

## SECTION 1

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## **1. Fish Passage Plan**

### **1.1. Overview**

The Fish Passage Plan (FPP) is developed by the U.S. Army Corps of Engineers (Corps) in coordination with the region's fish agencies, Indian tribes, Bonneville Power Administration (BPA), and other participants through the Corps' Fish Passage O&M Coordination Team (FPOM). The FPP describes year-round project operations necessary to protect and enhance salmon species listed under the Endangered Species Act (ESA) as well as other anadromous fish species. The FPP guides Corps actions in regard to providing fish protection and passage at the eight Corps mainstem Columbia and Snake River projects. Other Corps documents and agreements related to fish passage at these projects are consistent with the FPP.

The FPP is revised as necessary to incorporate changes to project operations and maintenance as a result of new facilities or changes in operational procedures. Revisions will incorporate changes adopted through coordination with the National Marine Fisheries Service (NMFS) as part of the ESA Section 7 consultation, Recovery Plan, or Section 10 permit processes, and through consideration of other regional input and plans. The current revisions reflect provisions contained in the NMFS Biological Opinion issued March 2, 1995 (Reinitiation of Consultation on 1994 - 1998 Operation of the Federal Columbia River Power System and Juvenile Transportation Program in 1995 and Future Years), in the Corps' Record of Decision signed March 10, 1995 (U.S. Army Corps of Engineers North Pacific Division Record of Decision, Reservoir Regulation and Project Operations, 1995 and Future Years), in the 1998 and 2000 Supplemental Biological Opinions, and in the Corps' Record of Consultation and Summary of Decision, signed June 24, 1998. The Corps and other action agencies are now consulting with NMFS and the U.S. Fish and Wildlife Service on hydrosystem operation during upcoming years to protect and enhance multiple ESA-listed species. Applicable project operation measures resulting from this coordination will be considered for inclusion in the final FPP. When revising the FPP, the Corps considers the amended Northwest Power Planning Council (NPPC) Columbia River Basin Fish and Wildlife Program to the fullest extent practicable.

Comments on the FPP are welcome. They may be directed either to the FPOM or the Corps' Northwestern Division, Reservoir Control Center (RCC) Fish Team in Portland, Oregon.

**1.2 Emergency Deviations From FPP.** River operations emergencies may occur which require projects to deviate temporarily from the FPP. To the extent possible, these operations will be conducted to minimize fish impacts and coordinated with fish agencies and tribes. Normally, coordination occurs prior to an action. However, if an emergency situation requires immediate attention, coordination will be done as soon as possible after the fact.

The phrase "when practicable" appears in the FPP to help describe those project actions for fish that may vary on a case-by-case basis and thus require judgement calls by the project for a particular situation. This is due to factors such as real time biological or other environmental conditions, project manpower or mechanical equipment availability, and fish facility or dam structural integrity. In these cases the project biologist and other project personnel will consider all relevant factors and determine the best way to proceed, then implement the appropriate action. These actions will be coordinated with fish agencies and tribes when they deviate from the FPP.

**1.3 Technical Management Team.** In-season decisions on river operations to achieve fish passage efficiency (FPE) or survival goals for spring and summer outmigrants will be made in coordination with the Technical Management Team (TMT). Coordination of special operations identified in the FPP will occur through the TMT and will be identified in the Water Management Plan. These may include maintenance or research activities requiring unit outages that affect other river operations, operation of turbines outside of the 1% efficiency range, zero nighttime flow, and implementation of the Juvenile Fish Transportation Program.

**1.4 Spill at Corps Mainstem Projects.** Corps mainstem projects will provide spill for juvenile fish passage according to the NMFS Biological Opinions (specifications in Appendix E) to protect ESA-listed salmon species. Target spill levels are developed through consultation with NMFS and may be adjusted during the fish migration season as recommended by the TMT. Continuous spill is provided at Bonneville, The Dalles, and Ice Harbor Dams for spring and summer outmigrants to meet Biological Opinion requirements. Nightly spill is also provided at John Day, McNary, Lower Monumental, Little Goose, and Lower Granite Dams. Spill may also be provided under special circumstances for non-listed fish species if recommended by the fish agencies and tribes and if the recommendations are consistent with regional

operational agreements (i.e., Spring Creek National Fish Hatchery release in March).

**1.5 Total Dissolved Gas Monitoring.** Total dissolved gas (TDG) saturation levels are monitored at the forebay and tailrace of each mainstem project during the fish passage season. The water quality standard and criterion developed by the states and EPA is 110% of saturation at ambient temperature and pressure. The Corps policy (Appendix F) is to operate each mainstem project to meet state standards insofar as physically possible unless other overriding reasons cause temporary deviations. The NMFS Biological Opinions call for fish spill to be provided at levels that create higher TDG levels (Appendix E). Also, implementation of fish spill requests from fish agencies and tribes have in the past resulted in TDG levels of 120% or greater. Therefore, fish spill implementation will be subject to further coordination with appropriate entities if excessive TDG levels occur or if evidence of gas bubble disease is observed in fish. Any spill requests that will cause exceedance of the state TDG standard must include prior coordination with state water quality agencies, including waivers of state water quality standards obtained in advance by the requester. TDG levels are provided to the TMT and summarized for the year in the Corps' annual Total Dissolved Gas Monitoring report.

**1.6 System Load Shaping.** Guidelines coordinated by BPA on system load shaping to consider fish impacts are included in Appendix C. The guidelines describe procedures BPA follows to make hydropower load requests that enable the Corps to operate units in consideration of the 1% turbine operating range.

**1.7. Juvenile Fish Transportation Plan (JFTP).** Juvenile fish will be transported in accordance with the NMFS Biological Opinions and Section 10 permit. Transport criteria are contained in the JFTP, Appendix B. The JFTP covers collection, holding, and transport of juvenile fish. Other project criteria on operation of the juvenile fish bypass facilities are contained in Sections 2 through 9. Additional criteria may be developed as part of the ESA Section 10 permit process and/or in coordination with the TMT. Implementation of juvenile fish transportation, including deviation from the plan described in Appendix B, will be coordinated through the TMT and with NMFS (ESA).

## **1.8. Project Fish Passage Facilities Inspection and Reporting Criteria.**

**1.8.1 General.** Sections 2 through 9 contain the detailed criteria for inspection and reporting for fish passage facilities at the Corps projects on the lower Snake and lower Columbia rivers. The Corps provides weekly written inspection reports to the NMFS Hydropower Program office describing out-of-criteria situations, adjustments made to resolve problems, and a detailed account of how out-of-criteria situations affected project fish passage and survival. The weekly inspection reports also include summaries of equipment calibrations, adult fish collection channel velocity monitoring, and water temperature monitoring. Equipment which does not require calibrating will not routinely be included in the weekly report. The Corps also provides an annual report to NMFS which summarizes project operations and maintenance and fish passage facility inspections and monitoring.

**1.8.2 Criteria for Reporting Excursions Outside the 1% Turbine Operating Efficiency Range.** Excursions outside the 1% turbine operating range will be reported by BPA annually. These reports will describe instances where lower Columbia and lower Snake river turbines were operated outside the 1% efficiency ranges for significant periods, as defined under the guidelines in Appendix C. BPA will prepare the reports by consolidating data provided by Corps project operators and the reports will be sent to NMFS by BPA. The intent of excursion reporting is to provide a means for quality assurance for project operations.

## **1.9. Implementation of the Fish Passage Plan.**

Implementation of the FPP requires information from and coordination with NMFS, BPA, other federal and state fish agencies, and tribes. RCC coordinates operation of Corps projects that affect system water management, spill, unit availability, or other project uses through the TMT. District biologists may coordinate directly with the fish agencies and tribes on other project-specific operations that do not have system impacts.

Daily RCC briefings are held at 1300 hours, Monday through Friday, during the flood control and fish passage seasons, in the U.S. Custom House, Portland, Oregon. RCC also participates in weekly meetings of the TMT during the fish passage season which recommends river operations to implement the Biological Opinion and other recommendations

from fish interests. Corps representatives are available at these meetings to discuss the latest weather and runoff forecasts, as well as fish, hydrologic, water quality, and power information to assist in the planning of operations for fish passage for the following days. Fish operation recommendations are evaluated by the Corps to determine impact on overall system operations. The Corps also coordinates with NMFS and U.S. Fish and Wildlife Service (FWS) to meet ESA requirements for endangered species.

### **1.9.1 Agency Responsibilities.**

#### **1.9.1.1. U.S. Army Corps of Engineers.**

a. Coordinate with NMFS and FWS on operational actions that might impact threatened, endangered, or candidate species.

b. Prepare a Water Management Plan for in-season management, in coordination with TMT members, which implements the Corps Record of Decision.

c. In cooperation with the fish agencies and tribes, provide fish passage monitoring, surveillance, and reporting at Corps projects throughout the migration period.

d. Provide timely information on all proposed and/or scheduled studies or special operations which may negatively impact or otherwise constrain fish passage or energy production. Discuss unforeseen changes in fish passage operation with fish agencies and tribes.

e. Carry out routine and emergency fish passage operations and maintenance procedures in accordance with criteria in Sections 2 through 9 and Appendix A.

f. Conduct the Dissolved Gas Monitoring Program as described in Appendix D.

#### **1.9.1.2. Fish Agencies and Indian Tribes.**

a. Request spill for fish through TMT to protect endangered species or other species in accordance with the TMT Guidelines.

b. Through TMT, provide RCC with a spill priority list and recommendations for modifications.

c. Provide biological monitoring and surveillance reports throughout the migration period from predetermined

locations, such as Smolt Monitoring Program sample sites.

d. Provide status reports on the timing of the downstream migration, including pertinent marked fish release and recovery data, with weekly written reports estimating percentage of run past key projects.

e. Where biologically and logistically feasible, coordinate hatchery releases to ensure they are protected by regulated fish flows and spills while minimizing impacts on endangered species. Provide and update hatchery release schedules weekly.

f. Provide recommendations to the operating agencies for maintaining acceptable fish passage conditions. This information can be used to maximize other project uses, including power generation.

g. Provide information on all proposed and scheduled studies or special operations designed to improve fish passage operations which may affect energy production or project operation. Discuss unforeseen changes with the Corps.

h. Recommend viable methods and procedures to reduce mortality to resident and migratory fish. This may include such operations as collection and transport of migrants, use of alternate bypass strategies, or other methods to reduce fish mortality.

#### **1.9.1.3. Bonneville Power Administration.**

a. Report to RCC on updated load-resource studies during the April-to-September period to supplement the National Weather Service River Forecast Center's runoff volume forecast for fish passage planning assistance.

b. Provide to RCC, NMFS, other fish agencies, and tribes, the BPA estimate of power market impacts of requested spill operations.

c. Utilize available flexibility of the Federal Columbia River Power System to shape flow requirements, spill priorities, and plant generation consistent with BPA policies and statutory requirements related to fish protection.

d. Adjust system generation to provide adequate water to meet fish operations requirements in accordance with the NMFS Biological Opinion on hydrosystem operations.

e. Provide project load requests on a real-time, hourly basis that enable the Corps to implement spill priorities.

f. Provide information on unit operation within the 1% operating range, as indicated in Appendix C.

#### **1.9.1.4. Mid-Columbia Public Utility Districts.**

Operate projects for spill transfer in accordance with provisions of the FPP with at least one and one-half hours notification to start or stop spill.

#### **1.9.2. Coordination Procedures.**

##### **1.9.2.1. Coordination of the FPP.**

The FPP is effective year-round and revisions are coordinated with FPOM, which includes NMFS, other Federal and state fish agencies, tribes, and other interested parties. Different parts of the FPP may be revised at different times. Suggested revisions should be submitted to FPOM for consideration by the Corps. Draft FPP revisions will be provided for a two-week regional review. FPP revisions will be published two weeks after the close of the regional review period. FPP revisions are provided to TMT for use as part of the overall river operation plan. Sections dealing with special operational requirements will be included in the Water Management Plan.

##### **1.9.2.2. Day-to-day Coordination of River System.**

**a. Flow Augmentation and Reservoir Operations Recommendations.** Procedures described in the Water Management Plan will be used for fish operations. Coordination for system and project operations will occur through TMT. This will include requests for operation of turbine units outside of the 1% best efficiency range, zero nighttime flow in the Snake River, reservoir operation at minimum operating pool (MOP) or some other specific level, and special operations for implementation of approved research projects as identified in Appendix A. During the time when reservoirs are not being operated to provide special protection for fish passage, projects may be operated within the full reservoir operating range.

**b. Fish Spill Management.** The Corps will implement fish spill provisions described in Appendix E, consistent

with state water quality standards including applicable TDG waivers in effect at the time. The TDG and gas bubble trauma signs in fish will be monitored and evaluated during the spill season by the Corps, NMFS, other fish agencies, tribes, and water quality agencies. Project spill levels will be adjusted as needed, based on daily physical and biological monitoring results, and coordinated with the TMT and tribes.

**c. Special Operation Recommendations (Fish-related and for Project O&M Activities).** Recommendations for special fish operations outside the Water Management Plan may be made to RCC. Coordination of these recommendations will be made through the TMT. Recommendations related to project O&M activities requiring special operations will be evaluated for impacts on fish migration. Sufficient lead time will be given on a planned operation, whenever practical, to allow coordination with the TMT and NMFS (ESA). As much lead time as possible will be provided for activities requiring immediate action. After-action coordination will occur when advance notice is not possible, such as in emergency actions.

**d. Other Operational Requests.** As with Corps O&M requests, all other operational recommendations will be evaluated for impacts on fish migration and effects on other project O&M requirements. Coordination of special operations with NMFS, other fish agencies, and tribes will occur through the TMT. Except as necessary for emergency actions, adequate time will be allowed for evaluation of all project and fish impacts prior to implementation. Coordination of emergencies, as identified in the Emergency Operations Protocol adopted by the TMT, will be followed.

**1.9.2.3. Activities by Non-Corps Personnel.** All non-Corps personnel intending to conduct any activity, such as fish handling or minor facility modifications, at a Corps facility must have prior written approval. This approval must be requested in writing to the Chief, Operations Division, at the district office responsible for a particular project. If the activity could affect fish listed for ESA protection, proof of consultation with NMFS or FWS (Section 10 permit) must also be provided.