

5.0 Resident Fish

Resident fish are freshwater fish that live and migrate within the rivers, streams, and lakes of the Columbia River Basin, but do not travel to the ocean. For the purpose of this program, anadromous white sturgeon, bull trout, and coastal cutthroat trout shall be classified as resident fish. Resident fish exist throughout the basin and are particularly important in areas where anadromous fish runs are blocked by natural or manmade obstructions. This section of the program addresses mitigation for resident fish losses caused by hydropower development and operations and substitutions of resident fish to compensate for losses of salmon, steelhead, and harvest opportunities in areas blocked by hydropower projects.

The development and operation of the Federal Columbia River Power System has contributed to the reduction in diversity, abundance, and habitat of most resident fish species. As with anadromous fish, which have been extirpated from ##% of the basin, reservoir operations may interfere with flows needed for resident fish spawning, incubation, emergence, rearing, and migration. In addition, hydropower operations impair the reservoir environment for spawning, incubation, and rearing of some reservoir-inhabiting resident fish species. Hydropower development and operations have especially impacted bull trout, which are federally listed as threatened throughout the Columbia River Basin, the Oregon Chub which is federally listed as Endangered, as well as the Kootenai River and Upper Columbia white sturgeon populations which are listed as endangered in the United States and Canada, respectively. Other native resident fish species impacted by the hydrosystem include, but not limited to, kokanee, redband trout, westslope cutthroat trout, burbot and mountain whitefish.

5.1 Resident Fish Program Goals and Objectives

The program goal for resident fish should emphasize the long-term stability of native fish in native habitats where possible, but also recognize that where impacts have severely changed the native ecosystem, the Program actions shall manage for, and utilize those species best suited for surviving in the altered ecosystem. Resident fisheries should be enhanced to allow for consumptive subsistence and recreational fisheries for the region's Indian tribes, as well as consumptive and non-consumptive recreational fisheries for sport anglers. A number of resident fish populations throughout the basin are depressed to an extent that they require immediate attention. To be effective, the Program should focus on funding resident fish measures that provide on-the-ground benefits, and use an adaptive management approach (as described in Section ##), that employs an M & E component to monitor success.

Resident Fish Mitigation Objectives

Achieve population characteristics of resident fish species within 100 years that, while fluctuating due to natural variability, represent on average, resident fish population characteristics prior to development and operation of the hydrosystem. Monitoring and evaluation strategies should be implemented to determine success and measure progress towards achieving biological objectives.

Resident Fish Substitution for Anadromous Fish Losses Objectives

Achieve harvest targets of harvestable-sized adult resident fish, on an annual basis, as partial mitigation for anadromous fish losses in the blocked areas. Monitoring and evaluation strategies should be implemented to determine annual harvest and to measure progress towards achieving biological objectives

Achieve target habitat conditions for resident fish, on an annual basis, as partial mitigation for anadromous fish losses in the blocked areas. Monitoring and evaluation strategies should be implemented to determine success and measure progress towards achieving biological objectives.

Measures to achieve the resident fish program goal shall include both resident fish mitigation and resident fish substitution objectives. Mitigation and substitution measures should achieve the long-term system goals of protecting, mitigating, and enhancing the health and viability of resident fish populations to meet consumptive and non-consumptive needs in the Columbia River Basin.

5.1A Principles

Resident Fish Mitigation

Hydropower development and operations have resulted in losses in abundance and diversity of resident fish. Measures to address the impacts, to resident fish and associated habitat, caused by hydropower development and operations shall be defined as resident fish mitigation. To promote comprehensive and cooperative watershed management, ecosystem diversity, productivity and stability as integral components of fish management strategies in the Columbia River Basin, and to conserve the natural genetic diversity within native resident fish species, subspecies, and unique stocks, the following resident fish mitigation principles should be applied:

- Protect, mitigate, and enhance all resident fish and associated habitat to the extent that they were or are affected by hydropower development and operation
- Protect, mitigate, and enhance all resident fish and associated habitat in hydropower system storage projects to the fullest extent from negative effects associated with water releases.
- In areas below storage projects, protect, mitigate, and enhance all resident fish and associated habitat that are affected by altered annual flow regimes, daily load following, temperature modifications, and nutrient trapping.
- Construction and inundation habitat losses are most effectively mitigated through replacement habitats and perpetual protection (easement or acquisition) of stream distance/area
- Mitigation is achieved at a minimum ratio of 1:1 for each increment of stream distance/area inundated or blocked.
- Land protection, operations, and maintenance activities are funded at current market rates.
- Land restoration funding shall be provided to restore degraded habitat.
- Long-term O&M funding shall be included in capital investments in the form of perpetual habitat protection activities to ensure habitat values are maintained.

Bonneville

5.1A.1 In consultation with the Members of the Columbia Basin Fish and Wildlife Authority, fund the development of a Columbia River Basin Resident Fish Loss Assessment Methodology. Include recommendations, to be completed in 2010, for assessing, in a consistent manner, resident fish and habitat losses due to: 1) development and 2.) operation of hydropower facilities throughout the Columbia River Basin, notwithstanding existing resident fish projects. Implementation of existing and new resident fish mitigation and substitution measures and strategies should not be delayed pending the completion of loss assessments.

5.1A.2 Fund the completion of assessments of resident fish losses throughout the Columbia River Basin as called for in 5.1A.1, notwithstanding existing projects. The fishery managers expect Council and Bonneville to act immediately to implement resident fish substitution and mitigation measures in this Program.

Implementation of resident fish mitigation and substitution measures is not to be delayed pending the completion of loss assessments.

Fishery Managers and Council

5.1A.3 The fishery managers are to complete assessments of resident fish losses related to construction and operation of each hydropower facility throughout the Columbia River Basin and submit to Council for approval and adoption into the Program, notwithstanding existing projects. Implementation of existing and new resident fish mitigation and substitution measures and strategies should not be delayed pending the completion of loss assessments.

Resident Fish Substitution

Salmon and steelhead have been extirpated from many areas of the basin because of hydropower development and operations. Measures to address the loss of salmon and steelhead as well as harvest opportunities in all areas blocked to anadromous fish, as a result of hydropower development and operations, shall be defined as resident fish substitution for anadromous fish losses. The “Compilation of Salmon and Steelhead Losses in the Columbia River Basin” and the “Numerical Estimates of Hydropower-related Losses” adopted in Appendices D and E of the 1987 Fish and Wildlife Program, and contained in the Appendix to this Program, should represent, but not be limited to, the foundation for resident fish substitution for losses of salmon and steelhead production. To mitigate for losses of anadromous fish in areas now blocked to anadromous fish, the following resident fish substitution principles should be applied:

- Substitution is appropriate for lost salmon and steelhead in areas that previously had anadromous fish, but where anadromous fish access is now blocked by hydropower development and where in-kind mitigation cannot occur.
- Substitution should occur in the vicinity of the salmon steelhead losses being addressed, but substitution and mitigation measures may occur on or off-site.
- For substitution purposes, resident fish may include landlocked anadromous fish (e.g., white sturgeon, kokanee, and coho), as well as traditionally defined resident fish species.

5.1B Resident Fish Priorities

The Program should accord highest priority to rebuilding to sustainable levels weak, but recoverable, native resident fish populations affected by the hydropower system and resident fish substitution measures in areas that previously had salmon and steelhead, but where anadromous fish are now blocked by federally operated hydropower development. Because in-kind mitigation cannot occur for anadromous fish losses, projects satisfying the substitution priority shall be clearly distinguished from other projects. The distinction between these two highest priorities is a narrow one, applicable only to marginal choices among such projects. The Program should also accord priority to resident fish measures that meet the following criteria (not in rank order):

- Provide benefits to wildlife and/or anadromous fish.
- Protect and enhance the health of resident fish populations and associated habitat.
- Address recovery and/or BiOp measures for ESA-listed resident fish
- Protect and enhance fish populations and habitat that support important fisheries. This priority applies to native and non-native resident fish species.

- Protect and enhance other native stocks that may be at risk due to the construction and operation of the Federal Columbia River Power System
- Substitution measures in areas that previously had salmon and steelhead, but where such fish are now blocked by federally licensed or regulated hydropower facilities

H:\WORK\RFAC\2008_0124\RFACDraftamendment (Version 2-Action Notes).doc

DRAFT