered streams that received additional flow.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

IDWR staff works closely with federal, state, tribal, and local agencies, nonprofit organizations, and soil and water conservation districts to prioritize transactions and integrate restoration efforts. Representatives from all project sponsors participate in the Upper Salmon Basin Watershed Program Technical Team, which meets monthly to identify, plan, and prioritize restoration work. All water transactions are vetted through this technical team. The IDWR relies on project partners, principally IDFG through IMW and ISEMP studies, to conduct biological monitoring such as redd counts, adult counts, and smolt counts. The proposal did not describe details of these monitoring efforts.

The proposal includes the typical discussion of expected climate changes and of the types of restoration work that can attenuate the impacts of climate change on anadromous salmonids. These facts are considered when identifying and prioritizing opportunities for water transactions. Additional consideration of land use and human dimensions relating to agriculture and recreation is needed.

4. Deliverables, Work Elements, Metrics, and Methods

The deliverables are generally well described, but deliverables 1, 2, 3, and 7 should be stated quantitatively. The deliverables are clearly linked to the objectives, but without criteria for success, it would not be possible to demonstrate success or failure after implementation. The specific deliverables do not demonstrate how objectives 3-6 will be monitored to demonstrate success. Presumably other entities, such as ISEMP and IMW, will evaluate these objectives, but this is not stated explicitly.

An observation on DELV-1: Planning and Coordination is that the text for the deliverable states that completing water transactions is challenging because there must be a willing seller. In water transaction and other restoration efforts such as riparian fencing, easements, and acquisitions, the ISRP regularly asks the question of whether the strategy of engagement with only willing sellers is going to get the job done before the fish become extirpated from a particular watershed. This question of the efficacy of using only willing sellers needs evaluation, not just for Idaho MOA/Fish Accord Water Transaction, but across the spectrum of habitat restoration strategies.

[200739400](#) - Idaho Watershed Habitat Restoration-Lemhi

Sponsor: Idaho Office of Species Conservation

Short Description: The primary goal of 2007-394-00 is to identify, select, and develop projects for implementation under other BPA projects, such as 2007-399-00 or 2010-072-00. Projects are developed to address identified limiting factors for anadromous fish which improve habitat conditions resulting in increased survival rates. The USBWP facilitates collaboration and coordination of basin wide restoration efforts among local entities and private landowners to implement these projects.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This proposal was less comprehensive than project 2010-072-00, which implements projects developed by this project. During the site visit, it was clear that the efforts of this planning and coordination project were well integrated with the implementation proposal. Ideally for review purposes, the two proposals would be combined into one proposal. The program has a strategy for improving salmonid habitat, and it has a monitoring program to evaluate the response of

fish and habitat. Therefore, the ISRP considered the greater detail provided in project 2010-072-00, and information provided at the site visit when concluding that this project meets scientific review criteria.

The ISRP does not request a response, but we have identified some issues below that could be addressed in future statements of work and proposals.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Significance to regional programs is adequately described. More detail is needed on goals of the project for reducing specific limiting factors in the watersheds. The problem statement should include objectives for focal fish species established in subbasin and draft recovery plans, and a time frame for improvement in both habitat and fish. The technical background should provide an indication of how much improvement is needed and the extent to which this project will contribute to those efforts. The narrative for the objectives should include habitat and fish metrics that can be used for project evaluation. For example, how many projects of each category does it plan to facilitate during the five year project period and to what extent will these projects fix the 2,950 water diversions and the 26 of 30 tributaries that are disconnected from the mainstem?

In addition the USBWP, under Project 2007-394-00, supports two long-term monitoring and evaluation efforts. These two long-term projects include 1) groundwater connectivity studies to evaluate management options relative to existing surface water rights in the Lemhi River and 2) a 15-year grazing monitoring plan to study the effects of reduced, late season grazing inside a fence. These activities were not included in the Objectives but are listed as deliverables. These deliverables were quite different from the planning and coordination projects.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The accomplishments section is too brief for detailed ISRP review. However, a more detailed description of accomplishments and results are presented in project 201007200. The sponsor should provide a more detailed description of the scoring system used to evaluate projects, provide the Expert Panel scores, break the projects down into watershed and type of project, and identify the entity that implemented the project.

Project coordination is certainly important, and providing service to SWCDs and others with planning, permitting, and contracting is valuable. The results section should provide more details on final planning and site selection and alternatives that were considered to address a problem.

The NOAA habitat Expert Panel is used to judge projects for survival improvement benefits before final selection for implementation, which seems appropriate. However, in the accomplishments and results section, the sponsor states that the Expert Panel will evaluate project success by the extent limiting factor status has improved. It is not clear whether this

evaluation is based entirely on weightings given to projects that have been completed, or whether empirical monitoring from field investigations like CHaMP, and fish monitoring, will contribute to the analysis.

Project sponsors are involved in monitoring efforts to address water flow by measuring wells during the irrigation system and to address grazing in fenced pastures. While these monitoring studies are in the early stages of data collection, the designs should be presented in more detail and the observations from annual field investigations provided.

Adaptive Management: Expert Panel input is changing the type and scope of work undertaken, but the proposal narrative does not explain what those influences might be. The project has transitioned from individual site work to an integrated watershed approach attempting to correct various limiting factors. No examples are provided in the proposal. The proposal identified that the Lemhi watershed is an ISEMP, CHaMP, and IMW site and data from these studies have contributed to restoration planning decisions. More information is needed on outcomes for habitat and fish response, including a description of results to date on the riparian fencing demonstration.

According to the proposal, the principal accomplishment of 2007-394-00 was the development of recovery actions to address limiting factors to protect, enhance, and restore anadromous and resident fish habitat and achieve a balance between resource protection and human use in the Upper Salmon River Basin. From 2006 until 2012, the USBWP staff has developed 35 projects and from 2007 to 2012 has implemented 29 projects through the Lemhi Soil and Water Conservation District and other entities. Ground water level has been monitored in wells and fences have been erected to protect riparian areas. Specific outcomes were not described. Implementation of specific projects since 2009 was described in 2010-072-00.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project Relationships: A schematic would be helpful showing how all the projects work together to restore MPGs of steelhead and spring Chinook by restoring and enhancing habitat. Many projects are noted, but what they do in relation to 2007-394-00 is not always clear. This project reportedly provides a planning/design/permitting function, and whether this is provided to all associated projects is not clear. Many Upper Salmon proposals mentioned this project, but this proposal focuses on Lemhi restoration only.

Tailored Questions, Monitoring and Large Habitat: A link to the demo site for project comparison and evaluation is provided. A worthwhile adaptive management question is how does this habitat restoration selection scheme work in comparison to others, and how well are the selected projects meeting subbasin and watershed objectives? Considerable thought has been given to the planning scheme, but whether it is working for the benefit of fish is uncertain. The proposal identifies that site specific projects are no longer a priority, and that whole watershed integration of flow, temperature, sediment, and passage is now the principal driver of developing projects within a single watershed. The proposal states this requires hydrologists,

planners, construction experts, and biologists. Explaining how this integration takes place would be useful. Once a project is selected for development, it is not clear who initiates development of alternatives and a specific design plan.

The sponsors have developed a web-based evaluation and tracking tool to complement their selection process. It would be worthwhile for the team to compare their approach with *Science Base and Tools for Evaluating Stream Engineering, Management, and Restoration Proposals*, NOAA Technical Memorandum NMFS-NWFSC-112 and the web based evaluation tools already developed and peer reviewed. In the presentation to the ISRP, an explanation of the different functions for the projects tracking tool and the River Rat tracking tool was provided. A written explanation should be incorporated into the proposal and projects web tracking tools documentation.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables are generally consistent with the objectives and discussion of project selection, design, and proposal development. However, since there are no funds attached to each deliverable it is difficult to assess the sufficiency of what is being proposed with the extent of habitat restoration that needs to take place.

Metrics and Methods: The proposal states there are no RM&E methods or protocols. However, one deliverable is monitoring of wells to determine the status of groundwater recharge and another deliverable is monitoring of grazing effects. These monitoring activities should be discussed in the RM&E section. The experimental designs should be made public so they can be reviewed.

[201007200](#) - Lemhi River Restoration

Sponsor: Idaho Office of Species Conservation

Short Description: The Lemhi River Restoration Project (2010-072-00) seeks to implement habitat actions developed under 2007-394-00 to protect in-stream and riparian habitat, improve stream flow in the Lemhi River, and assist in reconnecting tributary streams to the Lemhi River to benefit all life stages of Snake River spring/summer-run Chinook and Snake River steelhead.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This is a good, detailed proposal. The ISRP benefitted from the site visit and discussions with project sponsors, including key members of the ISEMP monitoring effort. The Lemhi habitat restoration program has a strategy for addressing previously identified limiting factors of water flow and access to habitat, improving salmonid habitat, and implementing a monitoring

program (ISEMP, CHaMP, IMW) for documenting progress. The program demonstrates broad coordination among stakeholders, and it has a good working relationship with private property owners, based on observations during our site visit, and these relationships are essential for improving salmon habitat. Although not discussed in the proposal, the ISRP was encouraged by the use of Hayden Creek as a control stream when evaluating the response of salmonids to the reconnection of a number of disconnected tributaries to the mainstem Lemhi River. Given that many salmonids seem to emigrate from the Lemhi River prior to winter, the ISRP encourages the program to identify and evaluate overwintering habitat, which is an important life stage for maintaining survival. Overall, the proposal and information gained at the site visit provide an adequate response to the previous review by the ISRP (ISRP 2011-22).

The comments below do not require a response by the sponsors. We provide these comments so that the sponsors may improve subsequent reports and proposals.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The regional significance and background to this Accord project are adequately described. The physical setting, nature of the problem, and an approach to a solution is clearly presented. Three habitat-related objectives and one administrative objective are given. The habitat projects aim to improve passage, to improve riparian and aquatic habitat, and to increase and protect flow. Specificity of the objectives is shown in 32 detailed deliverables. Habitat projects implemented by this project were selected by project 2007-394-00, currently also under ISRP review. Projects selected for implementation under 2007-072-00 were previously vetted by the USBWP Technical Team and received support from the USBWP Advisory Committee. Nevertheless, the proposal provided rationale for the habitat projects. The ISRP recognizes that planning and coordination efforts were intentionally split from implementation efforts, but this approach led to some redundancy and confusion.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

This project merges two former projects with the renamed 2007-394-00, and these projects have been collectively restoring habitat in the Lemhi River since 1994 as the Model Watershed Program. In the problem statement, and elsewhere, the sponsor identifies that there are 2,950 points of water diversion in the Lemhi watershed and 191 stream-alteration permits recorded. Local staff stated a much lower number of water diversions at the site visit. A long list of completed projects since 2009 is provided along with a summary statement that estimation of fish response is difficult to measure but is under IDFG and NOAA responsibility through ISEMP and IMW activities. The sponsors noted that there has been some positive response of salmonids to the reconnection of streams. The Lemhi program appears to have a decent monitoring program in place for adults and juveniles, based on discussions during the site visit, and we look forward to seeing details on how salmonids are responding to the habitat projects throughout the Lemhi basin. Presently, there is no supplementation with hatchery fish and reportedly few hatchery strays, therefore the response of naturally-produced salmonids to habitat changes will be easier to detect.

This project merges two former projects with the renamed 2007-394-00, and these projects have been collectively restoring habitat in the Lemhi River since 1994 as the Model Watershed Program. The proposal provides a long table of BPA funded projects implemented since 2009. These projects addressed key limiting factors for salmonids such as flow, fish passage, entrainment, riparian condition, and habitat complexity. Quantitative results of the habitat improvements were stated in the table. These projects and proposed projects have improved habitat quantity and quality.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The proposal states that this project implements projects identified by project 2007-394-00, but the proposal also describes how projects are prioritized to address factors that limit salmonids. Water flow is a key limiting factor in this region, and the proposal addressed the implications of a changing climate on flow.

4. Deliverables, Work Elements, Metrics, and Methods

Most of the proposed work is directed toward active in stream construction to address anthropogenic disturbance. There are 31 action deliverables and one administrative deliverable. Implementation of these 31 deliverables is a large undertaking, and it will be an important accomplishment. The proposal, in conjunction with the site visit, demonstrates that the sponsors have a strategy for improving salmonid habitat quantity and quality.

[201008800](#) - Upper and Lower Lemhi Acquisition/Easements

Sponsor: Idaho Office of Species Conservation

Short Description: This project will acquire interests in land and water in the Lemhi Watershed. Easement negotiations are expected to result in water related outcomes and habitat improvements. Acquisitions will ensure that properties maintain their current biological integrity while improving the quality of habitat using several prescribed conservation actions. Acquisitions will address limiting factors, including stream flow, migration barriers, entrainment, riparian condition, sediment, and temperature.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This is a good, detailed proposal. The sponsors provide a good description of the prioritization process used to select key properties that will reduce the impact of factors that limit salmonid viability. Coordination and planning are excellent among the five sponsor entities (Idaho Office of Species Conservation, IDFG, Lemhi Regional Land Trust, Nature Conservancy, and Idaho Department of Water Resources) to achieve the common goal of conserving salmon and their habitat while also preserving the ranching and agriculture operations of private land owners. As

demonstrated during the site visit, the sponsors have developed positive relationships with key private land owners, leading to successful conservation easements that protect and restore key habitats and conserve water for aquatic resources. The positive relationships and outcomes with private landowners seem to be instilling social change in the region, which could lead to additional cooperation of landowners for the benefit of salmon conservation. Social change and habitat restoration will take time, but progress is being made in the Lemhi River and other parts of the Upper Salmon River Basin. The Lemhi watershed has been identified as a salmonid stronghold (http://www.wildsalmoncenter.org/programs/north_america/nine_basins.php) in part because of adult salmon returns without supplementation by hatchery fish.

This land acquisition and easement project relies upon the Lemhi ISEMP program and other monitoring efforts of IMW and CHaMP to document change. ISEMP is now able to enumerate adult salmonid abundance using PIT tags and redd counts, and juvenile abundance, size and timing using screw traps, PIT tags, etc. Conversations during the site visit indicate that the land acquisition and easement program is well-coordinated with the monitoring effort. ISEMP members participated in the site visit enabling a more comprehensive evaluation of activities in the watershed.

The ISRP comments below are provided to improve future statements of work, proposals, and reports.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Lemhi River Acquisitions Project (2010-088-00) seeks to permanently protect instream and riparian habitat, improve river flow in the Lemhi River, and assist in reconnecting tributary streams to the Lemhi River to benefit all life stages of Snake River spring/summer Chinook and Snake River steelhead. Conservation easement and fee simple acquisitions are being pursued on approximately 9,086 acres owned by the Leadore Land Partners, LLC Ranch, formerly known as Tyler Ranch, and similar properties whose land values can positively address limiting factors for Chinook and steelhead in perpetuity.

The project is clearly consistent with and designed to accomplish the larger objectives of the FWP, BiOp, Recovery Plan(s), and Lemhi Habitat Conservation Plan. The proposal provides sufficient explanation of the goals along with rationale for cost-effectiveness. A single objective was provided: to improve egg to smolt survival. However, as stated elsewhere in the proposal, the benefits of this project extend to other life stages, for example adult survival from migration to spawning. The objective statement does not include specific measures by which the project would be evaluated, but it did provide a table showing anticipated improvement in egg to smolt survival through the Expert Panel Process associated with specific actions (proposal Fig. 9).

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Two conservation easements were recently completed via The Nature Conservancy, the 1,080 acre Beyeler Ranch and 1,354 acre Cottom Ranch. The proposal demonstrated the benefit of the Beyeler Ranch easement by showing the distribution of numerous Chinook salmon redds on the property, but it was not clear if redds were from one year or multiple years. Based on the proposal text, it was difficult to assess the gain in water remaining in the river and other benefits to fish and wildlife. But during the site visit, it was shown that stream flow in the lower Lemhi was considerably higher in response to multiple upriver actions including this and other projects. Normally the lower river would have been dewatered by irrigation withdrawals in May. Acquisition of these two conservation easements and their importance to salmonids provide evidence of successful implementation of the project. However, the proposal did not discuss what it had originally proposed to accomplish in relation to what it actually achieved. Nevertheless, we recognize that the sponsor has a list of ranked projects and opportunities from which it can seek private landowners that are willing to cooperate.

The sponsor did an excellent job of providing details on the process of developing and evaluating properties. A table of ranked projects in the basin was provided. It is less clear how extensive the acquisition needs to be to fulfill the recovery objectives for each species. A statement on how far along the project is with acquisition versus instream habitat versus riparian improvement versus upland and other landscape measures would be useful in subsequent proposals. That is, how much more is needed in terms of acquiring stream reaches through conservation easements or land purchases; how much is needed in direct instream screening and irrigation diversion work; how much is needed to restore riparian habitat; and how much is needed in road decommissioning and land-use patterns to achieve restoration, including ESA recovery plus fishery restoration, in another 20 or 30 years?

The proposal briefly describes its adaptive management process: to incorporate new information on limiting factors when ranking and selecting projects for implementation.

Evaluation of Results

This project is relatively new, but it has made significant progress. The project is now the combined effort of the Upper Lemhi River Acquisition (2008-601-00) and Lower Lemhi Habitat Easements (2008-605-00) projects. These programs have developed a good approach for prioritizing and selecting projects for implementation. Benefits to salmonids resulting from specific actions have been estimated using an Expert Panel Process. Based on observations during our site visit, the sponsors have developed good relationships with private landowners. This rapport is critical for developing conservation easements, and it appears that this progress may facilitate additional cooperation by neighboring landowners. Two conservation easements were recently completed, the 1,080 acre Beyeler Ranch and 1,354 acre Cottom Ranch. The benefit of the Beyeler Ranch easement is shown by numerous Chinook salmon redds on the property. These acquisitions have contributed to additional water remaining in the Lemhi River.

For example, the lower Lemhi River is normally dry during the irrigation period, but it now has a minimum flow that is suitable for salmonid passage in response to this and other projects.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

The relationship of this project to other projects in the region was adequately described, although it would be useful to know more about the amount of inriver water gained by this project versus the water acquisitions project. The usual discussion of climate change impacts was described as an emerging limiting factor. There was no mention of human population change in the basin, including hobby farms, retirees, and the resulting future land use changes as an emerging limiting factor.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables were briefly described. A key deliverable is the acquisition of the 9,086 acre Leadore Land Partners land, the LLC Ranch and other properties. A list of the other targeted properties and their benefits would be useful.

The proposal provides a detailed description of how properties are prioritized for acquisition in order to address limiting factors, but additional information on M&E should be provided in future proposals. The ISRP understands that the Lemhi is part of IMW, ISEMP, and CHaMP. The challenge will be how specific programs use IMW, ISEMP, and CHaMP data to evaluate their own project in terms of achieving restoration implementation, habitat objectives and ultimately biological objectives.

[200860300](#) - Pahsimeroi River Habitat

Sponsor: Idaho Office of Species Conservation

Short Description: The objective of this project is to continue to develop and implement habitat restoration projects that address factors limiting populations of federally listed spring/summer Chinook salmon, steelhead, and resident species. Projects targeted for implementation include fish passage, stream re-connections, water conservation, and riparian restoration. The voluntary recovery efforts on private lands have been successful in the lower portion of the watershed and are systematically moving upstream.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The responses from the sponsors are generally clear, and the ISRP's qualification can be dealt with in contracting and future reviews.

The qualification is that the sponsor should clarify the relationship of this project with the Pahsimeroi Hatchery and the ISS. It is not clear in the proposal or response what the new integrated program at Pahsimeroi will be, now that the ISS stocking is complete and nearly all fish from this program have returned. The response indicates that a new integrated broodstock management associated with the operation of the Pahsimeroi hatchery summer Chinook salmon mitigation program will be implemented, but provides no details on this program. For example, will hatchery-origin fish be added, or natural-origin fish removed, from the spawning grounds? The issue for the habitat restoration project is how the hatchery program's manipulation of the adult returns might influence the response to habitat restoration by naturally spawning NOR and HOR salmon. How will M&E within the Pahsimeroi River provide information on this? How will it be evaluated? How will the effect of releasing smolts from the hatchery on natural production be measured?

Comment:

Section 1 - We understand that a weir and RST are present at the hatchery to count fish-in and fish-out as part of an ISS project. However, the ISRP is unsure how these are currently being used for evaluating the success of the habitat improvement projects.

The answer to the ISRP was brief but does indicate that the project personnel have knowledge of the current monitoring programs. It would have been helpful to identify the entities and funding sources conducting the Before/After investigation and the aerial survey of spawning distribution.

Section 2 - What are the plans for monitoring once the ISS study is complete?

The response is adequate. The ISRP recommends continuation of the RST to measure fish-in/fish-out on the system. Are there alternatives to the RST if funding is not received at the end of the project? Given the long lead times to investigate alternatives, some planning is needed now if funding is in doubt.

Section 3 - The current ISS study is now in the post-treatment years to examine what happens after ISS stocking is terminated. But the ISRP understands that a new treatment is being contemplated prior to completion of this post-treatment phase. How long will the post-treatment phase be monitored before a new treatment is applied?

See our qualification above.

Section 4 - An ISEMP project takes place in a neighboring watershed; are there any plans to implement an ISEMP on this watershed as well?

The sponsors plan to wait until ISEMP is complete before changing any methods in the Pahsimeroi project. Many of the same people are involved on both projects. Rather than waiting for the end of the ISEMP, are there lessons learned from the ISEMP now that can

improve the Pahsimeroi project, e.g., better tools for data management, better ways to conduct assessment?

Preliminary ISRP comment requesting a response:

Habitat restoration has been ongoing for many years in the Pahsimeroi based on cooperative efforts with willing landowners. The site visit provided a good overview of the efforts and context for many of the decisions made.

The ISRP's response request centers on the monitoring and evaluation of this project.

1) We understand that a weir and RST are present at the hatchery to count fish-in and fish-out as part of an ISS project. However, the ISRP is unsure how these are currently being used for evaluating the success of the habitat improvement projects?

2) What are the plans for monitoring once the ISS study is complete?

3) The current ISS study is now in the post-treatment years to examine what happens after ISS stocking is terminated. But the ISRP understands that a new treatment is being contemplated prior to completion of this post-treatment phase. How long will the post-treatment phase be monitored before a new treatment is applied?

4) An ISEMP project takes place in a neighboring watershed; are there any plans to implement an ISEMP on this watershed as well?

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The Pahsimeroi River project is related to many of the other regional programs that have been developed, and this is clearly described in the proposal.

The ISRP found the technical background a bit too brief. The description of limiting factors and citation to the subbasin plan provides a reasonable starting place to establish a habitat restoration strategy or approach in the Pahsimeroi. The linkage to SHIPUS priority I and priority II reaches and tributaries is also a reasonable beginning point. However, the Pahsimeroi River needs a comprehensive outline for tributary reconnections, diversion screening, diversion consolidation, passage, and riparian restoration to achieve specific improvements in adult pre-spawning survival, spawning distribution, juvenile rearing distribution, juvenile abundance and juvenile condition. The premise is that fixing passage, adding water, screening diversions, and improving riparian condition will yield a net benefit to spring/summer Chinook and steelhead. The problem statement does not indicate how much improvement in fish survival and growth is needed to achieve restoration objectives or how much habitat restoration is needed to improve fish population vital statistics. It would be helpful if some measure of distance to the final goal is provided, for example is the restoration 10%, 50%, 75% complete?

The proposal lists three objectives: to increase survival and abundance of anadromous salmonids, provide improved fish passage to suitable habitat, and increase survival and abundance of resident salmonids. These are all reasonable objectives, but definitive metrics that can be used to evaluate physical habitat improvement and fish survival improvement are lacking. Without such metrics, it will be impossible for the sponsors to make conclusions about the extent of improvements derived from their efforts.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments have been considerable in the 18 years of this project. Because of the volume of activities, the history/results section was limited to selected activities since 2008. Unfortunately, the brief presentation made it difficult for the ISRP to grasp the full extent of the work done. However, the site visit was most helpful in putting the work in context.

A major evaluation discussion is required on how the past actions are meeting restoration goals within the subbasin, BiOp, and Fish and Wildlife Program timelines. The RPA 35.1 objectives for the Pahsimeroi should be included and a summary of projects selected to meet the RPA targets presented. The problem statement should include enough information for the ISRP to determine what RPA 35.1 obligations have been achieved. For example is the restoration 10%, 50%, or 75% complete?

Some thought is needed on how to present this quantity of information in a succinct fashion. Maps and photos may be a better way to convey this information rather than summary tables. For example, the water delivery system in the basin is quite complex and these complexities are difficult to grasp based on the written proposal.

The adaptive management section primarily addressed individual project actions, not whether cumulative actions are achieving restoration objectives. For example, the proposal states that sprinkler irrigation is being adopted to replace flood irrigation and that this change is improving flow, water quality, or physical space in the stream. But details on actual monitoring of these outcomes are not provided.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

There is no mention of projects collecting fish or habitat data in the Pahsimeroi River. This information should be added. Monitoring and evaluation of effectiveness also needs to be added to several sections of the proposal, even when the work is being conducted by others under a different proposal, or by a different restoration program.

Not unexpectedly, the emerging limiting factors identified for this basin are the same as in several other upper Salmon River proposals. One emerging factor not considered is the impact of any anticipated changes in land use or ownership structures.

4. Deliverables, Work Elements, Metrics, and Methods

There is a long list of deliverables including passage barrier removal, fencing, and diversion improvements. Maps summarizing the location of these activities would be helpful.

Projects appear to be based on opportunistic events from landowners who have agreed to have work done. Consequently, there is little description of how priorities are established, alternatives compared, and final design and implementation executed given the need to work with willing participants. More details on how these issues are handled in project development would improve the proposal. Again, the site visit provided much needed context for the ISRP.

Information on compliance and effectiveness monitoring is needed. This monitoring may be completed by other staff and proposals, but, as stated above, the actual tasks need to be discussed somewhere in this proposal.

Specific comments on protocols and methods described in MonitoringMethods.org

The actions are all expected to improve existing habitat, make new habitat available, or improve survival. However, no monitoring protocols were identified.

[200706400](#) - Slate Creek Watershed Restoration

Sponsor: Nez Perce Tribe

Short Description: Slate Creek is a main tributary to the Lower Salmon River and has historically been a stronghold for steelhead and Chinook salmon. Past land management activities, in particular, road building, have severely altered and disconnected the stream habitat available for spawning and rearing for these species. This project proposes to re-connect these habitats by focusing on completing culvert replacements throughout the watershed.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

This is a small program with a narrow scope, but the objective and methods are scientifically sound. There is a good description of regional significance for fish production and recovery of populations at risk. The sole objective is to reduce the number of artificially blocked streams so that zero barriers to anadromous fish exist within the watershed.

Fish species that will benefit from this project are Steelhead - ESA Threatened and Designated Critical Habitat, spring/summer Chinook salmon - ESA Threatened and Designated Critical

Habitat, bull trout - ESA Threatened and Designated Critical Habitat, Westslope cutthroat trout, and rainbow trout.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The project has followed a sound, logical course in its recent history. In 2007-2008, surveys were completed on culverts, bridges, and fords. A screening process was used to assess high and moderate problem culverts, bridges, and fords. This screening took into account stream gradient, slope position, soil types, and potential stream habitat. Survey data were entered into the Fish Xing program, and the culverts were prioritized for replacement. Information used in the prioritization exercise consisted of the following: potential habitat upstream miles, slope, stream gradient, fish species present, fish usage, and the rating from the Fish Xing program. To date, three of these crossings have been replaced by the NPT in cooperation with the NPCNF.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Adequately covered in the proposal

4. Deliverables, Work Elements, Metrics, and Methods

This project proposal focuses on continuing the effort to replace the high and moderate priority fish passage barriers within the watershed. All crossings have been prioritized with up to three undergoing engineering survey and design in 2013. The sponsors will continue implementing one culvert replacement per field season. The prioritization document listed 16 crossings total to be replaced.

The use of the passage model was good, although sponsors are not directly assessing fish passage.

Provisions for implementation and compliance monitoring are built into the proposal. Action effectiveness monitoring is proposed and will be part of the NPT AEM plan in 2014. Details are to follow later in 2013, as for other Nez Perce Watershed proposals. At present there is no plan evident for status and trends monitoring. Please refer to programmatic concerns about the lack of explicit plans for status and trend monitoring.

[200712700](#) - East Fork of South Fork Salmon River Passage Restoration

Sponsor: Nez Perce Tribe

Short Description: The overall goal of this project is to restore the aquatic ecosystems of Big Creek and the South Fork Salmon River, addressing all limiting factors, so that the physical habitat within these watersheds no longer limits recovery of ESA Threatened summer Chinook and steelhead populations. Habitat improvement projects proposed by the Nez Perce Tribe (Tribe) in partnership with the Boise and Payette National Forests (Forest), aim to increase the productivity and viability of these threatened fish.

ISRP recommendation: Meets Scientific Review Criteria

Comment:

This is a detailed, well organized proposal. The effort targets a number of key limiting factors previously identified for the watershed. The South Fork Salmon appears to be a watershed worthy of restoration based on the description of historical abundance. Quantitative deliverables were provided. A fine sediment goal of 28% seems high compared to recent review estimates of 14% for achieving high survival, but the sponsors justified the estimate based on NOAA criteria for this region.

The program relies on ISEMP and Action effectiveness monitoring conducted by other programs. NPT will conduct their own monitoring where others are not present. It was not described how these monitoring efforts would be coordinated, and that should be included in future proposals.

The lengthy proposal reflects a great deal of preparation effort and is clearly written. Proposed actions seem to have a good likelihood of improving spawning and rearing habitat for fish over time.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The objectives of the proposed work are clearly significant to regional programs. The proposal includes an excellent summary of information relevant to the problems and limiting factors being addressed.

Particularly helpful for this review were the concise summaries of the population units being targeted, their status and their relationship to MPG and ESU viability assessments, and the degree of hatchery influence and demographic trends.

The problem statement includes a rich, compelling, and succinct explanation of limiting factors and indicates what aspects of the limiting factors will be addressed in this project.

The well-organized and well-reasoned section on proposed monitoring from compliance to status and trends was much appreciated, although it seems out of place in the problem

statement. The ISRP appreciated that two of these rivers will be linked to CHaMP and ISEMP status and trends monitoring.

The five objectives are relevant and clearly defined; most are at least partially quantitative with explicit criteria for success or desired outcomes. An exception is Objective 3, protect and restore riparian habitats, for which no target is identified.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

The effort to explain activities to date and to present preliminary evaluations of results is commendable. The informative tables and figures, well-reasoned discussions, and the overall attention to detail inspire confidence in the abilities of the project sponsors to complete this project and obtain meaningful results.

Descriptions of documented evidence from other studies and summary of lessons learned all show evidence of adaptive management and thoughtful consideration of previous comments by the ISRP. There is good detail on the use of GRAIP and other results.

Much attention was paid to describing the process by which efforts are prioritized. Graphics, maps, and photos were helpful.

The Adaptive Management discussion explained how project operations, especially protocols for assessing sediment delivery from roads and success of tree and shrub planting, have been improved from previous efforts. Well done.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

A detailed section on collaborative activities provides compelling evidence of extensive and apparently successful project relationships.

The sponsors effectively presented the expected consequences of climate change and the implications for how restoration activities should be prioritized and implemented.

4. Deliverables, Work Elements, Metrics, and Methods

Deliverables are described in commendable detail, but it is occasionally difficult to identify quantitative targets. In particular, the target for DELV-6 (Mine restoration) is vague.

Deliverables, work elements, and methods are well organized and clearly linked to objectives. The summary provided quantitative deliverables, which can then be used to judge whether the project was successfully implemented.

The sponsors largely rely upon CHaMP and ISEMP monitoring that is conducted by others in most watersheds; NPT will implement monitoring in remaining watersheds. The previous ISRP

review mentioned the need for juvenile monitoring to determine the response to cleaner sediments. The monitoring description was the weak part of this proposal, largely because details were not described. The proposal referenced other monitoring efforts but did not describe in enough detail how the regional programs were to be conducted to evaluate fish responses.

[199405000](#) - Salmon River Habitat Enhancement

Sponsor: Shoshone-Bannock Tribes

Short Description: The primary goal of the Salmon River Habitat Enhancement (SRHE) Project is to restore, enhance, and monitor habitat and anadromous fish in the Yankee Fork Salmon River (YFSR). The SRHE Program will perform status and trend and action effectiveness monitoring within the YFSR using Columbia Habitat Monitoring Protocol and assist with habitat restoration actions within the YFSR. SRHE will monitor and evaluate the effectiveness of habitat restoration actions.

ISRP recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

1) The Shoshone Bannock are developing an RM&E plan that the ISRP should review when complete. The RM&E plan should communicate what they expect to know after CHaMP is completed including what hypotheses are to be tested. The RM&E plan should also describe how fish monitoring will be accomplished and integrated with evaluations of steelhead and Chinook hatchery production effectiveness.

2) Implementing Deliverable 1. *Increase habitat function and diversity with the Yankee Fork River System* is contingent upon a Meets Review Criteria recommendation for 2002-059-00, which has a Response Requested in the preliminary review.

Comment:

This proposal is primarily for CHaMP monitoring in the Yankee Fork Salmon River. The CHaMP monitoring protocols have been thoroughly reviewed elsewhere so there is no question these are appropriate. It appears that this work should be done. While the monitoring of habitat is worthwhile, the eventual goal is more fish. Where and how this objective is being monitored is not specified in the proposal.

For Deliverable 1: *Increase habitat function and diversity within the Yankee Fork River System*, the proposal was not effective in communicating to the ISRP those habitat restoration tasks developed through project 2002-059-00 (Yankee Fork Salmon River Restoration) to be implemented by project 1994-050-00.

The ISRP urges that in any future proposal the project sponsor develop clear links with a watershed assessment, well developed restoration alternatives, and specific strategies.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Significance to Regional Programs: The text is not particularly clear, but the linkage of work in the Yankee Fork Salmon River to the 2008 BiOp and Salmon River recovery plans is obvious. What is not discussed is the function the Yankee Fork might contribute to maintenance of independent populations of salmon or steelhead under the ESA versus improving habitat for improved post-release survival of hatchery production. In the 2012 LSRCP steelhead symposium, there was discussion of a plan to have increased hatchery steelhead releases in Yankee Fork. In the TRT analysis of spring Chinook, the Yankee Fork population is not required for delisting and its status with regard to introgression and replacement by Rapid River hatchery remains unresolved. In the Crystal Springs Hatchery Master Plan, the role that the Yankee Fork may serve in delisting was not resolved. The goal for natural production in Yankee Fork is not clearly integrated with hatchery production and harvest objectives.

Technical Background: The discussion in the problem statement does not provide the information the ISRP needs to understand the ecological and technical features of the proposed work. The technical background should establish a goal statement that is unambiguous in providing a guiding vision of project intent by articulating a desired end condition. The goal statement should be followed by objective statements, which should ultimately be specific, measurable, achievable, and time specific.

A summary of the Yankee Fork Technical Assessment completed by the BOR should be provided with an indication of the specific restoration elements being proposed reflect the watershed assessment including how watershed, reach, and site-specific limitations are being considered, alternatives evaluated, and life-stage survival and production gains anticipated from restoration actions.

Objectives: There are two objectives, both in reference to Yankee Fork: 1) increase habitat function and diversity, and 2) monitor status and trend and action effectiveness. The text under the TAURUS objectives appears backwards. Text for objective 1 applies to objective 2. The TAURUS objectives would be sufficient but should be expressed in the problem statement with tighter ties to steelhead and Chinook salmon populations.

In the objectives section of the proposal mention is made to a Master Plan. The plan should be cited, and attached to the proposal.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments, Results: The major accomplishments were habitat restoration projects such as fencing streams to keep cattle away to protect riparian habitats.

It does not appear that any monitoring of the effectiveness of past work was done so that no before treatment snapshot of the habitat is available to compare to what happened after fencing. For example, have the exclosures been successful in keeping cattle out or improving riparian habitat?

Habitat or fish monitoring effort was reported in only 2011. It is not clear what portion of the budget, as a proxy for time and effort, was intended for monitoring versus habitat restoration in the 2007-2009 proposal. The ISRP review in 2006 recommended that all the effort be directed to monitoring.

No evaluation of the success of implementation was provided. Much of the work was in cooperation with other agencies and Trout Unlimited. The justification for the work performed is not provided, and any role beyond incidental labor is not clear. There is no indication of how the project staff was involved in the watershed assessments used to justify the actions to correct limiting factors. It is not clear that the work addressed the fundamental landscape features leading to compromised ecosystem function, that is, the cause rather than symptoms.

In future proposals, there is a need for the sponsors to clearly explain what work elements and deliverables were proposed for each year, and how those compare to what the staff actually accomplished during each year.

Annual reports have not been updated since November 2011.

Adaptive management: The sponsor recognizes the need to have habitat condition status and trends data collected in a robust design to provide guidance to evaluate the efficacy of past restoration projects and design future ones. To improve the field data, the sponsor is adopting the CHaMP protocol. For three years, CHaMP technical staff will be subcontracted to collect data in the Yankee Fork and train Shoshone-Bannock tribal staff. Shoshone-Bannock tribal staff will assume primary CHaMP collection after that period. There was no discussion of whether evaluation of past restoration projects has resulted in reconsideration of action alternatives.

Evaluation of Results

A brief summary of an irrigation diversion removal and fencing projects is provided. No assessment of success or failure is provided, nor is there discussion of how these activities have informed future habitat restoration project development. Because there is no comparison to annual statements of work, or to the 2007-2009 final proposal, it is not possible for the ISRP to judge whether the amount of work completed is reasonable.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project Relationships: Adequate.

Emerging Limiting Factors: The sponsor recognizes that climate change is likely to alter the hydrograph in the Yankee Fork. Other potential factors, like increased or decreased recreational use of the Yankee Fork watershed, second home development, or future mining were not discussed.

4. Deliverables, Work Elements, Metrics, and Methods

Past work has been livestock exclosure fencing, but the first deliverable is quite different with channel work, replanting, and restoring wetlands. Much of this part of this project is in support of Yankee Fork Habitat Restoration 2002-059-00. It is not established how much of the implementation is conducted by 1994-050-00 or whether this project is providing CHaMP monitoring for these listed actions. Deliverable 2 speaks to establishing the monitoring protocols, but it is not clear if all the sites are located in the Yankee Fork, or which projects are being targeted for before/after monitoring?

CHaMP Deliverable: The CHaMP pilot has been reviewed by the ISRP and is proceeding with broader implementation. It is appropriate that the Shoshone-Bannock Tribe adopt the CHaMP protocol in order to integrate with other habitat status and trend and effectiveness monitoring in the Columbia River basin.

The Habitat Restoration Deliverable could be more specific about restoration work to be accomplished and why the other YFSR projects need resources from 1994-050-00. In the 2007-2009 project review, the ISRP recommended that this project focus on monitoring. No explanation is provided on why habitat restoration continues to be included in the proposal. The budget through 2018 indicates that \$400,000 will be allocated to habitat restoration and \$800,000 to habitat status and trends monitoring. However, there is no explanation of what the funds will be used for and no justification for habitat restoration work based on summaries of assessments and consideration of alternatives in this proposal.

[200205900](#) - Yankee Fork Salmon River Restoration

Sponsor: Shoshone-Bannock Tribes

Short Description: This proposal is for implementation of habitat improvement activities in the Yankee Fork of the Salmon River through 2018. Habitat improvement activities have been identified and prioritized based on limiting factors, existing conditions, and proposed metrics. The proposed habitat improvement activities will enhance physical processes and address limiting factors for ESA listed anadromous fish in the Yankee Fork, Salmon River.

ISRP response loop recommendation: Meets Scientific Review Criteria

Comment:

In response to the Northwest Power and Conservation Council's request, the ISRP expedited its evaluation of the Shoshone-Bannock Tribes' project titled Yankee Fork Salmon River Restoration (#200205900) as part of the Geographic Review. The ISRP asked for a response in its Preliminary Report for the Geographic Review ([ISRP 2013-4](#)). The Tribes responded to the ISRP concerns, many of which were identified in previous reviews of the project (see [ISRP 2012-10](#)). The ISRP submitted a final review memo to the Council on July 25, 2013 ([ISRP 2013-9](#)). The ISRP's scientific review comments are provided below.

The ISRP appreciates the complete and timely response. For the most part, the detailed and elaborate response materials effectively address the issues raised in the ISRP's preliminary review. The sponsor should consider and address the ISRP comments below in project contracting, implementation, monitoring, results reporting, and future reviews.

Preliminary Review Question 1. Winter Cover in Pond Series 3

The ISRP appreciates the new information and excellent photographs regarding winter habitat conditions at work sites. We agree with the response observation that, while not immediately obvious, adequate winter habitat has indeed been created as part of the Pond Series 3. The work on Pond Series 3 should serve as a useful template for ongoing efforts.

It will be interesting to see the effective life-span of some of the smaller trees used to provide cover over part of the project area. It seems likely that trees spanning the channel and situated above the water surface will likely decay rapidly and may lose their effectiveness as overhead cover. This possibility should be tracked as part of project monitoring.

The project focuses on creating "low-velocity (0–25 cm/s), moderate-depth (40–80 cm) pools that contain cover, which will primarily consist of wood" under the assumption that these are habitats selected by juvenile fish during the summer and are critical for overwinter survival. As noted below, some localized monitoring should be done to see if the habitat is actually being used.

Preliminary Review Question 2. ISRP Qualifications from the 2012-10 Review

a. Specific quantitative objectives for VSP parameters

The sponsor states that fish monitoring is conducted by another project. This response misses the point. The ultimate purpose of the project is to improve the status of steelhead and spring Chinook. This project should be using and evaluating itself with a yard-stick based on salmon and steelhead abundance, productivity, spatial distribution, and diversity. It is important for habitat projects to keep the overall goal of improved salmon and steelhead population status in mind when planning, implementing, and evaluating habitat restoration actions.

b. Physical habitat objectives

The sponsor indicates that existing and target metrics for physical habitat conditions in the project areas are provided in Table 6 of the Yankee Fork Fluvial Habitat Rehabilitation Plan (Reclamation and Tribes 2013, Document ID P132500). CHaMP methods will be used for evaluation. This information satisfies the qualification, but at least a summary of Table 6 should be provided in the proposal and, when appropriate, in annual reports so readers can easily locate the information.

c. RM&E Plans - physical and biological monitoring

Our 2010 review of the project (ISRP 2012-10) asked that the sponsor describe monitoring and evaluation sufficient to evaluate fluvial geomorphic conditions following habitat construction and fish population response. The original proposal did not have a habitat monitoring plan available at the time of the geographic review, but the tribes have now submitted a plan (The Fish Habitat Monitoring Plan for the Yankee Fork Watershed [WSI, 2013], Document ID P132591). The plan is based on CHaMP methods and a modified BACI design. With the understanding that the Council, BPA, and the Tribes requested an expedited review, the ISRP has focused on the restoration activities of the project and provides only a limited review of this M&E plan. We offer general rather than detailed comments to improve the plan and project evaluation.

The WSI (2013) document describes a habitat-monitoring plan. Monitoring at the watershed level for fish population responses is described in project #2008-905-00. However, some smaller scale fish population monitoring is needed as the two monitoring plans mentioned above will be insufficient to answer some important questions. For example, do fish move from existing (presumably poor) habitat to the new, restored habitat? WSI (2013, Section 3.2) also recommended that “the fish study design be developed and implemented with the habitat study design to best elucidate how restoration actions influence fish populations.” Local monitoring is important to help the sponsor develop the most efficient designs to improve overwinter rearing habitat in this very harsh environment. This issue can be addressed in the statement of work and evaluated in future reviews.

The ISRP continues to note that CHaMP is a summer physical habitat protocol and important winter attributes may be missed. Additionally, food web and chemical features of the environment may not be detected using CHaMP methods.

Preliminary Review Question 3. Identify Key Habitat Attributes

The discussion of target habitat attributes and fish life stages were clear, detailed, and the conclusions appear to be logical and supportable.

Preliminary Review Question 4. Budget and Logistics

The ISRP understands that these are internal administrative decisions that fall within the purview of the Council, BPA, and Tribe.

Evaluation of results

The program, in conjunction with its partners, has accomplished the following actions to date:

- Yankee Fork Tributary Assessment
- Pole Flat Area Baseline Condition Assessment
- Bonanza Area Reach Assessment
- November 2012 completion of Pond Series 3 side channel
- Yankee Fork Fluvial Habitat Rehabilitation Plan

Preliminary ISRP comment requesting a response:

A response is requested to address the following items:

1) More information is needed about the apparent lack of overwintering habitat and cover for juvenile anadromous fishes created in the just-completed Pond Series 3 channel. The root wads and sufficient overwinter habitat complexity expected by the ISRP were not evident during the site visit. A project engineer mentioned that they were not able to obtain the large wood material from the U.S. Forest Service. If that is the case, the ISRP has concerns that the PS 2 and 4 pond series renovation proposed for the upcoming funding period will have winter habitat issues as well, and that should also be addressed.

2) Qualifications identified in the ISRP 2012-10 review are not resolved based on information provided in the current proposal. See the detailed explanation in the Results, Accomplishments, and Adaptive Management section below.

3) The three objectives, to reconnect historic channel and floodplain interactions, to enhance floodplain and instream complexity, and to conduct adaptive management, including monitoring, seem reasonable. The response, however, should identify the key habitat attributes

that are desired and discuss what fish species and life stages will benefit and how they will benefit.

4) The project budget is entirely allocated to contractors beginning in FY 2017. It is not clear from the proposal whether the sponsor believes construction activities for habitat restoration will be complete in Yankee Fork at the close of this proposal in 2018.

Other comments are provided below as feedback for the sponsors for future consideration. The Yankee Fork restoration project is closely associated with the Bureau of Reclamation and Trout Unlimited and has employed a reasonable planning path from subbasin and recovery plan to tributary assessment to reach assessment. The Bonanza Reach Assessment concludes that site specific evaluation is needed before actual project selection and design is initiated. The ISRP believes this approach is justified in pursuing restoration of the Yankee Fork. However, the tasks required to complete the planning are not described in the proposal. Also absent is consideration of the mechanism to determine a preferred approach among various options, which include biological benefits, risks and potential benefits from active management at any specific site, and social challenges such as willing landowners. This discussion needs to be included in Annual Reports.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

The proposal to rehabilitate dredged landscape in the Yankee Fork floodplain has been identified in previous reviews. However, the prime benefits were not clear in the proposal, for example juvenile habitat or over winter habitat. The current proposal adequately describes its significance to regional programs. The restoration of the dredge-mined section of the Yankee Fork is identified in the Salmon River subbasin plan, Draft Idaho Recovery Plan, BiOP RPA 35, and is generally consistent with policy and science elements in the 2009 Fish and Wildlife Program.

Technical Background: The sponsor should provide a goal equivalent to a vision statement regarding the status of fish and habitat. Specifically, is there a goal of establishing habitat sufficient to support self-sustaining populations of spring Chinook and steelhead? Reference should be made to the Yankee Fork Technical Assessment and the Bonanza and Pole Creek reach assessments to explain briefly the historical, current, and anticipated restored habitat. The Executive Summary provides the title of several construction projects which should be briefly explained in the technical background. Questions remain such as how do these projects help achieve the Yankee Fork goals and how were they selected using the watershed and reach assessments? In particular, the Bonanza assessment identifies a process of alternatives development. The technical background should provide a paragraph or two on what alternatives were considered and explain why the listed projects were chosen as the preferred alternatives.

Objectives appear consistent with the Fish and Wildlife Program and BiOp RPA. The specific long-term goal of a 30% survival of spring Chinook salmon from egg to smolt seems optimistic.

The BOR Tributary Assessment that was part of the previous review is quoted as indicating that the Pole Flat and Bonanza reaches "had the highest geomorphic potential" and that they, in addition to Jordan Creek represent 90 - 95% of the improvement potential. It was not clear how that conclusion was determined.

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Information presented on past accomplishments is contradictory. The summary table shows only water quality information collected, but later sections show that several assessments, PS3 side channel construction, and establishment of a monitoring plan have been completed. In the accomplishments section there is mention of a Yankee Fork Habitat Monitoring Plan, which is a component of the Shoshone-Bannock Tribe's RM&E Plan under development. The accomplishments section goes on to report the implementation of field studies will begin in 2013. The larger Tribal RM&E plan and the Yankee Fork plan need to be included. The SRHE project states that they will be collecting habitat data for the Yankee Fork, but in 2013 the work will be contracted to CHaMP. All of these elements need to be discussed, in more detail, in future proposals.

Adaptive Management: The sponsor has demonstrated willingness to follow-up on ISRP recommendations to establish benefit goals for salmon and habitat, conduct reach assessments consistent with the tributary assessment, and use those assessments to develop habitat restoration actions. However, a direct link from the reach assessment to proposed individual actions is not transparent. Also, the reach assessment does not present a clear set of alternative choices to achieve the habitat restoration goal, rather a set of actions that all appear necessary to some degree. The reach assessment does not help with establishing a balance among the actions given the list of social and cost constraints. The overall Yankee Fork restoration effort leaps from the reach assessment to well-developed plans for P3 and P2.

Response to past ISRP qualifications: In a cover letter accompanying the proposal submission the Shoshone-Bannock Tribe addresses qualifications raised by the ISRP in the review of PS-3 (ISRP 2012-10). The ISRP identified three qualifications needing further development: a) biological objectives for focal species in terms of Viable Salmonid Population parameters, b) physical habitat objectives developed in reach scale assessments consistent with the Tributary Assessment, and c) monitoring and evaluation sufficient to evaluate fluvial geomorphic conditions following habitat construction and fish population response.

Biological and physical objectives are addressed in this proposal in the Objectives and Project Deliverables Section. Existing and target metrics are provided and the limiting factors addressed are identified for each deliverable. ISEMP monitoring will evaluate fish population response, and CHaMP monitoring will evaluate geomorphic conditions following construction.

For a) biological objectives for focal species, the proposal provides in the text for Deliverable 1, 2, and 3. "Focal Species: Chinook salmon, steelhead, bull trout and westslope cutthroat. Viable Salmonid Population (VSP) Parameters Improved: Abundance and productivity."

The ISRP concludes that specific quantitative objectives for VSP parameters need to be established, not just a statement that they will be improved. These quantitative objectives serve as benchmarks for evaluation of the efficacy of restoration strategies in adaptive management.

For b) physical habitat objectives developed in reach scale assessments consistent with the Tributary Assessment, the proposal provides text, but no succinct answer to the question posed. There is no identified linkage between the deliverables and the objectives, reach assessment, and tributary assessment.

For c) monitoring and evaluation sufficient to evaluate fluvial geomorphic conditions following habitat construction and fish population response, the proposal states: "ISEMP monitoring will evaluate fish population response and CHaMP monitoring will evaluate geomorphic conditions following construction."

Without providing more details on ISEMP monitoring of fish population response including the metrics and methods and CHaMP monitoring of physical features including geomorphic and habitat limiting factors, the ISRP is unable to conclude that monitoring is sufficient.

Based on these observations the ISRP concludes that the response to qualifications raised in earlier ISRP reviews were not resolved.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Previous reviews expressed concerns about mobilization of mercury and other contaminants when the dredging works are disturbed. The proposal indicated that work on PS 3 answered these concerns, but nothing was presented.

The Salmon River Habitat Restoration (SRHE) project's role was not clear. This proposal states that allocation of funds to YFSR restoration project is insufficient and consequently some funds from SRHE are going to be used for restoration implementation. The SRHE proposal identifies that 20% of the budget is supporting restoration deliverables and work elements in this proposal. It is not clear to the ISRP why more funding is not assigned to YFSR restoration project and less to SRHE, and the habitat status and monitoring tasks assigned to SRHE, as suggested by the ISRP in 2006. These seem to be administrative decisions at several levels, not scientific ones, but it leads to difficulty reviewing both proposals.

Emerging Limiting Factors: The discussion is primarily limited to reduction in stream flow volume and altered timing of water supply associated with climate change. There should be some discussion of the status of mining, logging, and grazing that may influence the watershed, as well as discussion of any potential for additional second home building and expanded recreational use that may increase road densities and affect the stream ecology. Also, forest health and potential issues of increased wild fire and insect and disease outbreaks, in existing timber stands, may be a significant issue in the future.

4. Deliverables, Work Elements, Metrics, and Methods

The proposal has a long list of activities in each deliverable but also indicates that achieving rehabilitation would not require implementation of all of the identified actions. It was not clear to reviewers how the decision to stop will be made. Are time and money limiting, or is there some recognizable signal that indicates it is time to stop?

The deliverables section does not provide convenient linkage from the reach assessment to the identified actions so they can be associated with habitat restoration priorities and choices in the reach assessment. The deliverable has a lengthy list of potential sites to implement actions in Floodplain Reconnection RM 8.35-7.45 (DELV-1) and Floodplain Reconnection RM 9.15-8.35 (DELV-3), but no process for developing alternatives and choosing among them is provided. No deliverables or work elements are identified for more planning.

At this time these planned actions are not fully formed and their support requires a leap of faith from reviewers. On the positive side, the range of options being considered for each of the five sites is mentioned. It is not clear what the completed efforts will provide for improved fish production.

No monitoring is described in this study, but the proposal indicates the Tribes are implementing an RM&E strategy based in part on the Columbia Habitat Monitoring Program (CHaMP) and may include contracted services. The Tribes are presently working on the specifics of the RM&E program and plan on having a draft out for review in early spring 2013.

[200890300](#) - ESA Habitat Restoration

Sponsor: Shoshone-Bannock Tribes

Short Description: The primary goal of the ESA Habitat Restoration Project is to improve habitat function and quality by addressing limiting factors such as, the effects of hydromodification, sediment delivery, riparian function, stream temperatures, and passage for all life stages of anadromous and resident fish in priority areas of the Salmon River Subbasin. From a Tribal perspective, management is directed to restore habitat for salmon, steelhead, bull trout and preserve the culture of a Salmon People.

ISRP response loop recommendation: Meets Scientific Review Criteria (Qualified)

Qualifications:

The sponsor should prepare a report to be reviewed by the ISRP no later than July 2015 providing more details on prioritization of streams for restoration, identification of limiting factors and restoration strategies (for example, barrier/culvert removal, diversion consolidation, and screening) and quantifying anticipated benefits to habitat conditions and salmon and steelhead population status.

This qualification applies to activities under Objective 1, not to restoration implemented in Yankee Fork coordinated with project 2002-059-00. See comments for further details.

Comment:

The revision demonstrates progress and moves toward what is needed in an adequate proposal. The reality, however, is that none of the requested items were fully covered.

Two capstone concerns were not sufficiently addressed in the response. They should be addressed in a summary report reviewed by the ISRP and incorporated into future proposals:

1) Objectives are not quantitative and lack defined endpoints

2) Proposed actions are likely to be beneficial, but the revised proposal still fails to demonstrate why these actions have been chosen, or that they have been selected methodically from a prioritized inventory of potential actions

The bulk of the material added is how CHaMP monitoring will be incorporated into Yankee Fork efforts, and that is fine as far as rounding out details for Objective 2. The information provided for Objective 1 is not specific enough for scientific evaluation. Additional information needs to be provided to establish the sponsor's rationale for selection of individual restoration actions and for retrospective evaluation of results for tasks under Objective 1.

Objectives: Objective 1 and its components are much too general and do not provide quantifiable objectives and clearly stated end points. The proposal states that methods are not available to estimate (quantify) habitat status and fish population response to restoration actions. In absolute terms this gap reflects the current state of the science. Nonetheless, the BiOp RPA table 5 and draft recovery plan establish gains that are needed in habitat conditions and salmon survival. The table and plan could serve as a basis for prioritizing restoration actions and provide benchmarks for evaluation and adaptive management. Quantifiable objectives are required for scientific evaluation of prioritization and project results.

Prioritization: the first several pages of material under the Large Habitat Programs section include enough detail to be considered a basic plan. Appendix B is a list of Priority 1 streams from the SHIPPUS but does not identify what that means – are these top priority for restoration, for preservation, or those that will yield the best result per unit effort? Additional development of prioritization decisions that link limiting factors, restoration strategies, and salmon recovery objectives is needed for the current suite of actions in the deliverables and for work after the close of the accord project in 2018.

Deliverables: Explanation of the now 10 deliverables is improved, but there still is inadequate detail for evaluation.

The original deliverable 1 that was too vague has been split into 6 deliverables that are more specific. Three of the new deliverables explicitly refer to Panther Creek (which had not been mentioned in the earlier proposal).

The original Deliverable 2 has been split into 4 deliverables, all concerning Yankee Fork. No explanation is given for the budget requirement for these deliverables or for their relationship to activities proposed/funded through proposal 2002-059-00. These deliverables account for \$823K (55% of the proposal total budget), and \$447K (54%) of that amount is identified under "Other" as subcontracts for work on Yankee Fork. An explanation for this subcontracting work had been requested. Nonetheless, since the ISRP reviewed these deliverables under proposal 2002-059-00 no further details are requested of 2008-903-00 in the 2015 report.

Preliminary ISRP comment requesting a response:

The ISRP requests revision of proposal sections to address the questions posed below. An introductory document summarizing the revisions would be helpful for final review.

The ISRP reviewed project 2008-903-00 twice in 2010 (ISRP 2010-25 and ISRP 2010-39). In the initial review the ISRP requested a response and in the second review the ISRP provided a Meets Scientific Review Criteria (Qualified) recommendation (see <http://www.nwcouncil.org/fw/isrp/isrp2010-39/>). In the ISRP 2010-39 review, the ISRP stated:

"Much effort was expended to incorporate reviewer comments and the revised proposal addresses most of the ISRP's initial concerns. However, details describing how the restoration actions would address specific limiting factors at each of the seven priority sites, and quantitative projections of the benefits of the actions on target species (see Table 6) are still somewhat incomplete. Simply making statements like "rearing capacity will be increased" and "temperature will be lowered" is not adequate.

Qualification: Regarding Objectives 1 and 2 to inventory and assess potential actions, the ISRP recommends that the proposers incorporate a comparison of costs to the projected benefits to fish for the actions to assist in priority setting. This would supplement the useful summary of anticipated benefits in Table 5, while assuring that habitat improvements are likely to be cost-effective. The ISRP can look at the finalized priority list and supporting analysis in future project reviews, likely as a component of a Salmon River subbasin geographic review."

At this time the ISRP concludes that proposal 2008-903-00, needs revision that addresses the 2010-39 ISRP review and provides the necessary information for a scientific evaluation. There needs to be objectives with clearly stated end points so that accomplishments can be evaluated. Benefits to both habitat conditions and fish survival need to be included.

The project is proposing restoration actions in Panther Creek, Yankee Fork, Lemhi River, and Upper Salmon tributary watersheds. At this time priorities for individual actions in specific reaches of watersheds to address limiting factors with the goal of improving life-stage survival

of spring/summer Chinook and steelhead have yet to be developed. The proposal includes actions in deliverable 1 to develop inventories of actions; assessment of potential and effectiveness of inventoried actions; and assessment of the feasibility of implementing selected actions. Explanation of these tasks for Deliverable 1 suggests that methods for completing these are yet to be finalized. The ISRP is confused by the need for these planning efforts since the proposal problem statement includes information on focal species status, numbers of diversions, and numbers of culverts in the primary restoration watersheds. It is not evident to the ISRP what additional assessment is required and why existing methods of establishing reach and site actions are not adequate.

The proposal budget has substantial commitment to Facilities/Equipment and subcontracts for work in the Yankee Fork. It is not clear to the ISRP how these budget items accomplish the planning proposed in Deliverable 1.

The proposal should establish priorities for watersheds based on BiOp recovery requirements, tribal preferences, and likelihood of success. The sponsor needs to develop a strategy for spatial restoration treatments that can be justified based on anticipated survival benefits to salmon.

The ISRP should review a comprehensive proposal once the inventory and prioritization and RM&E plan have been completed.

1. Purpose: Significance to Regional Programs, Technical Background, and Objectives

Significance to Regional Programs: The discussion of the SHIPUSS, Upper Salmon Subbasin Screening and Habitat Improvement Prioritization, states that a list of Priority 1 streams is given in Appendix B. There does not appear to be an appendix associated with the proposal.

Including the RPA 35 Table 5 information relevant to the streams to be enhanced by ESA-HR, as well as the SHIPUSS information needs to be incorporated into the proposal. There needs to be direct indication of how the activities proposed contribute to the benefits needed under the BiOp and Recovery Plans.

The Discussion of the consistency of the proposal with the Fish and Wildlife Program, Subbasin Plan, and other regional programs is well done.

The TAURUS proposal form states that the project contributes to fulfilling the Action Agencies BiOp obligations for RPA 34. RPA 34 directed the Action Agencies to implement project during the 2007-2009 period. RPA 34 also provides specific instructions for developing alternative actions if the primary actions prove infeasible. This proposal needs to include a succinct statement on how integration of ESA-HR with the RPA was accomplished, how much work was completed, and whether primary actions proved infeasible.

The sponsors should look at the RPA statements linked to the TAURUS form and provide brief statements of how the project processes and implementation followed the RPA guidelines.

Technical Background: The discussion of specific independent populations of steelhead and spring Chinook salmon and the recovery and risk scores from the TRT assessment and draft recovery plan is welcome. A similar summary for habitat restoration is needed. The text describing the limiting factors does not provide enough detail for the ISRP to evaluate whether the proposal work elements and tasks will achieve the habitat improvement required by RPA 35.

The proposal states: *“The UPS watershed includes 2,585 points of water diversion, and the MSP watershed includes 2,250. The UPS watershed includes 216 culverts at road crossings, at least 82 of which do not allow passage of juvenile fish, and at least 42 of which do not allow passage of adults. Ninety five culverts are present in the MSP watershed, of which at least 51 do not allow passage of juvenile fish and at least 44 do not allow passage of adult fish. The UPS watershed has been identified as having excess sedimentation and warm stream temperatures due to grazing impacts. Twelve percent of the streams in the UPS watershed are considered sediment impaired, compared to only 1.5% in the MSP watershed.”*

The proposal’s technical background needs to provide an indication of how many of these anthropogenic hazards need to be fixed for recovery or restoration, how many are going to be addressed by this and other programs in the Salmon River, and an estimate of the anticipated biological benefits from the proposed work.

The description of limiting factors is too brief, and the proposal is not specific enough about how they are being addressed. Also, the background indicates that a primary source of habitat impairment is from recreation, agriculture, mining, and forestry. Actions in the proposal appear to address symptoms in the streams, rather than addressing land-use patterns that are leading to the impaired symptoms.

Objectives: There are two objectives: 1) Improve the health and abundance of salmonid species through habitat restoration in the UPS and MSP, and 2) Increase habitat function and diversity within the Yankee Fork River System.

These objectives are so broad as to have little value. Many prior reviews have identified the problems for these watersheds and the need for action. The list of the number of barriers to fish passage and diversions that exist in the watershed is particularly compelling.

The objectives need specificity. For example, stream temperature is to be reduced, but by how much. What is the target goal to which the project is aiming? For the improvement in passage, how far up the rivers did the fish spawn in the past? Do all barriers for the entire length of the stream need to be removed?

2. History: Accomplishments, Results, and Adaptive Management (Evaluation of Results)

Accomplishments and Results: This project began in 2008 using staff from the SRHE project and has subsequently added a project manager, field staff, and temporary assistance as needed. In 2009 a water diversion was removed in Elk Creek within the Sawtooth National Recreation Area. In 2011 and 2012, nine projects installed 7.2 miles of fence protecting 158.6 acres from cattle grazing in aquatic habitat. The proposal does not identify metrics to evaluate physical habitat or biological benefits from the fencing.

The text associated with Lemhi River Enclosure Fence: Hayden Creek refers to Panther Creek. This entry needs editing.

A number of problems with administrative planning such as getting permits and environmental compliance and implementation like removal of fiberglass fence posts in Pole Creek are apparent in completing projects over the past few years.

Adaptive Management: Modest adjustments are described in where the project is focusing effort in the Salmon River, but whether the restoration strategy is making a difference is not evaluated. For the first year of the project, the manager worked in the Lemhi River with staff from other agencies to gain experience. This is a commendable example of cooperation among management agencies in the Upper Salmon River. The project is involved in restoration activities in multiple Upper Salmon River watersheds and will be involved in the Yankee Fork in the next few years.

The project lacks an overall habitat restoration strategy carefully linked to the Fish and Wildlife Program, subbasin plan, and draft recovery plan. A project of this modest scale does not have the resources to implement restoration actions across the landscape, addressing multiple limiting factors. The project needs to adopt a focused prioritization, both geographically and with regard to limiting factors. Then, the project needs to establish whether it is going to focus on protection, enhancement, or restoration and the extent to which there are opportunities for addressing watershed and landscape level sources of impairment or whether the project is only capable of addressing symptoms at site specific locations. If the later course is adopted, there needs to be clear benefits anticipated for focal species and methods established to evaluate success in order for the project to be consistent with Fish and Wildlife Program guidance.

3. Project Relationships, Emerging Limiting Factors, and Tailored Questions

Project Relationships: The list of Fish and Wildlife projects that interact with 2008-903-00 appears complete. There is evidence that agencies are cooperating among the Yankee Fork, Pahsimeroi, and Lemhi watersheds. The proposal states that ESA-HR will be conducting assessments for the Shoshone-Bannock Yankee Fork Habitat Restoration, but that activity is not clear in the YFSR proposal. The ISRP believes that specific site level implementation tasks in the Yankee Fork need alternatives, clarification, and assessment before final selection and design. The methods for completing assessments need more development before a review is possible.

It is difficult to establish exactly what is being planned, and where, over the 2014-2018 period from the proposal; specifically statements provided in the project relationships section lead to less, rather than more, clarity. For example, the project relationships section states that ESA-HR will include site-scale implementation and effectiveness monitoring to provide relatively rapid assessments. Yet, in the RM&E section in the proposal the text states that there are no protocols associated with the project. These inconsistencies, in the project relationships section and elsewhere need to be reconciled and a clear picture of the activities from 2014-2018 outlined.

Emerging Limiting Factors: A brief discussion of the effect of climate change on stream hydrographs is provided. There is no discussion of human caused limiting factors that may change in the near term. These might include changes resulting from recreational use, grazing, mining, forestry, and irrigated agriculture. Are there projections of how these activities might change over the next 20 to 50 years and how projected trends inform the types of restoration that are likely to provide survival benefits for salmon.

4. Deliverables, Work Elements, Metrics, and Methods

There are two deliverables: Implement specific restoration actions in the UPS and MSP and Assist/Cost Share on restoration in the Yankee Fork. The narrative for each of the deliverables is too vague for ISRP evaluation.

For Deliverable 1 several planning steps are outlined to be completed in 2013 with selection, design, and execution of projects to take place in 2014 -2018. However, the proposal does not give details on how much technical assessment from hydrologists, biologists, and construction specialists is needed during 2013, and whether the work can actually be accomplished with the resources in the project. The project budget is modest; each year there is approximately \$120,000 for facilities and equipment and \$150,000 for Yankee Fork subcontracts. It is not clear what is included in the \$120,000 per year for facilities and equipment, but if this is used for restoration it will not provide resources for the projects that need to be implemented.

Deliverable 1 states: *“Specific projects may include replacing culverts and/or bridges to provide friendly fish passage and habitat quality improvement, divert or consolidate diversions to increase stream flow, riparian vegetation to improve cover and shade, road re-alignment or decommissioning roads to decrease sedimentation, improve in-channel function for spawning and rearing fish habitat, reconnecting off-channel habitats to tributaries, livestock enclosure fencing to eliminate domestic animal impacts, and acquire easements to protect fish habitat.”* The ISRP does not believe the proposal and budget provides enough information to judge what will be completed or accomplished and what survival benefits for fish may be expected.

The first deliverable appears to be a planning and prioritization program for the watershed actions. A current inventory of the problems has not yet been developed, and this is one of the first tasks. The priority system also needs to be developed but surely a system can be borrowed from other organizations rather than developing a new one. An RM&E plan also needs to be

developed to monitor progress towards rehabilitation and impacts of the same on the fish populations.

Deliverable 2 - Assist with Yankee Fork. The proposal needs to be more specific about what role ESA-HR will have in the Yankee Fork and what the subcontract is for.

Overall, there is an absence of discussion of Panther Creek in the proposal. The Panther Creek watershed had been a priority for the Shoshone-Bannock tribe, and a few of the fencing exclosure projects completed in 2011/2012 were in the Panther Creek watershed. How far along is active restoration in Panther Creek?

Specific comments on protocols and methods described in MonitoringMethods.org

No protocols are described. Is this part of the 2013 deliverable mentioned in a separate proposal?

Index of Proposals and Page Numbers

198343600	172	200203500	138	201201500	55
198402100	142	200205000	282		
198402500	269	200205900	384		
198710001	160	200206100	304		
198710002	156	200207000	311		
198802200	168	200207200	340		
198812025	208	200301100	38		
198902700	171	200706400	376		
199200900	206	200709200	322		
199202601	260	200712700	378		
199206200	210	200715600	81		
199304000	64	200721700	175		
199306600	96	200722400	254		
199401500	356	200726800	352		
199401805	278	200739300	265		
199401806	190	200739400	364		
199401807	192	200739500	325		
199404200	116	200739600	186		
199405000	380	200739700	134		
199603501	213	200739800	204		
199604200	238	200739900	358		
199604601	178	200820200	201		
199607702	318	200820600	90		
199608300	273	200820700	85		
199608600	292	200830100	107		
199705100	217	200860300	372		
199705600	78	200860400	298		
199706000	294	200860800	361		
199801900	61	200890300	390		
199802100	74	200900300	231		
199802800	112	200901200	58		
199901700	313	200902600	182		
200000100	248	201000100	220		
200001500	121	201000300	330		
200003100	147	201000400	45		
200003500	336	201007000	52		
200102100	70	201007200	367		
200104101	128	201007300	49		
200201500	99	201007700	198		
200201900	102	201008600	344		
200203400	152	201008800	369		