COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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August 12, 2004

Judi Danielson, Chair
Northwest Power and Conservation Council
851 SW 6th Ave., Suite 1100
Portland, OR 97204-1348

VIA: Mark Walker, Director of Public Affairs

RE: Comments on Subbasin Plans

Dear Ms. Danielson:

The Columbia River Inter-Tribal Fish Commission, having reviewed subbasin plans submitted May 28, 2004, to the Northwest Power and Conservation Council, provides the following general and enclosed technical comments on the submitted plans.

The Commission requests that the Council reissue its Request for Recommendations to comply with the Northwest Power Act. The current slate of subbasin proposals, while consistent with NPCC's guidance, falls short of legal requirements to detail measures that will protect, mitigate and enhance fish and wildlife.

Northwest Power Act Compliance

Commission review of the subbasin plans submitted to the NPCC on May 28th indicate that most do not include specific measures (actions or projects) which can be expected to be implemented for the protection, mitigation and enhancement of fish and wildlife.

The Northwest Power Act, 16 U.S.C. §839 *et. seq.*, clearly and directly addresses the requirements imposed upon the council when amending the Fish and Wildlife Program:

> 839b(h)(2). The Council shall request, in writing, promptly after the Council is established under either subsection (a) or (b) of this section and prior to the development or review of the plan, or any major revision thereto, from the Federal and the region's State fish and wildlife agencies and from the region's appropriate Indian tribes, recommendations for--
>
> > (A). measures which can be expected to be implemented by the Administrator, using authorities under this chapter and other laws, and other Federal agencies to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by the development and operation of any hydroelectric project on the Columbia River and its tributaries; [Northwest Power Act, §4(h)(2)(A), 94 Stat. 2708] (emphasis added)

> (B). establishing objectives for the development and operation of such projects on the Columbia River and its tributaries in a manner designed to protect, mitigate, and enhance fish and wildlife; and [Northwest Power Act, §4(h)(2)(B), 94 Stat. 2708]
>
> (C). fish and wildlife management coordination and research and development (including funding) which, among other things, will assist protection, mitigation, and enhancement of anadromous fish at, and between, the region's hydroelectric dams. [Northwest Power Act, §4(h)(2)(C), 94 Stat. 2708]

The American Heritage Dictionary defines the noun "measure" as "an action taken as a means to an end." The 2000 Fish and Wildlife Program correctly reflected this definition by requiring that the subbasin plans contain a detailed description for "each project or activity", and a "detailed three-year implementation budget" for the plan as well as "a more general, long-term (10 -15 year) budget."

Though required in the Act and in the 2000 Fish and Wildlife Program, the Council specifically deleted requests for budgets, projects and activities in its 2001 Guide to Subbasin Plans that was used by the planners as a plan format and referenced in the Council's Notice of Request for Recommendations. Specifically, the 2001 Guide stated:

> "Strategies will be implemented through specific projects and/or actions. Projects proposed for funding will not be identified within the subbasin plan. When a plan is approved, it will form the basis for project selection within the subbasin. Projects will be developed through the regional project funding process." (emphasis added)

Later, in its Notice of Request for Recommendations posted on its web site in August 2002, the NPCC requested recommendations in the form of subbasin plans without mentioning the Northwest Power Act requirements discussed above. The Notice further described implementation strategies "which will guide or describe the actions needed to achieve the desired biological conditions." But it then described the management plan component of a subbasin plan in terms of "a vision, biological objectives and strategies for the subbasin," retaining a definition of "strategies" that did not include "projects and/or actions."

In other words, by eliminating "projects and/or actions" from subbasin plan requirements, the NPCC was contradicting its guiding federal statute and the 2000 Fish and Wildlife Program by specifically excluding "measures" from its "Notice of Request for Recommendations" and 2001 Guide. Given that the Northwest Power Act requires a written request for "measures" prior to any major revision of its plan, the council apparently does not have the authority to incorporate the subbasin plans into the Fish and Wildlife Program without the additional step of requesting recommended measures, i.e. actions and projects, from the agencies and tribes.

Historical Context

In 1987, the Northwest Power Planning Council embarked on a $5 million subbasin planning effort initiated by a written Request for Recommendations that culminated in a series of subbasin plans and a detailed Integrated System Plan that was never adopted into the Program. Some have argued that the plan was too specific in calling for detailed restoration and rebuilding actions. Now the NPCC seems to be embarking upon another potentially fruitless effort that ignores the finely crafted procedures of the Northwest Power Act that were developed to create a balance that would result in an implementable, systemwide plan designed to:

> "protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish which are of significant importance to the social and economic well-being of the Pacific Northwest and the Nation."

Northwest Power Act, §4(h)(1)(A).

Without specific recommended actions provided by fish and wildlife agencies and tribes, as required by the Northwest Power Act for any major revision of the Program, the Program will be subject to feckless wrangling over the prioritization and funding of projects that is inconsistent with the Northwest Power Act's requirement for a systemwide program of measures as well as objectives, coordination, research and monitoring.

These shortcomings have additional legal consequences. According to both NOAA and the NPCC, the subbasin plans are designed to provide the foundation for ESA recovery planning. The Federal District Court of Oregon has already faulted NOAA for failing to ensure that its BiOp RPA's are "reasonably certain" to occur. Read in this light, a Fish and Wildlife Program without measures, actions and projects to implement fails to provide the certainty required for the NOAA recovery effort as well as the treaty right obligations recognized in the Northwest Power Act.

Corrective Steps

Given that the NPCC attempt to limit the subbasin plans to broad strategies, the Commission encourages the Council to issue a new Request for Recommendations that complies with Section 4(h)(2) of the Northwest Power Act, addresses the technical shortcomings described in the enclosed technical comments, and requests a prioritized list of measures along with a budget as a final phase in its subbasin planning process prior to incorporation into the Program. These measures may then be reviewed by the ISRP and the council, under the terms of the Northwest Power Act, prior to a major revision of the Fish and Wildlife Program that incorporates the subbasin plans.

While the subbasin planning effort may have been a worthwhile step in assessing watershed conditions, suggesting remedial strategies and developing partnerships, it

needs to be followed up with a timely process to develop on-the-ground actions and projects as well as the resources to implement adopted measures.

Sincerely,

Olney Patt, Jr.

Olney Patt, Jr.
Executive Director

Enclosure: CRITFC Technical Comments

CC: Bob Lohn, NOAA Fisheries
Steve Wright, BPA

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
TECHNICAL COMMENTS ON SUBBASIN PLANS

The time allowed for developing, reviewing, and getting policy approval of subbasin plans has been and is inadequate. Plan quality has been sacrificed to meet an inflexible time schedule. The result has been draft plans of differing quality, with compromised technical merit, and without policy approval by the tribal resource managers. The Council should adopt a realistic schedule for addressing these shortcomings before the plans can become part of a sound system-wide Fish and Wildlife Program the Council is required to develop under the Northwest Power Act.

1. Many of the plans are inconsistent with treaty fishing rights because they do not address significant tribal fisheries in usual and accustomed fishing grounds and stations. Subbasin harvests will contribute to both Tribal and non-Tribal fisheries and can be a significant economic benefit to local economies.

   Recommendation:
   - Plans should include a significant subbasin harvest of salmon and steelhead. Fall chinook may be an exception to this as they support significant mainstem tribal fisheries.

2. The technical quality of many plans is compromised or incomplete.
   a. Some assessments were not completed for all focal species. In other cases time did not allow for resolution of problems encountered during the assessments. In most cases the basis for the EDT and QHA ratings were not fully documented.
   b. In early May, errors were discovered in how the EDT model handled mainstem survival for steelhead. Plans which completed their steelhead assessments prior to about May 5 should be rerun to correct erroneous results.
   c. Several plans which used EDT as an assessment tool did not include a complete assessment of any restoration scenario. Thus the logical connection between proposed habitat strategies and the response of focal species populations was not established.
   d. Gap analyses created by comparing the inventories and assessments either were not completed or need to be strengthened and more focused in many subbasins.
   e. Because many plans have incomplete or missing technical pieces, it is difficult to compare them. Thus developing provincial (ESA) and regional plans is compromised at the outset.
   f. Lamprey are often listed as a focal species or a species of special concern and then largely ignored because there is no local data. These treatments can be strengthened with a discussion of lamprey ecology and biology from the literature. In many subbasins lamprey will clearly benefit from

increasing the amount and complexity of in-channel habitat and reducing contaminant loads. Strategies to address these types of habitat actions should receive additional emphasis.

Recommendations:

- Provide the time and resources for subbasin teams to complete assessments, gap analyses, and scenario evaluations if they are incomplete in the plans submitted on May 28.
- Rerun any steelhead EDT analyses completed prior to about May 5 and include the corrected numbers in the plans.
- Each subbasin that used EDT should complete at least the default PFC scenario and discuss the results in the plan.
- Provide additional emphasis to restoration strategies that will improve lamprey habitat.

3. Biological objectives are incomplete for many populations. In some cases they are habitat-only objectives, in other cases there is not a clear connection and relationship between the habitat part of the objectives and the expected focal species response. In most cases the amount of habitat affected and the magnitude of the hypothesized focal species response is not quantified, thus it is impossible to measure progress toward the (unstated) objectives or to estimate the cost of implementing the plans. These components are central to describing the hypotheses requested by the Council.

   Recommendations:

   - Provide the time and resources for subbasin teams to quantify the amount of habitat (miles of stream or acres of terrestrial habitat) affected by each priority recommendation.
   - Provide the time and resources, including population dynamics expertise, for each subbasin team that used EDT to identify the abundance, productivity, and diversity expected from the proposed scenario for both the adult-smolt life stage and over the entire life cycle. If EDT was not used for the assessments planners should identify the abundance and survival expected from the recommended strategy.

4. Monitoring plans vary in quality, which causes problems at both ends of the spectrum. Very detailed monitoring plans with a high degree of accuracy will cost more than the total money presently available if implemented in every subbasin. Conversely, incompletely described plans will not provide the expected and necessary information to evaluate the hypotheses and to maintain the plans as living documents.

Recommendations:

- Council should undertake developing regional goals for a coordinated M&E plan, including the primary management questions from regional and provincial perspectives and the degree of accuracy (or dollars available) desired.
- Council should form a (or designate an existing) technical group to develop options and recommendations, including protocols and standards, to coordinate subbasin monitoring efforts in a manner to address the above regional and provincial needs.
- Provide time and funds for subbasin teams to incorporate regional standards and recommendations into local subbasin plans.
- Ask subbasin teams to develop and incorporate a plan to coordinate and integrate monitoring efforts among management agencies within each subbasin, regardless of funding source.
- M&E plans should include specific milestones for every 3-year period to facilitate adaptive management within the Council's rolling review process.

5. The Adaptive Management loop is not closed in many plans because a) responsibilities for evaluation are not clear or b) the modification process is not described in sufficient detail, or c) most technical and stakeholder groups who put the plans together are transient and will not exist when it is time to evaluate and update the plans, thus losing knowledge and experience each review cycle and requiring additional effort.

   Recommendations:

   - Council should identify and fund subbasin technical and planning groups to a) evaluate progress toward meeting biological objectives and make recommendations for change and b) update plan elements based upon the technical evaluations of progress and performance.
   - Work with BPA to synchronize the funding process with the Council's review and project selection cycle, thus reducing resources expended on annual project funding efforts.

The Council is required by the Northwest Power Act to develop a Fish and Wildlife Program that treats the Columbia Basin as a system. Adopting the draft subbasin plans piecemeal into the 2000 Fish and Wildlife Program will be inconsistent with the Act because the following problems have not been addressed. When the following recommendations have been completed, subbasin plans should be adjusted accordingly.

6. Many plans are inconsistent with the Council's and fishery managers' regional objective of rebuilding healthy, naturally reproducing anadromous fish runs to produce 5 million adult returns in 25 years and which can withstand a harvest rate of at least 30%. These plans either propose only *status quo* or slightly larger run sizes or hatchery-fish-only harvest goals, if any. While subbasin plans may

provide a basis for developing recovery plans under the ESA, they must go well beyond delisting levels to satisfy the mandate of the Northwest Power Act.

Recommendations:

- Review subbasin abundance objectives at a provincial scale and develop revised abundance targets for focal species for local consideration.
- The preferred method to reach the higher targets is by restoring healthy, naturally reproducing populations. Where this is not possible, and where the hydropower system has blocked access to anadromous fish, some mix of natural and artificial production technology should be implemented.

7. Mainstem and estuary subbasin plans were developed piecemeal and do not adequately address the following issues.
   a. Protection and restoration of sturgeon populations are inadequate. In many cases, therefore, populations will continue to decline and eventually become extinct.
   b. Lamprey populations are declining and have been petitioned for listing under the ESA. The major source of lamprey mortality is during upstream and downstream passage through the hydropower system. None of the mainstem plans adequately address this issue.
   c. Attainment of the biological objectives for anadromous fish in many subbasin plans depends on improvements in out-of-subbasin survival. The existing mainstem and estuary plans should be integrated to directly address the anticipated survival gains for subbasin anadromous populations.

   Recommendations:

   - Expand all mainstem subbasin plans specifically to include white sturgeon in a manner similar to that done for the Columbia Gorge plan and to provide for production of 5kg/hectare. See also Attachment 1 for additional specific comments on white sturgeon.
   - Expand all mainstem subbasin plans specifically to improve lamprey passage survival rates to levels required for salmon. See also Attachment 1 for additional specific comments on lamprey.
   - Create an integrated mainstem plan for operation of the hydropower system to improve salmon survival.
   - Develop plans (including measures) and a funding strategy to improve out-of-subbasin survival to the extent needed to meet individual subbasin objectives.

See also Attachment 1 for additional, more specific comments on the mainstem subbasin plans.

8. The following critical System-Wide issues have not been addressed and/or integrated into subbasin plans.
    a. Problems and issues of a general nature or with wide applicability were generally not addressed in the subbasin plans. These were usually addressed through the "system-wide" Provincial review.
    b. We are in danger of losing the knowledge gained in this round of subbasin planning because enough attention has not been paid to archiving data and references used by subbasin planners. This is the "institutional learning" gained in the planning process which is critical for maintaining plans as living documents.
    c. Several subbasin groups encountered significant problems using the assessment tools provided. These problems contributed to some assessments not being completed or being only partially completed. We have stretched the existing tools to their breaking point and need to improve them for easier operation during the next update cycle of planning.

    Recommendations:
    - Provide funds to CBFWA to develop an Integrated System Plan to a) integrate goals and objectives across individual subbasin plans, and b) address mainstem and regional issues, including R,M&E, not adequately addressed in individual subbasin plans.
    - Provide funds to collect and archive the information used to develop these draft subbasin plans using the StreamNet system.
    - Form a technical group to review the experience with assessment tools and develop options and recommendations for a) addressing problems encountered by subbasin planners and b) improving and managing assessment tools in the future. Implement the recommendations of this group through the Integrated System Plan.

Because of these technical problems and deficiencies, adopting the draft subbasin plans into the Fish and Wildlife Program will, on aggregate, not be based upon sound biological objectives, will not treat the Columbia Basin as a single system, and will fail the four tests posed by our member tribes: consistency with Treaty-reserved fishing rights, program effectiveness, program accountability, and program equitability.

ATTACHMENT 1

Comments on Mainstem Plans

General Comments on Mainstem Subbasin Plans

We reiterate and incorporate by reference CRITFC's extensive comments on the NPCC Mainstem Amendments to the Fish and Wildlife Program. Partitioning the Columbia and Snake River mainstems into arbitrary pieces leads to a fragmented perspective for the Columbia Basin and limits consideration of strategies and actions to restore anadromous fish throughout the basin. The big picture issues- hydrology and impacts to fish and wildlife from the presence and operation of the Columbia Basin hydrosystem in both the US and Canada are subjugated to focus on tributaries. We could find no mention in any of the mainstem plans of the Columbia River Treaty, the Non-Treaty Storage Agreement, the Pacific Northwest Coordination Agreement, system flood control, Mid-Columbia Hourly Coordination or any other existing management plan that virtually controls the river and seriously limit achievement of the NPCC's stated goal to restore fish and wildlife to sustainable and harvestable populations.

Indeed, there is very scant mention of any specific strategies to improve passage and direct and indirect survival for anadromous fish much of whose habitat has been restricted by dams and flow manipulation for other uses such as power, flood control and irrigation. Also notably absent from any of the mainstem plans is a holistic perspective on the fish production limiting factors and contamination of fish from the cumulative and synergistic effects of degraded water quality in the mainstem. For example, there is no mention of considerable evidence of the seepage of nuclear material into the Hanford Reach that could directly affect the last great naturally producing chinook population left in the basin. Other critical and holistic issues that are not mentioned in the mainstem plans include the threats of global warming and proliferation of exotic species such as zebra mussels, mud snails and Eurasian milfoil.

White Sturgeon

In all plans, a linear written out series of objectives and strategies is preferable to the "fill in the box" process recommended by Council staff.

In all plans that indicate they are "mainstem" river plans; the plans must incorporate the needs of the mainstem species such as white sturgeon. Several "mainstem" plans opted out of doing any objectives and strategies for the mainstem, instead they indicated that other existing processes would sufficient. This is unacceptable and must be corrected.

Production level goal for white sturgeon populations in all mainstem plans should be 5 kg/hectare.

Supplementation must be an important production element for white sturgeon in all mainstem plans.

Pacific Lamprey

Regarding Pacific lamprey, a preliminary SAR value should range be 6% to 10%, due to the marked decline since the 1960's and the need for rebuilding runs if a listing is to be avoided.

An upcoming conference on Pacific lamprey this fall will focus on the policy and technical needs of Pacific lamprey recovery in the Columbia Basin and how the subbasin plans will contribute to this effort.

Among other deficiencies, these significant omissions in the mainstem plans render their worth as highly questionable at best and completely inadequate at worst. The NPCC should require a complete revamping of these plans in an overall mainstem framework where the river is considered holistically, such as the NWPPC achieved with *Return to the River* (Williams et al. 1996). The following are specific comments on several of the mainstem plans that further focus the mainstem plan deficiencies with respect to the foregoing points.

Upper Columbia Subbasin (mainstem)

This plan fails to provide any background on the hydrology of the upper portions of the Columbia Basin as managed under the Columbia River Treaty, including the Non-Treaty Storage Agreement and Pacific Northwest Coordination Agreement. This is a critical omission. Operation of storage reservoirs in this subbasin and above heavily influence the fish and wildlife productivity of all of the subbasins below this subbasin. Further, there are no strategies in this plan that would alter or modify extant operations (i.e. flood control, hydropower, irrigation) of the Columbia Basin hydrosystem to the benefit of restoring fish and wildlife operations basin wide. As such, this plan has especially very limited value concerning anadromous fish restoration and meeting the NPCC goals of achieving sustainable, harvestable stocks.

In the plan's major finding and conclusions, there is no mention of tribal treaties or *U.S. vs Oregon* with respect to legal mandates that direct fish and wildlife management for this subbasin. The plan attempts to downplay of violations of water quality standards for total dissolved gas and temperature in the mainstem dam reservoirs in this subbasin, yet the violations are real and likely reduce anadromous and resident fish productivity in this subbasin. The plan fails to mention that Washington Department of Ecology granted instream water permits in 2001 despite drought conditions. The plan is dated and does not include the findings of an important report by the National Research Council, *Managing the Columbia River: Instream Flows, Water Withdrawals and Salmon Survival* (NRC 2004) that outlines the fact that no additional water withdrawals should be implemented during summer periods, especially in dry years due to serious impacts to already depleted anadromous fish populations.

ATTACHMENT 1

This subbasin plan's vision fails to specifically call for restoration of sustainable, harvestable, salmon runs for tribal and non-tribal peoples which is the vision of the 2000 NPCC Fish and Wildlife Program. Structural changes to the hydrosystem are not included in the management goals of the subbasin, and changes in hydrosystem operations are downplayed as only one of a number of different actions, when the primary cause of anadromous fish decline in the presence and operation of the hydrosystem in this subbasin. While the plan emphasizes restoration of habitat, restoration of mainstem habitat is not addressed.

Authors of this plan did not select either white sturgeon or Pacific lamprey, but considered them only species of the mainstem Columbia River and since the plans intent was to focus on tributaries, not to include them as focal species, only choosing steelhead/rainbow trout and Chinook salmon. This is decision is incorrect, particularly since Pacific lamprey are tributary spawners and rear in the tributaries. Resident reservoir rainbow trout are a poor choice when compared with bull trout and other anadromous salmonids. We recommend white sturgeon and Pacific lamprey be included as focal species in forthcoming revisions of the plan.

While the plan mentions that coho are supplemented by the Yakama Nation it does not recognize that thousands of adults are returning annually to the subbasin, nor does the plan call for protective passage at the Mid-Columbia dams and reservoirs and mitigation for coho lost at those projects. The plan fails to note that juvenile steelhead may residualize in mainstem reservoirs for many years before migrating to sea (Peven et al. 1994). The plan fails to note that there is a flow- survival relationship for steelhead (Berggren and Filardo 1993). The characterization used in the plan of "summer/fall" chinook is a misnomer and does not account for substantial differences in life history characteristics between upper Columbia summer and fall chinook and is inconsistent with management paradigms expressed in *U.S. v Oregon* and the *U.S.-Canada Salmon Treaty.*

The plan supports the strategy of maximizing hatchery production of yearling summer chinook which is contrary to the subyearling natural life history of this stock. Dam passage improvement must be implemented to allow for the persistence and survival of naturally produced and hatchery produced and supplemented subyearling summer chinook, hatchery strategies should not be changed in order to compensate for poor dam passage conditions. Research in the Tucannon and other rivers has clearly indicated that hatchery production of yearling chinook leads to earlier adult returns and disproportionate sex ratios that impact overall stock productivity.

The plan mentions lamprey but fails to mention that only half of adults radio-tagged below Priest Rapids make it above the dam or the fact that to date, there is no specific adult passage information from radio-telemetry studies at Rock Island, Rocky Reach or Wells dams.

Section 6.2.2 states that the working hypothesis that states the limiting factor for fish production is the climate and flow, but the mainstem dam and reservoir mortalities that

are likely the greatest limiting factor of tributary production are not even mentioned (Petrosky et al. 2000).

There are no strategies for reducing mainstem dam and reservoir mortalities in this subbasin plan which are the key limiting factors to restoring anadromous fish in this subbasin to sustainable, harvestable levels that is the goal of the NPCC Fish and Wildlife Program. The Quantitative Analysis Report (Cooney 2000) and related reviews (Schaller et al. 2000) indicate that the performance standards under the Mid-Columbia HCPs will not be adequate to avoid jeopardy, much less to provide for sustainable, harvestable stocks.

White Sturgeon Comments:

White sturgeon were not listed as a focal species but in the Aquatic/Fish section were discussed in Objectives 4 and 5, with strategies listed for each objective. Objective 4 focused on the long-term persistence of white sturgeon through the subbasin mainstem, via studies flows, dam passage, spawning, and predation. Objective 5 focused on improving current knowledge via a life history study throughout the study reach and how supplementation might affect the current population.

Some elements of the previously mentioned strategies have already been conducted in Priest Rapids and Wanapum reservoirs and to a lesser degree in Rock Island reservoir via ongoing FERC re-licensing studies. However, a number of elements have not been included in the plan's objectives and accompanying strategies. These include objectives for white sturgeon sustainability, production, progress regarding the TRP goals, regular recruitment and increased broodstock levels, and equally important, the need to produce sturgeon that are fit for human consumption. Currently the Oregon Department of Human Services recommends a reduction or avoidance of eating the fatty parts of any sturgeon harvested from Bonneville Reservoir.

Urgent and high priority strategies to achieve the objectives focus on continued harvest management, monitoring of water quality and contaminant loads, using the hydrosystem to produce sturgeon whenever possible (minimum instantaneous discharge of 250kcfs during water temps of 13 to 15^{o} C).

Other strategies of lesser importance are fish passage, using Bonneville Pool as a donor population for other less productive populations, the use of hatchery supplementation if Bonneville Pool productivity fails over the long term to boost productivity.

Most important production points that are basin wide needs are the 250 kcfs instantaneous flows during water temps of 13 to 15^{o} C, the need for water quality and contaminant monitoring, the striving to obtain a production (natural/supplemented recruitment and individual growth) goal of approximately 5kg/hectare annually.

I would recommend that the strategy regarding predation be removed as the basic information is known, but not necessarily something that can or should be implemented.

Pacific Lamprey comments:

The strategies detailed in the plan are essentially research topics that have or should have, or will be investigated during FERC re-licensing studies for Grant, Chelan, and Douglas PUD's projects. In several instances studies such as adult distribution studies, improved lamprey counts, and hydroelectric impacts on juvenile and adult lamprey have been requested as part of the re-licensing research. These efforts and other strategies listed in the plan are obligations of the PUD's as mitigation for the impacts to the Pacific lamprey resource via project operations. Additional study strategies to include:

-Investigate and were necessary improve adult lamprey upstream passage at Priest Rapids, Wanapum, Rock Island, Rocky Reach, Wells, and Chief Joseph dams, and provide the necessary repairs and modifications to provide for a minimum of 80% passage efficiency at each project. Urgent need.

-Investigate and provide necessary improvements for downstream passage for juvenile lamprey at Priest Rapids, Wanapum, Rock Island, Rocky Reach, Wells, and Chief Joseph dams. Urgent need.

-Reduce exposure of juvenile lamprey to contaminants in reservoir and tributary habitats. Urgent need.

-Investigate use of mainstem reservoirs by juvenile lamprey. Urgent need.

-Minimize stranding of juvenile lamprey. Urgent Need.

-Protect functioning habitats and restore impaired habitats, in the mainstem and tributaries. High Priority need.

Lower Mid-Columbia Subbasin (mainstem)

This mainstem plan focuses on critical tributaries entering the Columbia River between the town of White Salmon and the mouth of the Walla Walla River, but ignores the remaining mainstem habitat upstream to Priest Rapids Dam the end of its planning area. The plan does include the objectives for white sturgeon in the mainstem of the Columbia, and Pacific lamprey are considered a fish of special interest.

Only a very small section of the plan addresses hydro impacts to the Hanford Reach and anadromous fish productivity in the Reach. For example, the plan does not address loss of spawning habitat, redds, juvenile salmon and critical habitat from flow fluctuations caused by power peaking in the Reach. The plan mentions a settlement agreement

(Vernita Bar Plus) that from a limited utility perspective addresses many of the flow issues in the Hanford Reach, but the plan does not address the limitations of the agreement in resolving flow impacts to the Reach. For example, there is no mention of the importance of Mid-Columbia Hourly Coordination in reducing flow fluctuations. Further, there is no quantitative assessment of the impacts of water withdrawals from the Columbia Basin and Umatilla Irrigation Projects on fish and wildlife resources. The plan fails to address substantial fish water quality and critical habitat losses from the presence and operation of Wanapum, Priest and McNary dams and upstream storage projects regulated under the Columbia River Treaty.

Instead, the plan places an inordinate focus on Rock Creek, a relatively small tributary that empties into the Columbia River.

There is no mention of tribal harvest, hatchery or supplementation management. For example, the fact that over 20,000 adult coho returned to Priest Rapids Dam in

Sections 7.1.2 and 7.1.3 contain goals and objectives for the management plan for this subbasin. Much of the regional scientific information regarding passage losses has not been included in the plan. For example, Moser et al. (2003) and Grant PUD noted that only about 50% of adult lamprey tagged and released below Bonneville and Priest Rapids are able to pass the first dam. Further, there are no discrete actions offered in the plan to better protect fish or mitigate for dam and reservoir losses. Information regarding fish habitat and the presence, distribution of salmonids, sturgeon and Pacific lamprey is completely lacking. For example, in 2003 the ISAB recommended that diel flow fluctuations be reduced to facilitate juvenile salmon passage, and this is one of such actions that should have been included in the plan.

While the goals and objectives and strategies for white sturgeon are provided in the subbasin plan matrix, there is no such section for salmon, steelhead or Pacific lamprey. This is a key failing of this mainstem subbasin plan.

White Sturgeon comments:

Overall, the objectives and strategies are comparable to the detail presented in the Columbia Gorge subbasin plan.

It is recommended that the format used to display the Section 7.3 White Sturgeon Key Findings, Hypotheses, Biological Objectives and Strategies be changed to the linear written out format used in the Columbia Gorge plan.

The key finding regarding the potential impacts of egg, larval, and YOY predation is a concern, but the strategy of a suite of predator control studies and removal programs are unnecessary and only support the status quo of current hydrosystem operations. Given the number of native and exotic fish species that are known to eat sturgeon eggs and prey

upon larval and YOY sturgeon, such efforts would be exceedingly expensive and create ecological chaos in the river ecosystem.

Additionally, objectives do not explicitly state support for the TRP and for efforts to limit contaminants in both the water and the sediments in the mainstem and its associated tributaries. Objectives need to be crafted by the authors to address these concerns.

Pacific Lamprey comments:

As a species of interest, but not a focal species, Pacific lamprey had only 2 specific objectives, but no specific strategies were incorporated into the plan. The first objective focused on habitat relationships with regard to passage problems in the mainstem and possibly in tributaries. Secondly, the focus was on habitat restorations. I recommend the following comments to use for Pacific lamprey for addition in the Lower Middle Columbia:

-Investigate adult lamprey upstream passage at The Dalles, John Day, and McNary dams, and provide the necessary repairs and modifications to provide for a minimum of 80% passage efficiency at each project. Urgent need.

-Investigate and provide necessary improvements for downstream passage for juvenile lamprey at The Dalles, John Day, and McNary dams. Urgent need.

-Reduce exposure of juvenile lamprey to contaminants. Urgent need.

-Investigate use of mainstem reservoirs by juvenile lamprey. Urgent need.

-Minimize stranding of juvenile lamprey. Urgent Need.

-Avoid direct dredging mortality. Urgent Need.

-Protect functioning habitats and restore impaired habitats, in the mainstem and tributaries. High Priority need.

Columbia Gorge Subbasin (mainstem)

The Columbia Gorge Subbasin Plan (CGSP) provides the greatest level of detail and information for white sturgeon and Pacific lamprey in the form of written out objectives and strategies. It provides excellent detail on both the surrounding landscape and the mainstem of the Columbia River contained between Bonneville and The Dalles dams. Unlike other mainstem subbasin plans, it focuses exclusively on the mainstem Columbia River, not on the surrounding tributaries.

Additionally, the format for presentation of the species objectives and the accompanying strategies is presented in a written out format versus text in the box format as suggested by Council formatters. The written linear format allows for greater description and detail for the objectives and presents the information in a clearer format for reviewer.

I recommend that the objective and strategy sections in other plans use this format. It presents the subbasin information in a more logical, systematic approach for reviewers and authors alike.

White Sturgeon Comments:

As mentioned previously, this subbasin used a different format and has created an "archetype" format for all other subbasin plans to follow. The authors had a substantial amount of information on white sturgeon to use for their six objectives.

Objectives for white sturgeon emphasized sustainability, production, progress regarding the TRP goals, regular recruitment and increased broodstock levels, and equally important, the need to produce sturgeon that are fit for human consumption. Currently the Oregon Department of Human Services recommends a reduction or avoidance of eating the fatty parts of any sturgeon harvested from Bonneville Reservoir.

Urgent and high priority strategies to achieve the objectives focus on continued harvest management, monitoring of water quality and contaminant loads, using the hydrosystem to produce sturgeon whenever possible (minimum instantaneous discharge of 250 kcfs during water temps of 13 to 15° C).

Other strategies of lesser importance are fish passage, using Bonneville Pool as a donor population for other less productive populations, the use of hatchery supplementation if Bonneville Pool productivity fails over the long term to boost productivity.

Most important production points that are basin wide needs are the 250 kcfs instantaneous flows during water temps of 13 to 15° C, the need for water quality and contaminant monitoring, the striving to obtain a production (natural/supplemented recruitment and individual growth) goal of approximately 5kg/hectare annually.

Recommended actions for research, monitoring, and evaluation are logical and supported by hypotheses and tiered to the Objectives. This organization is a model template for all other subbasin mainstem plans!

The most important element of this section (White Sturgeon Research, Monitoring, and Evaluation pages 81-84) provides a clear, focused and most importantly, a Basin wide template for white sturgeon. Many of these are directly transferable to the Lower Middle Columbia, the Upper Middle Columbia and the Lower Snake subbasin plans. The authors of the Columbia Gorge Plan also indicated this as an "out of basin" need under the objectives section in the Research, Monitoring, and Evaluation template.

Pacific Lamprey Comments

Unlike white sturgeon, little information exists for this section of the Columbia for Pacific lamprey, except for adult passage at Bonneville Dam and to a lesser extent at The Dalles Dam. In spite of this, the authors made good assumptions about the needs of both juvenile and adult lamprey and the different habitat needs at various life stages. Changes to the habitat from permanent and daily hydropower operations, contaminants, and susceptibility to stochastic events (chemical spills) were listed as areas of concerns and vulnerability for Pacific lamprey in the Columbia Gorge subbasin.

The authors had two objectives; 1) restore Pacific lamprey populations and 2), focus on the restoration goals in the TRP.

Strategies with urgent needs to achieve these objectives were correctly focused on adult and juvenile passage, contaminant impacts to juveniles rearing in the mainstem.

High priority goals included mainstem habitat use by juveniles, minimization of juvenile stranding, avoidance of direct dredging mortality, and the protection and restoration of function habitats used by juvenile lamprey.

Recommendations for Pacific lamprey Research, Monitoring, and Evaluation follow the urgent and high priority strategies and equally important use a linear descriptive format that more clearly articulates the relationship between the Objectives, Strategies, and recommendations for Research, Monitoring, and Evaluation.

Lower Snake Subbasin (mainstem)

This plan includes a portion of the Snake River from its junction with the Columbia upstream to Lower Granite Dam, but the plan only focuses on selected tributaries not the mainstem Snake River. The authors of this plan state that the mainstem river will be covered through other forums such as the mainstem amendment process. Consequently mainstem inhabitants such as white sturgeon and Pacific lamprey were not represented with objectives and strategies for recovery. This is mistake that needs to be corrected. White sturgeon throughout the Snake River are experiencing low productivity, poor recruitment, and lack intensive fisheries management. White sturgeon in the mainstem reach of the Snake represented in this subbasin plan have a better opportunity for increased population and productivity when compared to sturgeon populations in other reaches of the Snake and Columbia rivers.

Similarly, Pacific lamprey that migrate through this mainstem reach of the Snake river and into its tributaries must rank as a focal species in this plan. The petition to list the Pacific lamprey as a federally Endangered Species should be wakeup call to all subbasin

planners which have or had Pacific lamprey in their subbasin. It is critical that these native species be represented in this plan.

White Sturgeon Comments

White sturgeon were mentioned in this planning effort as a species of interest by the Nez Perce Tribe, with a minor addition of information added by the Tribe in the Aquatic Species of Interest. This addition does not create specific objectives or strategies, but rather was meant as a placeholder by the Nez Perce Tribe to address needs for white sturgeon via an ongoing Biological Risk Assessment Team (BRAT) process for white sturgeon upstream of Lower Granite Dam. This process only focuses on the white sturgeon population from Lower Granite to Hells Canyon Dam, which is essential in another subbasin plan, the Hells Canyon Subbasin Plan. To ensure that white sturgeon in the reach for the Lower Snake River mainstem are adequately represented, it is recommended that the objectives and strategies for the Columbia River Gorge Plan be added to the Lower Snake Subbasin Plan for the following reasons:

-White sturgeon populations in this section of the Snake River exhibit reduced reproduction, inconsistent recruitment, and are below the 5kg/hectare productivity level, consistent with a healthy, productive population.

-No provisions are made in this plan for white sturgeon that are consistent with the TRP, although elements of the TRP are listed in the Aquatic Species of Interest, Section 3.8.

-White sturgeons in the Columbia Basin are under increased pressure from environmental and anthropomorphic changes, and competition from non-native plants and animals. It is not enough to ask for a placeholder for this species. White sturgeon in this mainstem subbasin must be given priority in this process to ensure their long-term viability and presence in the ecosystem with tangible objectives and strategies.

-As mentioned by the Nez Perce Tribe in the SOI section, the TRP calls for a halt to the decline of sturgeon, lamprey and anadromous fish in 7 years time and within 25 years a rebuilding of these species populations to naturally sustainable levels. This cannot be done without specific objectives and strategies that target a stabilization of the depressed populations and production goals for each reservoir population in this reach of the Snake River.

Pacific Lamprey Comments

Like white sturgeon, Pacific lamprey were not a focal species and other than a brief mention in the SOI section, no specific language in the form of objectives and strategies for Pacific lamprey appears in this document. Objectives and strategies for Pacific lamprey from the Columbia Gorge subbasin plan should be added to the Lower Snake subbasin plan as a starting position. The first is to "Restore Pacific lamprey populations

to provide for natural self-sustaining populations that will support harvest at traditional locations. The second objective is to work toward tribal restoration goals outlined in the TRP (1995). Specific strategies for the Lower Snake mainstem include:

-Investigate adult lamprey upstream passage at Ice Harbor, Lower Monumental, Little Goose and Lower Granite dams, and provide the necessary repairs and modifications to provide for a minimum of 80% passage efficiency at each project. Urgent need.

-Investigate and provide necessary improvements for downstream passage for juvenile lamprey at Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams. Urgent need.

-Reduce exposure of juvenile lamprey to contaminants. Urgent need.

-Investigate use of mainstem reservoirs by juvenile lamprey. Urgent need.

-Minimize stranding of juvenile lamprey. Urgent Need.

-Avoid direct dredging mortality. Urgent Need.

-Protect functioning habitats and restore impaired habitats, in the mainstem and tributaries. High Priority need.

Hells Canyon Subbasin (mainstem)

White sturgeon and Pacific lamprey are both covered in this plan, sturgeon more so than lamprey. The single strategy for white sturgeon focused on the loss of prey species for white sturgeon and the effect it has on the population in Hells Canyon.

It is recommended that the objectives and strategies listed for white sturgeon in the Columbia Gorge be adopted for this subbasin. It is also recommended that objectives and strategies for the Pacific lamprey detailed in the Columbia Gorge also be adopted for the Hells Canyon Plan.