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 Operations and Maintenance Coordination Team (FPOM). The FPP describes year-round project operations necessary to protect and enhance anadromous and resident fish species listed as endangered or threatened under the Endangered Species Act (ESA), as well as other migratory fish species. The FPP guides Corps actions in regard to providing fish protection and passage at the eight Corps mainstem lower Columbia and Snake River projects, and at Chief Joseph Dam. 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 Oceanic and Atmospheric Administration (NOAA) Fisheries and U.S. Fish and Wildlife Service (USFWS) as part of the ESA Section 7 consultation, Recovery Plan, or Section 10 permit processes, and through consideration of other regional input and plans. When revising the FPP, the Corps also considers the amended Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program to the fullest extent practicable. If any revisions to the FPP are necessary, they will be made in accordance with the coordination process for revisions contained in section 1.10.2 of the FPP.

The current FPP revisions reflect provisions contained in the NOAA Fisheries Biological Opinion (BiOp), issued May 5, 2008, and titled: Consultation on Remand for Operation of the Federal Columbia River Power System, 11 Bureau of Reclamation Projects in the Columbia Basin and ESA Section 10(a)(I)(A) Permit for Juvenile Fish Transportation Program (Revised and reissued pursuant to court order, *NWF v. NMFS*, Civ. No. CV 01-640-RE (D. Oregon)). The Corps prepared a Record of Consultation and Statement of Decision (ROCASOD) relative to the 2008 NOAA Fisheries BiOp on August 1, 2008 and also prepared a ROCASOD relative to the USFWS BiOp in May 2001. The two ROCASODs state how the Corps plans to meet its ESA responsibilities to protect multiple ESA-listed fish species.

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

1.2. Emergency Deviations from the FPP. River operations emergencies may occur which require projects to deviate temporarily from the FPP. To the extent possible, these operations will be conducted in a manner to minimize fish impacts and will be coordinated with fish agencies and tribes. Normally, coordination occurs prior to an action. However, if an emergency situation requires immediate attention, coordination will be completed as soon as practicable afterwards. Coordination procedures are detailed in section 1.10.

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 the exercise of professional judgment 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 and implement an 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 BiOp biological performance standards for spring and summer outmigrants will be made in coordination with the Regional Forum Technical Management Team (TMT). Coordination of special operations identified in the FPP will occur through the TMT and 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% of best efficiency range, zero nighttime flow, and implementation of the Juvenile Fish Transportation Plan (JFTP - see Appendix B). Coordination procedures are detailed in section 1.10 below.

1.4. Spill at Corps Mainstem Projects. Corps mainstem projects will provide spill for juvenile fish passage in accordance with specifications in Table 2: Initial Voluntary Spill Operations at Columbia and Snake River Dams contained in the Reasonable and Prudent Alternatives Table of the 2008 NOAA Fisheries BiOp.

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 for TDG developed by the states of Idaho, Montana, Oregon, and Washington, in coordination with EPA, is 110% of saturation at ambient temperature and pressure. The Corps' policy is to operate each mainstem project to meet state standards insofar as physically possible unless other overriding reasons cause temporary deviations. The 2008 NOAA Fisheries BiOp calls for fish spill to be provided at levels that create TDG levels higher than 110% (Appendix D). State waivers from Oregon and Washington allow the FCRPS projects to exceed the 110% standard so long as forebays do not exceed 115% and tailwaters do not exceed 120% TDG levels due to voluntary spill provided for anadromous fish passage. The State of Oregon provided a modification to the TDG standard on June 22, 2007 which applies through the 2008 and 2009 spill seasons. The State of Washington endorsed the Corps’ gas abatement plan and adjusted its TDG criteria on February 8, 2008 to accommodate spill to aid fish passage. Washington’s criteria adjustment will be in effect through February 2010.

Spring freshet river flows above the generation capacity of the FCRPS projects has occurred in the past, causing TDG levels to exceed the 115% and 120% levels. Also, implementation of fish spill requests from fish agencies and tribes has resulted in TDG levels of 120% or greater. Therefore, fish spill implementation will be subject to further coordination with appropriate entities through TMT if excessive TDG levels occur or if evidence of gas bubble disease is observed in fish.

The Corps will take those actions necessary to coordinate with the region and provide spill to protect ESA-listed fish. RCC issues a teletype spill priority list which specifies spill discharge levels and the sequence in which projects are to spill at higher TDG levels in order to manage both spill for fish passage and involuntary spill. The sequence is coordinated through TMT while spill levels are evaluated daily by RCC during the spill season and modified as needed in subsequent teletypes. TDG information is provided to TMT and summarized for the year in the Corps' TDG and Water Temperature Annual Report.

The Corps has coordinated with the Bureau of Reclamation on a joint operation of Chief Joseph and Grand Coulee dams to minimize TDG levels. This operation may result in more spill from Chief Joseph Dam (Appendix D). This is a spill management action to reduce TDG below those projects and is not a fish passage operation.

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 consistent with the criterion to operate turbine units within 1% of best efficiency. The time period for this operation is April 1 through October 31 at both the lower Columbia and lower Snake River projects.

1.7. Juvenile Fish Transportation Plan. Juvenile fish will be transported in accordance with the 2009 FOP, the 2009 FPP, and Section 10 permit. Transport criteria are contained in the Juvenile Fish Transportation Plan (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 of this document (project specific sections). 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 NOAA Fisheries (ESA).

1.8. Project Fish Passage Facilities Inspection and Reporting Criteria.

1.8.1. General. Sections 2 through 9 of this document include 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 NOAA Fisheries Hydropower Program office in Portland, Oregon 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 calibration will not routinely be included in the weekly report. The Corps also provides an annual report to NOAA Fisheries that summarizes project operations and maintenance, fish passage facility inspections and monitoring, severity of out-of-criteria

conditions, and avian predation abatement actions. In addition, the Corps is developing methods to report hourly individual spill bay and turbine unit operations at mainstem projects as called for in the UPA. An acceptable procedure will be coordinated with NOAA Fisheries and other FPOM participants.

1.8.2. Annual Reporting of Excursions Outside the 1% of Best Efficiency Turbine Operating Range. Excursions outside the 1% of best efficiency turbine operating range are tracked by BPA for each project during the fish passage season. The Corps determines the cause of each excursion. This information is compiled approximately bi-weekly. After the fish passage season, the Corps submits an annual report to NOAA Fisheries which describes instances where turbines at lower Columbia and lower Snake River projects operate outside the 1% of best efficiency range for significant periods, as defined under the guidelines in Appendix C. The intent of excursion reporting is to provide a means for quality assurance for project operations.

1.8.3. Reporting of Excursions outside of 1% that are not covered by Appendix C. BPA and the Corps will take all reasonable and practicable steps to provide advance notification through the existing interagency coordinating mechanisms prior to departure from the fish-protection measures set out in the 2008 BiOp. If unforeseen circumstances arise that preclude BPA or the Corps from the TMT prior to a variation from required 1% operating criteria and those circumstances are not covered by Appendix C, those variations will be reported to the TMT as soon as practicable.

1.9. Turbine Dewatering Procedure at Chief Joseph Dam. The Corps has coordinated and adopted a procedure to dewater turbine draft tubes for maintenance at Chief Joseph Dam (Appendix H). While this project does not have fish passage facilities, ESA-listed salmon and steelhead occur in the tailrace. The procedure provides for turbine dewaterings and recovery of any trapped fish in a manner that protects those fish.

1.10. Implementation and Coordination of the Fish Passage Plan. Implementation of the FPP requires information exchange and coordination with NOAA Fisheries, BPA, other Federal and state fish agencies, and tribes. RCC coordinates operations of Corps projects through the TMT that have system-wide effects, such as water management, spill volume, and unit availability. District biologists coordinate through the FPOM on spill patterns, unit priority, adult and juvenile fish facilities, and other project-specific operations that do not have system impacts.

The RCC participates in TMT meetings throughout the year to consider recommendations for river operations to implement the FOP, BiOps, and other recommendations from fish interests. As part of this process, TMT may evaluate research data and advice on whether existing operations are consistent with current study results. These meetings are held in the Corps' Northwestern Division office in Portland, Oregon, and are open to the public. Corps representatives are available at these meetings to discuss the latest weather and runoff forecasts, as well as fish, hydrologic, water quality, and power generation information to assist in planning upcoming operations for fish passage. Fish operation recommendations are evaluated by the Corps to determine impact on overall system operations. TMT coordination procedures are detailed in

section 1.10.2.2.

District biologists and the RCC biologist attend monthly FPOM meetings dealing with project-specific issues in order to: 1) consider recommendations from affected interests, 2) provide updates on construction, operations and maintenance, research, and other topics, 3) develop criteria for the annual FPP, and 4) coordinate fish passage issues that may require deviation from FPP criteria. FPOM coordination procedures are detailed in section 1.10.2.1.

1.10.1. Agency Responsibilities.

1.10.1.1. U.S. Army Corps of Engineers.

a. Coordinate with NOAA Fisheries and USFWS on operational actions that might impact threatened, endangered, or candidate species.

b. Prepare Water Management Plans and seasonal updates for in-season management, in coordination with TMT members, to implement the Corps' ROCASOD.

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 that 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 TDG Monitoring Program as described in Appendix D.

1.10.1.2. Fish Agencies and Indian Tribes.

a. Request spill for fish through TMT to protect ESA-listed 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 runs 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 ESA-listed 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 that may affect energy production or project operation. Discuss unforeseen changes with the Corps.

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

1.10.1.3. 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, NOAA Fisheries, 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 FOP and the NOAA Fisheries and USFWS BiOps 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 outside the 1% of best efficiency operating range, as indicated in Appendix C.

1.10.1.4. 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.

1.10.2. Coordination Procedures.

1.10.2.1. FPOM Coordination. The FPP is effective year-round and revisions are coordinated with FPOM, which includes the Corps, NOAA Fisheries, USFWS, BPA, state fish agencies, tribes, and other interested parties. The annual revision process begins in October and the final FPP is issued on/about March 1, although the FPP may be revised at different times by amendment. Suggested revisions should be submitted to FPOM chairs for consideration by the Corps. Draft FPP revisions will be provided to FPOM members by FPOM chairs for a minimum two-week regional review before revision is published and added to the FPP. FPP revisions are provided to TMT for use as part of the overall river operation plan. Sections dealing with special operational requirements also will be included in the Action Agency Water Management Plans.

Project-specific activities under the purview of FPOM that may require deviations from FPP criteria will be fully coordinated in a timely manner. Issues discussed and settled at FPOM meetings will be considered regionally coordinated upon documentation in the final meeting minutes. Outside of the meeting forum, the coordination procedures below should be followed.

For operations and maintenance activities within the District's Operations Division, as a general rule Corps project personnel will communicate their needs to a District biologist. The District biologist will then provide essential information to the fish agencies, tribes, and other affected interests as appropriate, through the use of the Coordination Form (below), and, if necessary, by telephone call with an e-mail follow-up. Information for planned activities should be provided at least two weeks in advance to FPOM representatives for review. For unanticipated but non-emergency activities such as equipment failures, information should be provided at least three workdays in advance. Emergency coordination may be performed immediately prior to or subsequent to the required action (see section 1.2). Information provided to affected interests will include a summary of the problem, location, date and time, analyses of potential impacts to salmon stocks, and potential alternative actions. The affected interests should in turn respond by email, in person, or by phone. The response will be documented on the Coordination Form, sent to FPOM and filed for future reference. A District biologist will forward the decision to project personnel, and in some cases, RCC will issue a teletype to the project for approved activities.

For research and construction activities involving both the District's Planning and Operations divisions, Planning Division biologists will generally take the lead in coordination while keeping Operations Division biologists apprised of the proceedings. Research coordination is largely carried out and documented through the Corps' Anadromous Fish Evaluation Program (AFEP). Coordination of new construction or modification of fish facilities is typically carried out and documented through the Fish Facility Design Review Work Group (FFDRWG). If implementation requires assistance from project personnel, temporary equipment installation, temporary facility

modification, or operational changes, then Planning and Operations division biologists will work closely with project personnel and others to ensure success. Following are some of the individuals that are involved with the FPOM coordination process:

- Dan Feil, Dennis Schwartz (Corps, RCC, Northwestern Division)
- Bernard Klatte*,Tammy Mackey, Robert Stansell (Corps, Operations Division, Portland District)
- Mike Langeslay (Corps, Planning, Programs, and Project Management Division, Portland District)
- Tim Dykstra*, John Bailey, Greg Moody (Corps, Operations Division, Walla Walla District)
- Marvin Shutters (Corps, Planning, Programs, and Project Management Division, Walla Walla District)
- Gary Fredricks, Bill Hevlin, Paul Wagner (NOAA Fisheries, Portland)
- Dave Wills (USFWS, Vancouver)
- Tom Lorz (CRITFC, Portland)
- Rick Kruger (ODFW, Clackamas)
- Russ Kiefer (IDFG, Boise)
- Dave Benner (Fish Passage Center)
- Ann Stephenson (WDFW, Olympia)
- Scott Bettin (BPA, Portland)

*-co-chair

OFFICIAL COORDINATION REQUEST
FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION DATE-
PROJECT-
RESPONSE DATE-

Description of the problem

Type of outage required

Impact on facility operation

Length of time for repairs

Expected impacts on fish passage

Comments from agencies

Final results

Please email or call with questions or concerns.
Thank you,

1.10.2.2. TMT Coordination. Actions that may impact fish system wide will be coordinated and documented through the TMT process. Actions that may impact fish at a specific project which are a result of actual operations, implementation of FOP/BiOp actions, incidental take terms and conditions contained in the BiOps, or research projects, will be coordinated through the process outlined below.

The party responsible for the action will prepare, and e-mail, a memorandum to the NOAA Fisheries point of contact responsible for activities at that dam. The memorandum will: describe the action, FOP or BiOp measure addressed; how the action may impact fish; and how the action has been designed to minimize impacts. NOAA Fisheries will provide concurrence or recommended changes in an e-mail response. This coordination process is described in a letter to Brigadier General Carl A. Strock from Brian J. Brown, U.S. Dept. of Commerce, NOAA, National Marine Fisheries Service, dated June 5, 2001. A copy of this letter is available from the District Biologist.

TMT Guidelines are posted at the TMT website at: http://www.nwd-wc.usace.army.mil/tmt/agendas/2009/

1.10.2.3. 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 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: 2009 Water Management Plan, including special TDG conditions for juvenile fish passage. The TDG and gas bubble trauma signs in fish will be monitored and evaluated during the spill season by the Corps, NOAA Fisheries, 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 Operations 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 and survival. Sufficient lead time will be given for a planned operation,

whenever practical, to allow ESA coordination with the TMT, NOAA Fisheries, and USFWS. Preferably, 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 survival and effects on other project O&M requirements. Coordination of special operations with NOAA Fisheries, USFWS, 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 Protocols adopted by the TMT (Water Management Plan, Appendix 2), will be followed.

1.10.2.4. 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 Corps District office responsible for a particular project. If the activity could affect ESA-listed fish, proof of consultation with NOAA Fisheries or USFWS (Section 10 permit) must be provided. Appropriate state permits must be provided as well for activities that may impact either ESA-listed or non-listed fish.