

Response to ISRP Comments on Project Proposals 29008 Adult Passage Counting and Trapping at Zosel Dam 29007 Okanogan Kelt Reconditioning

General Response

The Colville Confederated Tribes wish to thank the Independent Scientific Review Panel for their review and support of these important projects. With regards to proposal 29008, we wish to note that the ability to enumerate and sample adult salmonids at Zosel dam will also provide a high level of support to proposal 29016 (Return of Okanogan Sockeye Salmon to Their Historic Range) and that Zosel has been identified in the Okanogan Basin Monitoring and Evaluation Program (OBMEP), the umbrella Monitoring and Evaluation Program for the entire Okanogan Subbasin (proposal #29033), as one of the key Monitoring and Evaluation locations and facilities for collection of critical baseline information. Relationships to these other proposals were not originally identified in proposal 29008. As indicated in proposal 29008, this work does support project 29050 (Phase I Okanogan River Spring Chinook Production). We wish to add here that Carson stock spring chinook will be used in project 29050 and that we intend to remove these at Zosel Dam to prevent them from spawning upstream.

Much of the work proposed under 29008 will be conducted by subcontractors. Golder Associates Incorporated participated in development of this proposal and are expected to participate in the adult counting program feasibility and evaluation work as well as the design work for the adult trapping facility. We have attached resumes for key Golder Associates employees who are likely to participate in the project. These were not included in the original proposal, but are appended here for your general use and information. Golder Associates Incorporated is an international firm which conducts fisheries and other ecological work throughout the world and, more recently, throughout the Columbia Basin in both the United States and Canada. A Statement of Qualifications is available upon request. Construction contract work will be through competitive bid and construction contractors can therefore not be named at this time. We appreciate the opportunity to respond to the ISRP. Specific comment responses are listed below.

ProjectID: 29008

Adult Passage Counting and Trapping at Zosel Dam

Sponsor: CCT

Subbasin: Okanogan

FY03 Request: \$108,474

5YR Estimate: \$623,474

Short Description: Conduct feasibility assessment of adult fish counting at Zosel Dam on the Okanogan River and evaluate preferred option. Design, install and evaluate adult trapping facilities at Zosel Dam.

Response Needed? Yes

ISRP Preliminary Recommendation and Comments:

A response is needed. The proposal is for a feasibility study to develop an ability to count adult anadromous fish as they pass Zosel Dam on their way to Lake Osoyoos and its tributaries. Lake Osoyoos is one of two lakes in the Columbia Basin that continue to support healthy populations of sockeye salmon.

Previous efforts to count fish with video cameras as they transited the ladders were not entirely satisfactory. This proposal is to test newly developed technology for its use in this application. Recommended adjustments in the ladders arising from the previous experience will also be incorporated.

There is a particular need for more information on sockeye salmon survival rates and other life history characteristics. Their limited distribution and special life histories have combined to limit the opportunity for studies. The Okanogan run of sockeye exhibits some unusual behavior patterns in response to a temperature block that sometimes occurs at the mouth of the river. Unexplained losses of fish occur between Wells Dam, which is the last upstream counting station, and counts on the spawning grounds.

This project is fundable on a technical basis and is an important project that merits high priority. However, a response is needed on the following two items: 1) cost estimates need to be better justified, and 2) alternatives to blocking the spillbays should be explored.

CCT Response to Specific ISRP Comments:

ISRP Comment: *"cost estimates need to be better justified"*

CCT Response: As indicated in the budget sections of this proposal, most of the work will be through subcontractors. It is anticipated that the feasibility assessment and adult trap design will be conducted by Golder Associates Inc., in coordination with CCT staff. Anticipated FY03 costs are detailed below.

Objective 1. Adult Counting Feasibility Assessment.

\$10,982 in CCT staff costs. This work will entail: contract administration, biologist labor including project oversight, meeting attendance, and annual report preparation. Included are administrative overhead, employee benefits and all travel costs.

\$12,000 in subcontractors fees for adult counting feasibility work. This work will entail: professional biologist labor, site visits, review of existing counting facilities at other similar small dams (Umatilla, Yakima, Walla Walla, etc.), coordination with other tribal and non-tribal groups conducting similar counting programs, review of existing literature pertaining to current counting technology (underwater digital video imaging, self editing digital software, etc.), CCT meetings, annual report preparation assistance. All subcontractors costs (employee benefits, travel and per diem, administrative overhead, etc.) are included in subcontractor cost estimates.

Objective 2. Adult Trapping Facility Design.

\$10,492 in CCT staff costs. Similar to work conducted under Objective 1, this work will entail: contract administration, biologist labor including project oversight, meeting attendance, as well as review of pre-design and final design reports. Included are administrative overhead, employee benefits and all travel costs.

\$75,000 in subcontractor fees for adult trap design. This work entails; professional engineer and biologist labor, including site visits, preparation of design base sheets (existing facilities and topo), CCT meetings, evaluation of preliminary design alternatives (including preliminary cost estimates), preliminary design report, final design (drawings,

specifications, costs, and engineering report), and report reproduction costs. Modifications to the existing Zosel Dam structures to accommodate both the adult trapping and adult counting facilities will be included in the final design report and closely coordinated with the adult counting feasibility assessment. All subcontractors costs (employee benefits, travel and per diem, administrative overhead, etc.) are included in subcontractor cost estimates.

Actual outyear costs will be contingent upon the results of the feasibility assessment and design work conducted during year 1 (FY03) but have been estimated based upon anticipated results.

Objective 3. Adult Trapping Facilities Installation.

\$300,000 in work that will be largely conducted by a construction contractor to be named as a result of a competitive bidding process. The work is expected to include: construction labor, heavy equipment use, and material costs. Permitting costs are also included in this cost estimate.

Objective 4. Adult Trapping Facility Evaluation.

\$15,000 in CCT labor and or material costs. We expect that this will be a relatively straight forward process involving basic trap operation and making minor structural and procedural modifications in response to observed stress/injury which may occur to adult salmonids. Annual reporting is also included in this task.

Objective 5. Adult Counting Facility Evaluation.

\$200,000 in labor and equipment costs. This work includes purchase and installation of adult counting equipment and two years of evaluation. We anticipate that underwater digital video equipment coupled with self editing software will most likely be utilized at this site. Some special fabrication to retro-fit counting equipment to the project may also be required. We anticipate that most of this work will be conducted by CCT staff, although a portion may be subcontracted. A specific evaluation plan will be developed in response to the results of Objective 1, but at this time we would anticipate purchase and installation of counting equipment to occur prior to the sockeye passage season, evaluation to encompass the adult sockeye passage period for two years. Most of the actual evaluation work is expected to consist of validation of video counts, physical or technological adjustment in the counting program to accommodate high passage periods, verification (possibly through complimentary hydro-acoustic monitoring) that fish are not passing the project uncounted, such as through the spillbays. The estimated costs include equipment purchase, CCT (or designated subcontractor) staff labor, travel, employee benefits, and administrative overhead.

ISRP Comment: *"alternatives to blocking the spillbays should be explored"*

CCT Response: We agree. Physical blockage of the Zosel Dam spillways is problematic for several reasons. Permanent physical structures placed in the tailrace to guide adults to the ladders must also accommodate downstream passage of juveniles (and possibly steelhead kelts), such as spring outmigrating sockeye smolts and be self-cleaning. We are aware that other guidance methods have been tested (electrical, light, sound) elsewhere with mixed results. Alternatives to installation of a physical blocking structure in the Zosel tailrace will be explored during the feasibility assessment phase of the project.

ProjectID: 29007

Okanogan Kelt Reconditioning

Sponsor: CCT

Subbasin: Okanogan

FY03 Request: \$151,387

5YR Estimate: \$662,663

Short Description: Recondition steelhead kelts in the Okanogan River system to allow repeat spawning in the wild and promote rebuilding of this Endangered ESU.

Response Needed? Yes

ISRP Preliminary Recommendation and Comments:

A response is needed. The reconditioning of kelts as a management tool has intuitive appeal, whose merits need to be assessed through an experimental program and a rigorous M&E subprogram. Getting more use out of a live adult steelhead seems like a reasonable objective, and one that has been tested successfully in the Yakima River and the Siletz River, Oregon. The evidence seems clear that there is little return spawning after downstream migration of kelts from the Okanogan system. Good "seed money" feasibility work under NMFS funding. The response should pay particular attention to the ISRP's FY00 comments (below) that describe subsequent funding as contingent on the inclusion of a more thorough assessment of ecological and genetic risks associated with implementing the reconditioning strategy. This should also include an objective to develop guidelines that address when this technique should or should not be implemented given ecological, genetic, and economic costs and benefits.

" A major question about this specific proposed project, as compared to the Yakima project, is the sequence of proposed events – specifically, whether it would be advisable to keep maturing adult steelhead in the hatchery, spawn them, then recondition the kelts in the hatchery, finally releasing them into Omak Creek to spawn naturally. This sequence is opposite that used in the Yakima River, where downstream migrating kelts are collected, sequestered, reconditioned, and re-released to spawn naturally.

Upon questioning during the presentation, Paul Wagner asserted that this sequence was chosen because collecting kelts during the higher flows typically experienced in the spring is problematic; however, Chris Fisher, the local fishery manager, assured the reviewers that it was quite feasible to capture outmigrating kelts from Omak Creek during the spring. If this were so, then it would certainly be the favored approach, allowing the steelhead to spawn naturally in Omak Creek before collecting them for reconditioning. In turn, this sequence would obviate the need for spawning of the steelhead in the hatchery and would use the hatchery facilities solely for reconditioning purposes prior to releasing the reconditions fish back into Omak Creek for additional spawning. This sequence would also obviate the need for any development of a hatchery steelhead broodstock. Cost of this operating alternative would be lower than the proposed sequence of events. The project should focus on Omak Creek restoration more so than Salmon Creek. "

For original and related kelt proposal and ISRP review see:
<http://www.cbfwa.org/files/awp00/projects/20141.htm#reviews>

ISRP FY00 Comments

Fund for one year as an innovative project. Subsequent funding contingent on the inclusion of a more thorough assessment of ecological and genetic risks associated with implementing the reconditioning strategy. They need to include an objective to develop guidelines that address when this technique should

or should not be implemented given ecological, genetic and economic costs and benefits. Comments: This a well-written and interesting proposal. Although the idea of reconditioning steelhead kelts has been discussed for many years, this is the first attempt to examine this more rigorously. The authors do a good job of identifying the fishery problem and providing the technical detail for why this proposal addresses the problem. The objectives are clearly defined and measurable, and the researchers propose using the best available scientific techniques. Although the proposal could be improved, this research could lead to a potentially valuable conservation tool. The fact that steelhead reconditioning is already being used in the basin may support scientific testing of these procedures. However, this does not decide the fundamental issue of whether this strategy overall is a good one. One important concern about the project design is the uncertainty of the prototype PIT tag detector at Bonneville and Prosser dams. The authors acknowledge that, without this detection capability, they will not be able to evaluate survival of several of the release groups. It is not clear from the proposal just how long it might take to perfect the technology at the dams even if the tag detectors are installed in 1999 or 2000. Considering the small number of fish that may be marked and released, it is difficult to evaluate whether the released fish are likely to be found again. This is clearly a critical factor for evaluating the proposed experiment. While the proposal suggests that reconditioning is a way to restore life-history diversity, it is primarily aimed at fish production. Maintenance of the repeat spawning life-history type presumably would depend indefinitely upon hatchery intervention. The proposal does not correct factors that now prevent expression of the repeat spawning behavior. Therefore, the life-history benefits are not self sustaining. Like the whole idea of supplementation, success of this effort would seem to come when it is no longer necessary. This may be one of the most critical issues for this proposal, since application of the method ultimately does not promote restoration of normative ecological processes. Important questions to be answered then are: (1) Do the benefits of the work outweigh any risks? (2) Are there any alternative approaches for restoring the capacity of the ecosystem to maintain repeat spawners? (3) Have populations reached such a low level that this program is necessary just to prevent extinction of the repeat spawning type until the limiting factors can be resolved? These issues are not fully discussed in the proposal. There is a lack of any discussion about potential risks of inbreeding, which could be considerable if reconditioning were successful in very small populations. The authors do state that they will consider the "genetic considerations of long-term reconditioning" under Scenario 3, but fail to provide any details about why this is important or how they would do this. In the analysis of expected costs and benefits that the authors propose, the investigators need to consider the genetic costs and benefits also. This is not a trivial task. The authors also fail to acknowledge that collecting enough kelts to get meaningful sample sizes is a major challenge to this study. Scenarios 1,2, and 4 are especially vulnerable because they also require a high secondary recapture rate of reconditioned kelts. Also lacking is any explanation of the analytical methods by which the investigators propose to use morphological features to develop a quick and accurate method for identifying kelts.

Current status:
MEMORANDUM

TO: Roy Beaty
FROM: Mark Fritsch
SUBJECT: Step Review for Project (#2000-017-00) - Recondition Wild Steelhead Kelts

The Council's approval on October 10, 2000 for the Recondition Wild Steelhead Kelts Project 2000-017-00 was conditioned on an independent scientific review, as it relates to the three-step review process, and that future funding will be dependent on the results of this review.

Due to the experimental approach of this study as it relates to the artificial production there is no need at this time to initiate a full Three-Step Review Process. Though this project does trigger a review by definition (i.e. planting fish in waters that they have not been planted in before) it does so in a very experimental and research orientated manner. If this project were to be expanded or changes in scope or size in the future it will be necessary to implement a full step review (e.g. master plan, etc). It is our understanding that the information collected during this phase will be used to address program areas pertaining to future activities and review process.

It is my understanding that an extensive study plan has been developed for this project and is adequate, with supporting documents, to address the technical questions asked as part of a partial type step review. The Council is anticipating the submittal of review documents by the end of the calendar year. This should provide adequate time for the completion of the review prior to the next funding and review process.

This review will include responses to technical questions relating to: (1) master planning requirements according to Section 7.4B of the Council's Fish and Wildlife Program (Attachment I), (2) questions identified in the Fiscal Year 1998 Annual Implementation Work Plan (Attachment II), (3) questions involving the Fish and Wildlife Program language identified by the Independent Scientific Review Panel (Attachment III), and questions relating to the development schedule and estimated cost expenditures and future needs of your proposed project (Attachment IV). In addition find attached the APR policies and standards (Attachment V) that need to be addressed. Part of the Council's review process will include an independent scientific review of the answers to the technical questions and responses to the APR policies.

I hope that this letter clarifies the status of your project with regard to the Council's recent decision. If you have any questions, please do not hesitate to contact me.

ISRP Comment: *"A major question about this specific proposed project, as compared to the Yakima project, is the sequence of proposed events – specifically, whether it would be advisable to keep maturing adult steelhead in the hatchery, spawn them, then recondition the kelts in the hatchery, finally releasing them into Omak Creek to spawn naturally. This sequence is opposite that used in the Yakima River, where downstream migrating kelts are collected, sequestered, reconditioned, and re-released to spawn naturally.*

Upon questioning during the presentation, Paul Wagner asserted that this sequence was chosen because collecting kelts during the higher flows typically experienced in the spring is problematic; however, Chris Fisher, the local fishery manager, assured the reviewers that it was quite feasible to capture outmigrating kelts from Omak Creek during the spring. If this were so, then it would certainly be the favored approach, allowing the steelhead to spawn naturally in Omak Creek before collecting them for reconditioning."

CCT Response: Mr. Wagner was in error in the assertion that downstream trapping of kelts in Omak creek could not be conducted due to high water events. This confusion arose from early internal discussions concerning the feasibility of trapping kelts in the mainstem Okanogan River where it was determined to be mechanically unfeasible due to high spring flows. While it is true that downstream trapping of kelts in Omak Creek is possible, we opted to integrate the kelt reconditioning program with the local steelhead brood stock collection program. We note that although brood stock capturing was identified as a task in project proposal 29007, the work was included in the budget for project proposal 29051 (Develop Local Okanogan River Steelhead Brood Stock).

Per ISRP recommendations, we commit to conducting downstream kelt trapping in Omak Creek. Given that repeat spawning rates are essentially zero for Upper Columbia River Steelhead upstream of Wells Dam, we consider minimal risk of take associated with 100% utilization of these post-spawn fish from Omak Creek. Downstream trapping of kelts will require additional labor beyond that budgeted in the original proposal. However, such work can be combined with ongoing smolt trapping activities in Omak Creek and therefore will not require funding above that currently requested.

ISRP Comment: *"The project should focus on Omak Creek restoration more so than Salmon Creek."*

CCT Response: We agree that our efforts should be focused initially on work in Omak Creek. Originally, we had intended to combine the kelt reconditioning program with the local steelhead brood stock program under which adult collection would be conducted from both systems. Per ISRP recommendations, we will modify the kelt reconditioning program to conduct downstream trapping of kelts and we will plan to limit these activities to Omak Creek. Expansion of the program to Salmon Creek may occur in the future but such expansion will be contingent upon both the success of habitat restoration efforts and the results of the kelt reconditioning work conducted in Omak Creek.

ISRP Comment: *"In turn, this sequence would obviate the need for spawning of the steelhead in the hatchery and would use the hatchery facilities solely for reconditioning purposes prior to releasing the reconditions fish back into Omak Creek for additional spawning. This sequence would also obviate the need for any development of a hatchery steelhead broodstock. Cost of this operating alternative would be lower than the proposed sequence of events."*

CCT Response: We do not agree that the kelt reconditioning program should replace the local steelhead brood stock program. The kelt reconditioning program is experimental and the outcome is unknown. Given that steelhead population growth rates in the Okanogan system are low with the population potentially headed toward extinction, all efforts should be undertaken to maintain the population. We expect that our efforts to develop a local brood stock adapted to the Okanogan will accelerate recovery through a smolt program using unmarked local origin steelhead.

Currently the kelt reconditioning program is specific to Omak Creek. However, a smolt program developed through the use of local brood stock will allow us to have the ability to acclimate and release smolts in other tributaries as the habitat is restored and thereby more quickly re-colonize these historic habitats. In addition, implementation of the Mid-Columbia HCP will likely result in a reduction steelhead outplants into the Okanogan River system from the Wells Hatchery program furthering the need for a local smolt program.

Once experience is gained from both kelt reconditioning and smolt programs, then these program can be adapted to the best direction(s).

ISRP Comment: *"The reconditioning of kelts as a management tool has intuitive appeal, whose merits need to be assessed through an experimental program and a rigorous M&E subprogram. The response should pay particular attention to the ISRP's FY00 comments (below) that describe subsequent funding as contingent on the inclusion of a more thorough assessment of ecological and genetic risks associated with implementing the reconditioning strategy. This should also include an objective to develop guidelines that*

address when this technique should or should not be implemented given ecological, genetic, and economic costs and benefits."

CCT Response: We agree that a rigorous Monitoring and Evaluation Program should be conducted. In response to the suggested inclusion of a more thorough assessment of ecological and genetic risks we propose to collect fin tissue from both adult kelts and outmigrating smolts during trapping operations in Omak Creek to develop a long term genetic database and to monitor for adverse genetic effects. Smolt trapping in Omak Creek has been conducted in the past and is expected to continue. Information on changes in the juvenile steelhead population in Omak Creek will provide support to the kelt reconditioning monitoring effort. We wish to note that based upon the results of CRITFC/YN research, we expect that a high proportion (85%) of kelts to be female. Therefore, reconditioned female kelts will most likely spawn with "fresh" males, thereby lowering some of the genetic risk. Reconditioned kelts will be marked and, if re-captured, not used in the reconditioning program (not reconditioned a second time). We also note that reconditioned kelts will be allowed to spawn in the wild and the progeny will therefore be subjected to natural selective factors identical to those of other wild fish. Although the population of fish to be used in this work is small, these latter two factors coupled with extended rearing period (2 or more years) required by progeny rearing in the wild should serve to minimize or eliminate the opportunity for inbreeding.

We also acknowledge that the factors preventing repeat spawning will not be removed by this program and this life history trait will therefore not be self-sustaining. Repeat spawning rates for steelhead originating above Wells Dam are negligible due most likely to downstream passage related mortality through the hydrosystem. Historic (pre-dam) repeat spawning rates are unknown but may have also been relatively low compared to coastal streams due to the greater distance between Okanogan spawning locations and the estuary. We therefore recognize that the kelt reconditioning program may not truly mimic natural pre-dam life history for Okanogan steelhead, but will serve as an experimental interim recovery strategy for a species pushed to near extinction.

As this is a recovery strategy, we would expect to terminate the program when recovery goals are met. These have not been established by NMFS. The 2001 Draft WDFW Upper Columbia Steelhead Management Plan indicates a current escapement level above which surplus harvest may occur to be approximately 600 spawners for the Okanogan River system. This figure is based upon current habitat conditions and we would expect this escapement goal to increase with successful habitat restoration efforts. Currently the habitat is well underseeded. The greatest ecological risk that we would foresee relative to our returning naturally spawning fish to the wild to spawn a second time would be competition or displacement of other naturally spawning steelhead by reconditioned kelts. Currently, because the habitat is well underseeded, we would expect this ecological risk to be minimized, at least during the early phases of the program. Termination of the program once recovery goals are reached will eliminate this risk. Addition program termination criteria would be evidence of adverse genetic effects as indicated by the genetic sampling proposed above. We agree that a specific implementation criteria and termination criteria should be developed for this program. These could be based upon a

population threshold or escapement trigger and we do not believe that specific criteria can be developed at this time given the lack of a specific recovery goal for the Okanogan River. We do agree to work to develop such criteria in the future.

We strongly feel that because all Okanogan kelts die under current conditions, that the benefits of enhancing survival of these locally adapted fish and allowing these fish to spawn a second time do outweigh the risks. We cannot foresee that passage conditions in the mainstem Columbia River corridor are likely to improve for downstream migrating adults any time in the near future and can therefore not identify an alternative approach that will restore the capacity of the ecosystem to maintain repeat spawners. We consider the reconditioning strategy to be one of many necessary steps that should be implemented to prevent extinction.

[Attachment 1. Arthur Fleming Resume](#)

[Attachment 2. Paul Wagner Resume](#)