Staff summary of Issues & Recommendations
Resident Fish Substitution/Blocked Area Mitigation

*Preliminary draft, please refer to full recommendations for complete review

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2009 Fish and Wildlife Program Section

Section II.C. 1. Substitution for Anadromous Fish Losses
Section II. D. 8. Resident Fish Substitution Strategies
Section VI. D.2. Reintroduction of Anadromous Fish in Blocked Areas

Recommendation Synthesis

Two program concepts are elaborated in these recommendations. The recommendations from many of the agencies and tribes call on the Council to amend to its language regarding mitigation in areas that have been blocked by development of the hydroelectric system by 1) updating or adding language regarding the reintroduction of anadromous fish and 2) updating or adding language regarding substituting other species for lost anadromous fish.

Many state agencies and tribes [**Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), WA State Governors Salmon Recovery Office, Grand Ronde Tribe, Cowlitz Tribe, Nez Perce Tribe, Upper Snake River Tribes]** recommend updating the language in section II.C. 1 to indicate that the loss of anadromous fish in blocked areas are not been adequately mitigated and they recommend both restating the current guiding principles and converting three existing principles to objectives to address this need. These objectives are to investigate or take action to reintroduction of anadromous fish in blocked areas where feasible, restore and increase abundance of native resident fish when appropriate conditions exist and to develop and administer opportunities for consumptive and non-consumptive resident fisheries.

Three tribes/tribal entities **[Coeur d'Alene Tribe, UCUT, Grand Ronde Tribe, Spokane Tribe]** recommend a multi-phased approach begin reintroduction of anadromous fish into their historic range, the **USFWS** recommends an explicit assessment of the feasibility of reintroduction of anadromous fish. **The Burns Paiute Tribe, CRITFC, ODFW, WDFW, YIN, CTUIR** support assessment and reintroduction where feasible. The **Kalispel Tribe** recommends the Council consider bull trout passage at Albeni Falls a priority.

American Rivers and **26 individuals** recommend the reintroduction of native fish into areas blocked by dams or other man-made barriers.

Several tribes/tribal entities [**Coeur d'Alene Tribe (13)/UCUT (27)/Grand Ronde Tribe (18)/Spokane Tribe (26)]** recommend changing the name of the current "resident fish substitution policy" to the "Anadromous Fish Substitution Policy" to more clearly describe its purpose.

The Coeur d'Alene Tribe, UCUT and Spokane Tribe all recommends specific changes to the current Resident Fish Substitution language in the Program**.** These recommendations describe needs and priorities and timelines for implementing mitigation actions in these areas.

Several state agencies and tribes [**ODFW, WDFW, Burns Paiute Tribe, Cowlitz Tribe, Nez Perce Tribe, USRT]** recommend the Council clarify Program goals, objectives and the methodology for addressing anadromous fish losses through resident fish substitution actions, in order to evaluate implementation and effectiveness of this portion of the Program. They also recommend that BPA provide adequate funding for projects such that the objectives are achieved.

Recommendation Summary

Oregon Department of Fish and Wildlife (ODFW) (3)/Washington Department of Fish and Wildlife (WDFW) (4)/WA State Governors Salmon Recovery Office (5)/Grand Ronde Tribe (18)/Cowlitz Tribe (22)/Nez Perce Tribe (25)/Upper Snake River Tribes (USRT) (28)
The Program should also continue to recognize the mitigation responsibility for areas where anadromous fish have been extirpated (see Substitution for Anadromous Fish Losses):
Replace existing introductory paragraphs at the top of page 12 with the following: "Part of the anadromous fish losses has occurred in the blocked areas. A corresponding part of the mitigation for these losses should occur in those areas. The Program has a "Resident Fish Substitution Policy" for areas where anadromous fish have been extirpated. Given the large anadromous fish losses in the blocked areas, these actions have not adequately mitigated these losses. The following objectives address anadromous fish losses and mitigation requirements in all blocked areas:

- Investigate reintroduction of anadromous fish into blocked areas, where feasible.
- Restore and increase the abundance of native resident fish species (subspecies, stocks and populations) throughout their historic ranges when original appropriate habitat conditions exist or can be feasibly restored or improved.
- Develop, administer and increase opportunities for consumptive and non-consumptive resident fisheries for native, introduced, wild, and hatchery-reared stocks that are compatible with the continued persistence of native resident fish species and their restoration to near historic abundance (includes intensive fisheries within closed or isolated systems)."

ODFW (3)/WDFW(4)/Burns Paiute Tribe (12)/Cowlitz Tribe (22)/Nez Perce Tribe (25)/USRT (28)
Recommendation: The Council should work with the fish and wildlife managers to provide a clearer definition of Program goals, objectives and methodology for addressing anadromous fish losses through resident fish substitution actions, in order to evaluate adequate implementation and effectiveness of this portion of the Program.
Measure: BPA should provide adequate funding for projects such that the following objectives are achieved:

- Restore native fish species (subspecies, stocks and populations) to near historic abundance throughout their historic ranges where original habitat conditions exist and where habitats and access can be feasibly restored.
- Take action to reintroduce anadromous fish into blocked areas, where feasible (this objective should receive the highest priority).
- Administer and increase opportunities for consumptive and non-consumptive resident fisheries for native, introduced, wild, and hatchery-reared stocks that are compatible with the continued persistence of native resident fish species and their restoration to near historic abundance (included intensive fisheries within closed or isolated systems).

ODFW (3)/WDFW (4)/Cowlitz Tribe (22)/USRT (28)/US Fish and Wildlife Service (USFWS) (33)
Current Program: Page 56, Strategies in Specific areas

The language regarding restoration of anadromous fish passage should be moved to its own section under Section II, Basinwide Provisions, II-D. Basinwide Strategies entitled

"Reintroduction of Anadromous Fish into Blocked Areas." Include the following measures:

Measure: BPA should fund collaboration with the sovereigns and other responsible partners and managers of hydropower projects (investor owned, non-federal, and publically-owned) to explore the feasibility of and development of new programs for reintroduction of anadromous fish, and fund reintroduction of adult and juvenile life stages, into historical but currently blocked habitat.

Nez Perce Tribe (25) recommends that the Program (Reintroduction in blocked areas -Page 56) be reworded to "…evaluate the feasibility of salmon, steelhead and Pacific lamprey reintroductions consistent with the objectives of the appropriate subbasin plans.

Grand Ronde Tribe (18)
Restate the mitigation responsibility for areas where anadromous fish have been extirpated (NPCC 2009 Program, Page 12: C. Biological Objectives/ 1. Basin-level Biological Objectives). The Program should maintain the four bulleted principals that guide mitigation requirements for anadromous fish losses in all blocked areas resulting from development and operation of hydroelectric facilities.

Rationale: These principals provide a solid basis for mitigation in the blocked area and should not be lost or weakened in the amendment process.

Burns Paiute Tribe (12)
Current Program: Page 23-24, Resident Fish Substitution Strategies
Measure: BPA should collaborate with other responsible partners and managers of hydropower projects (investor owned, non-federal, and publically-owned) to explore the feasibility of and development of new programs for reintroduction of salmon, including passage of adult and juvenile life stages, into historical but currently blocked habitat.

Coeur d'Alene Tribe (13)/UCUT (27)/Grand Ronde Tribe (18)/Spokane Tribe (26)
recommend the Council change the "Resident Fish Substitution Policy" to the "Anadromous Fish Substitution Policy".

Coeur d' Alene Tribe (13)/UCUT (27) recommend adding: Anadromous fish substitution projects will:

- address unmitigated losses of salmon and steelhead attributable to development or operation of hydropower projects;
- generally occur in the vicinity of the salmon and steelhead losses being addressed;
- use resident fish (native and non-native fish), native wildlife, habitat, and/or data gap projects; and
- be consistent with the following priorities for Columbia River Basin resident fish. These priorities should be fully considered in addressing fish losses related to development and operation of the hydropower system:

- Accord highest priority to weak, but recoverable, native populations injured by the hydropower system, as such populations are identified for the Council by the fishery managers
- Accord high priority to areas of the basin where anadromous fish are not present.
- Accord high priority to resident fish projects that also provide benefits for wildlife and/or anadromous fish.
- Accord high priority to populations that support important fisheries. This priority applies to introduced and native species, including trout, sturgeon, kokanee, burbot, bass, perch and others.

The **Coeur d'Alene Tribe (13) and UCUT** (27) recommend the following phased approach to begin reintroduction of anadromous fish into their historic range:

Phase I - Immediately fund studies in the period covered by this Program to investigate scientific-based feasibility of upstream and downstream passage options for salmon and steelhead, investigations to determine project timelines, appropriate potential donor stocks, evaluation of existing quantity, quality and capacity of salmon habitat in the upper basin, simulate hydro operations, and assess socio-economic implications of different hydrograph scenarios . Develop stakeholder and regulatory support for passage and associated communication plans.
Phase II - Utilizing information gained through Phase I, test salmon reintroduction and interim fish passage facilities at Chief Joseph and Grand Coulee Dams or identify additional studies and/or alternatives that are necessary to advance the fish passage planning process.
Phase III - Construct permanent juvenile and adult passage facilities and propagation facilities necessary to reintroduce salmon and steelhead above the dams. Continue to inventory, record, implement, and maintain priority habitat improvements and habitats above Chief Joseph and Grand Coulee dams for the reintroduction of anadromous fish.
Phase IV - Monitor, evaluate, and adaptively manage the reintroduction efforts. Implement additional habitat and hydro-related infrastructure improvements as necessary.

Columbia Intertribal Fish Commission (14)

Current Program: Page 56, Strategies in Specific areas

The 2009 Fish & Wildlife Program includes language (page 56) to investigate "Reintroduction of anadromous fish into blocked areas." With innovative passage techniques completed and/or under development and testing throughout the US (e.g., Round Butte on the Deschutes River and several Willamette River Basin projects in Oregon; Howard Hanson Dam and Swift Reservoir, in Washington) it is timely to fully define this aspect of the Council's Program to require more active collaboration of the Bonneville Power Administration with the sovereigns and other responsible partners of hydro projects (investor owned, non-federal, and publically-owned) creating blockages to anadromous fish in the Columbia River Basin, to explore the feasibility of and to develop and implement new programs for the reintroduction of anadromous fish, include passage of adult and juvenile life stages, into these historical but currently blocked habitats.

Passage and reintroduction of anadromous fish is a key element of a truly integrated watershed

approach to the Columbia River Basin and to the NPCC's Fish and Wildlife Program. For example, at each blocked area of the basin, reintroduction of anadromous fish would be assessed and if feasible, reintroduction and passage would proceed in an incremental phased approach (planning and design, testing, construction, evaluation and adaptation), progressing to later phases upon successful conclusions or outcomes from previous phases. These types of assessments would determine the feasibility of anadromous fish reintroductions, including costs, partnership opportunities among responsible parties and potential timelines for initiation of these programs.

Confederated Colville Tribes (15)
Amend the Program to support the implementation of projects under the 2008 CCT Accord: Continue supporting existing artificial production (based on species identified by CCT) to substitute for lost salmon and steelhead blocked in blocked areas.

Yakama Nation (17)
Current Program 11.C.1, Basin-level Biological Ob jectives. p. 1 2: Modify the current program language under Substitution for Anadromous Fish Losses to allow the FWP to fund active reintroductions of anadromous fish into blocked areas when it has been determined that the reintroduction contributes to FCRPS mitigation that cannot be achieved by other means.

ODFW (3)/WDFW (4)/YIN (17)/CTUIR (19)
Revise text under Reintroduction of Anadromous Fish in Blocked Areas on Page 56 as follows: " ....evaluate the feasibility of salmon, steelhead, and Pacific lamprey reintroduction, consistent with the objectives in the appropriate subbasin plans."

Kalispel Tribe (23)
To further this interest and help fulfill the Program's existing vision, we recommend that the Council incorporate the following into its amended Program:

This statement: "The Northwest Power Act provides an independent obligation for providing fish passage at Albeni Falls Dam. The dam extirpated migratory bull trout from downstream waters in the Pend Oreille River and its tributaries more than 50 years ago, rendering over 230 miles of bull trout habitat functionally useless. Fish passage is necessary to achieve the aquatic resource objectives for the Columbia River Basin, Intermountain Province, and Pend Oreille Subbasin. These objectives include, but are not limited to: (1) maintaining functional ecosystems for resident fish, (2) restoring resident fish species to near historic abundance throughout their historic ranges, and (3) providing abundant harvest opportunities for tribal members (including Kalispel people, who have not been able to harvest bull trout in Reservation waters for decades due to the construction and operation of Albeni Falls Dam). The Council accordingly identifies fish passage at Albeni Falls Dam as one of the Program's highest priorities under the Northwest Power Act, and supports the timely completion of the bull trout feasibility study through the Kalispel Fish Accord as a way of achieving this conservation objective."
This statement: "Using the collaborative process set forth in the Kalispel Fish Accord, Bonneville and the Corps shall expeditiously identify and implement conservation measures to reduce the likelihood of harm to bull trout prior to the construction of permanent fish

passage at Albeni Falls Dam. Implementation of these measures shall not delay performance of actions that are already planned for completion under the Accord."

Spokane Tribe of Idaho (26)
The Council will include the following guidance language in the Program:
The Spokane Tribe of Indians is inextricably connected to the anadromous resources of the Columbia River. Historical estimated annual consumption of salmon and steelhead by the Spokane Tribe utilizing the habitat above Grand Coulee dam was 2.44 million pounds (Scholz et al 1985) with an additional undetermined amount harvested for use in trade. An estimated 4,000 to 5,600 tribal fisherman, from various tribes, congregated at key fishing sites in the United States portion of the Upper Columbia basin above Grand Coulee Dam The construction of Grand Coulee Dam in 1942 blocked access of anadromous fish to the upper portions of the Columbia River. The importance of the anadromous species to the tribes is far reaching. The loss affected indigenous peoples in many ways including economic, emotional, spiritual and ceremonial losses, dietary impacts, social exchange effects, and lost traditional skills, language, and knowledge. Current day initiatives have re-invigorated the linkages by way of sharing the resources of the Upper Columbia basin that are currently accessible to anadromous species.

To continue in a direction that increases accessibility of anadromous species to native peoples, the Spokane Tribe of Indians continue to pursue the goal of re-establishing anadromous in habitats above Grand Coulee Dam. The Northwest Power and Conservation Council's Fish and Wildlife Program has referred to the area above Grand Coulee Dams as the "blocked area." The Spokane Tribe of Indians recommends reference to this area be changed to "Habitats above Grand Coulee Dams." Fish passage into their historic range will involve a phased approach and the Spokane Tribe of Indians recommends the following:

Phase I- Bonneville Power Administration within 60 days of the adoption and implementation of the 2014 program will provide $250,000.00 dollars in start-up funds for an anadromous fish program with the Spokane Tribe of Indians.
Phase II -- Bonneville Power Administration will provide funding within
180 days of the adoption and implementation of the 2014 program for Phase I studies in the period covered by this Program to investigate scientific-based feasibility of upstream and downstream passage options for anadromous species, investigations to determine project timelines, appropriate potential donor stocks, evaluation of existing quantity, quality and capacity of habitat in the upper basin, simulate hydro operations, and assess socioeconomic implications of different hydrograph scenarios. Develop stakeholder and regulatory support for passage and associated communication plans.
Phase III - Utilizing information gained through Phase I,
Bonneville Power Administration will fund salmon reintroduction and interim fish passage facilities at Grand Coulee Dam or additional studies and/or alternatives that are necessary to advance the fish passage planning process.
Phase IV- Bonneville Power Administration will fund the construction of permanent juvenile and adult passage facilities and propagation facilities necessary to reintroduce anadromous species above Grand Coulee Dam. Continue to inventory, record, implement, and maintain priority habitat improvements and habitats above the blocked area for the reintroduction of anadromous fish.

Phase V- Bonneville Power Administration will fund the monitor, evaluate, and adaptive management of the reintroduction efforts and will implement additional habitat and hydro related infrastructure improvements as necessary.

The current program addresses the policy of Resident Fish Substitution. We recommend that this policy be amended for the next program. The intent being that the program continues as one of its highest priorities the mitigation efforts in habitats above Grand Coulee Dam. The "Compilation of Salmon and Steelhead Losses in the Columbia River Basin" (March 1986; NPCC 2009, Appendix E) provided an analysis of the contribution of the hydropower system to salmon and steelhead losses (see Council documents 87-15, 87- 15A and 87-15B) that was based on data from 1976. Based on this information, the Council addressed the extent to which resident fish, wildlife, habitat and substitutions should be used to mitigate losses of anadromous fish production in these areas. However, current Program actions are inadequate and have not met mitigation requirements resulting from the avoidable losses that have occurred since the construction of Grand Coulee Dam to present.

Anadromous fish losses that have occurred in the Spokane Tribe's usual and accustomed areas must be mitigated for in these areas pursuant to the Program's Resident Fish Substitution Policy. The "Compilation of Salmon and Steelhead Losses in the Columbia River Basin" and the "Numerical Estimates of Hydropower-related Losses," first adopted in the Council's 1987 Fish and Wildlife Program are the starting points for the Council's approach regarding substitution. The Spokane Tribe recommends including the following Principles guiding mitigation requirements for anadromous fish losses in all Spokane Tribe's usual and accustomed areas resulting from development and operation of Grand Coulee Dam. The Principles were developed and adopted by NWPCC in the Inter-Mountain Provincial Plan and carried forward to 2005 and 2009. These include:

Investigate reintroduction of anadromous fish into habitat areas above Grand Coulee Dam.
• Restore and increase the abundance of native resident fish species throughout their historic ranges when original habitat conditions exist or can be feasibly restored or improved.
• Develop and increase opportunities for consumptive and nonconsumptive resident fisheries for native, introduced, wild, and hatchery-reared stocks that are compatible with the continued persistence of native resident fish species and their restoration to near their historic abundance.
• When full mitigation by improving the abundance of native fish species is not feasible, manage non-native fish to maximize use of available existing and improved habitats, while complementing state and local regulations, in order to provide a subsistence- and sport-fishing resource, without adversely affecting native fish populations.

The council will include the following guidance language in the Program:
Anadromous fish losses (NPCC 2005, Appendix E) in the Spokane Tribe's usual and accustomed areas habitat above Grand Coulee Dam will be mitigated for in those areas. The program has an "Anadromous Fish Substitution Policy" for areas in which anadromous fish have been extirpated. The following actions are necessary to address anadromous fish losses and mitigation requirements in the area above Grand Coulee Dam:

- Council will direct the Administrator, the Bureau of Reclamation, the Army Corps of Engineers and any other appropriate Federal agencies to fund anadromous fish

reintroduction efforts with the Spokane Tribe consistent with the timeframes adopted by the council in the Intermountain Provincial Plan:

- Habitat surveys within the usual and accustomed area of the Spokane Tribe of Indians
- Feasibility studies for the reintroduction of anadromous in habitats above Grand Coulee Dam.
- Council will direct the Administrator, the Bureau of Reclamation, the Army Corps of Engineers and any other appropriate Federal agencies to restore native resident fish species (subspecies, stocks and populations) to near historic abundance throughout their historic ranges where original habitat conditions exist and where habitats can be feasibly restored.
- The Administrator and the Council will administer and increase opportunities for consumptive and non-consumptive resident fisheries for native, wild, and hatchery-reared stocks that are compatible with the continued persistence of native resident fish species and their restoration to near historic abundance (includes intensive fisheries within closed or isolated systems).
- Council will direct the Administrator, the Bureau of Reclamation, the Bureau of Land Management, the Army Corps of Engineers and any other appropriate Federal agencies to fund and provide access to anadromous fish resources based on recommendations from the Spokane Tribe of Indians.

Blocked habitat: Where habitat for a target population is blocked and therefore there are no opportunities to rebuild the target population by improving its opportunities for growth and survival in other parts of its life history, then the biological objective will be to provide a substitute. In the case of wildlife, where the habitat is inundated, substitute habitat would include setting aside and protecting land elsewhere that is home to a similar ecological community. For fish, substitution would include an alternative source of harvest (such as a hatchery stock) or a substitution of a resident fish species as a replacement for an anadromous species.

Council will include the following guidance language in the Program:
Anadromous fish loss mitigation: Mitigation in areas blocked to salmon and steelhead by the development and operation of the hydropower system has historically been inadequately funded. Flexibility in approach is needed to develop a program that provides mitigation for anadromous fish loss where in-kind mitigation cannot occur. The "Compilation of Salmon and Steelhead Losses in the Columbia River Basin" and the "Numerical Estimates of Hydropower-related Losses" contained in the Council Program (NPCC 1987, 1994, 1995, 2000, 2005) Technical Appendix E is the starting place for the Council's approach regarding anadromous fish loss mitigation.

(Anadromous Fish Mitigation Policy) Historically, a large proportion of the Tribe's diet was supported by the Columbia Basins bountiful anadromous fish runs. Following the 1941 completion of Grand Coulee Dam, the anadromous fish runs were extirpated from the upper reaches of the Columbia River. The end of the upper Columbia River anadromous fish runs forced Tribal members to shift from a diet rich in salmon to one comprised of a greater proportion of upland species. During this transition it was the forest that provided habitat for large mammals, including elk and deer, upon which the Tribe relied heavily (Grant et al. 1994). One way to begin to address the lack of mitigation efforts made for the loss of anadromous fish

resources is to mitigate with terrestrial subsistence species. The anadromous fish mitigation policy (formerly the resident fish substitution policy) will allow for the funding of projects aimed at expanding the availability of terrestrial subsistence species which have been more heavily relied upon by the Tribe since the extirpation of anadromous resources. Terrestrial subsistence species improvement project will include but not be limited to habitat acquisition, research, augmentation, development of

US Fish and Wildlife Service (33)
In the 2014 version of the Fish and Wildlife Program, the Council should develop a vision for reintroduction of anadromous fish into blocked areas and, over the next five years, define the path forward on this issue. During this time, the Council should conduct a comprehensive evaluation of the reintroduction of anadromous fish into blocked areas of the Columbia Basin. A comprehensive evaluation should:

- Identify specific Federal and non-Federal hydropower projects that currently block anadromous fish from historic spawning grounds in the Columbia Basin;
- Evaluate the success of the current efforts at re-introducing anadromous fish into blocked areas throughout the Pacific Northwest;
- Assess the feasibility of reintroducing anadromous fish at each Federal and non-Federal project that currently blocks anadromous fish from historic habitat, and evaluate the potential for eventual development of fish passage facilities.
- The details of a feasibility assessment should be developed in collaboration with the Federal and State fish and wildlife agencies, Native American Tribes, the appropriate Federal agencies, and the owners of non-Federal hydropower projects, if applicable. These assessments would evaluate the feasibility of anadromous fish reintroductions, at the reconnaissance level, to include costs, potential benefits, partnership opportunities, and timelines for initiation of these projects. We believe anadromous fish reintroduction should proceed sequentially, such that feasibility at each stage would be determined before the next phase is initiated.

American Rivers (49)
Reintroduce Native Fish Above Areas Blocked by Dams
The reintroduction of salmon and steelhead above Chief Joseph and Grand Coulee dams is under discussion in Columbia River Treaty conversations, and other processes are working toward reintroduction above impassable dams on the Snake River, Yakima River and elsewhere. The Fish and Wildlife Program should endorse these efforts and offer expertise and funding to help speed them along and ensure their success.

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Reintroduce native fish into areas blocked by dams or other man-made barriers.