**Endangered Species Act**
**Section 7(a)(2) Consultation**

# Endangered Species Act – Section 7 Consultation
# Biological Opinion

**Consultation on Remand for Operation of the Columbia River Power System and 19 Bureau of Reclamation Projects in the Columbia Basin (Revised and reissued pursuant to court order, NWF v. NMFS, Civ. No. CV 01-640-RE (D. Oregon))**

| | |
|---|---|
| Action Agencies: | U.S. Army Corps of Engineers<br>Bonneville Power Administration<br>U.S. Bureau of Reclamation |
| Consultation Conducted by: | NOAA's National Marine Fisheries Service<br>(NOAA Fisheries)<br>Northwest Region |
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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| Action Agencies | U. S. Bureau of Reclamation, U. S. Army Corps of Engineers, and the Bonneville Power Administration |
| AFEP | anadromous fish evaluation program |
| AFF | adult fish facilities |
| amsl | above mean sea level |
| B.C. | British Columbia |
| BIA | Bureau of Indian Affairs |
| BiOp | Biological Opinion |
| BLM | Bureau of Land Management |
| BMPs | Best Management Practices |
| BON | Bonneville Dam |
| BPA | Bonneville Power Administration |
| BRT | Biological Review Team (NOAA Fisheries) |
| CBFWA | Columbia Basin Fish and Wildlife Authority |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| cfs | cubic feet per second |
| CHARTs | critical habitat analytical review teams |
| CI | confidence interval |
| Comanagers | States and Tribes of the Columbia River Basin |
| Corps | U.S. Army Corps of Engineers |
| CR | Columbia River |
| CRB | Columbia River Basin |
| CREP | Conservation Reserve Enhancement Program |
| CRFMP | Columbia River Fishery Management Plan |
| CTUIR | Confederated Tribes of the Umatilla Indian Reservation |
| CTWSRO | Confederated Tribes of the Warm Springs Reservation of Oregon |
| CTWS | Confederated Tribes of the Warm Springs |
| CWA | Clean Water Act |
| CWMS | Corps Water Management System (database) |
| CWT | coded-wire tag |
| D | differential delayed survival of transported fish |
| DART | Data Access in Real Time (University of Washington program) |
| DDT | dichlorodiphenyltrichloroethane |
| DIP | demographically independent population |
| DNR | see WA DNR |
| EDT | ecosystem diagnosis and treatment |
| EEZ | Exclusive Economic Zone |
| EF | east fork |
| EFH | essential fish habitat |
| EIP | Ecological Improvement Potential |
| EIS | environmental impact statement |
| ENSO | El Niño Southern Oscillation |

| | |
|---|---|
| ESA | Endangered Species Act |
| ESBS | extended-length submersible bar screen |
| EST | Columbia River estuary |
| ESU | evolutionary significant unit |
| FCRPS | Federal Columbia River Power System |
| FFDRWG | Fish Facility Design Review Work Group |
| FEIS | Final Environmental Impact Statement |
| FERC | Federal Energy Regulatory Commission |
| FHWA | Federal Highway Administration |
| FGE | fish guidance efficiency |
| FMEP | Fisheries Management and Evaluation Plan |
| FPE | fish passage efficiency |
| FPOM | Fish Passage Operations and Maintenance Coordination Team |
| FR | Federal Regulation |
| FRN | Federal Regulation Notice |
| FS | Forest Service |
| GBT | gas bubble trauma |
| GDU | genetic diversity unit |
| H | High (see Table 6.1 for description) |
| HCD | Habitat Conservation Division |
| HCP | Habitat Conservation Plan |
| HCY | Hell's Canyon |
| HGMP | hatchery and genetic management plan |
| HIP | Habitat Improvement Program |
| HSRG | Hatchery Scientific Review Group |
| HUC | Hydrological Unit Code |
| I-205 | Interstate Highway 205 |
| I-5 | Interstate Highway 5 |
| ICB-TRT | Interior Columbia Basin Technical Recovery Team |
| IDFG | Idaho Deptartment of Fish and Game |
| IDL | Idaho Department of Lands |
| IHR | Ice Harbor Dam |
| Interior TRT | Interior Technical Recovery Team |
| IPER | Implementation Plan Evaluation Report |
| ISS | Idaho Supplementation Studies |
| JDA | John Day Dam |
| kcfs | thousand cubic feet per second |
| $km^2$ | square kilometers |
| ksfd | Thousand cubic feet per second days |
| L | Low (see Table 6.1 for description) |
| LCFRB | Lower Columbia Fish Recovery Board of the NWPCC |
| LCR | Lower Columbia River |
| LGO | Little Goose Dam |
| LGR | Lower Granite Dam |
| L-M | Low to Medium (see Table 6.1 for description) |
| LMN | Lower Monumental Dam |

| | |
|---|---|
| LSRCP | Lower Snake River Compensation Plan |
| LWD | large woody debris |
| Maf | million acre-feet |
| MCN | McNary Dam |
| MCR | Mid-Columbia River |
| MFJD | Middle Fork John Day |
| MHHW | mean higher high water level |
| $mi/mi^2$ | miles per square mile |
| MIP | minimum irrigation pool |
| MOP | minimum operating pool |
| MPG | major population group |
| MSA | Magnuson-Stevens Fishery Conservation and Management Act |
| NF | north fork |
| NFH | National Fish Hatcheries |
| NFJDR | North Fork John Day River |
| ng/g | nanograms per gram |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanographic and Atmospheric Administration |
| NPMP | Northern Pikeminnow Management Program |
| NRC | National Research Council |
| NWF | National Wildlife Federation |
| NWPCC | Northwest Power and Conservation Council |
| NWPPC | Northwest Power Planning Council |
| ODEQ | Oregon Department of Environmental Quality |
| ODFW | Oregon Department of Fish and Wildlife |
| OWRD | Oregon Water Resources Department |
| PAH | polyaromatic hydrocarbons |
| PCBs | polychlorinated biphenyls |
| PCSRF | Pacific Coast Salmon Recovery Fund |
| PCTS | Public Consultation Tracking System (database) |
| PDO | Pacific Decadal Oscillation |
| PECE | "Policy for Evaluation of Conservation Efforts When Making Listing Decisions" |
| PFMC | Pacific Fishery Management Council |
| PGE | Portland General Electric |
| PIT | passive integrated transponder |
| POD | point of diversion |
| ppt | Parts per thousand |
| PUD | Public Utility District |
| R/S | recruits per spawner |
| RHCA | riparian habitat conservation area |
| Rkm | river kilometer |
| RM | river mile |
| RM&E | Research, Monitoring, and Evaluation |
| ROD | Record of Decision |
| RPA | Reasonable and Prudent Alternative |

| | |
|---|---|
| RPMs | reasonable and prudent measures |
| RSW | removable spillway weir |
| SAR | smolt-to-adult return rate |
| SASSI | Salmon and Steelhead Stock Inventory |
| SbyC | separated-by-code |
| SCT | System Configuration Team |
| SEF | East Fork Salmon River |
| SF | south fork |
| SFJD | South Fork John Day |
| SIMPAS | simulated passage (model) |
| SR | Snake River |
| SRPAH | Pahsimeroi River |
| SRS | sediment retention structure |
| SRUMA | Salmon River-Upper Mainstem |
| SRYFS | Salmon River-Yankee Fork |
| STS | submersible traveling screen |
| SWHA | shallow water habitat area |
| SWCD | Soil and Water Conservation District |
| SYSTDG | System Total Dissolved Gas (TDG) Model |
| T&C | terms and conditions |
| TDA | The Dalles Dam |
| TDG | total dissolved gas |
| TERP | Tower Ecosystem Restoration Projects |
| TMDL | total maximum daily load |
| TMT | Technical Management Team |
| TRT | Technical Recovery Team |
| UCM | Unit Characteristic Method |
| UCR | Upper Columbia River |
| UCUT | Upper Columbia United Tribes |
| UNF | Umatilla National Forest |
| UPA | Updated Proposed Action |
| URC | upper rule curve |
| USBR | U. S. Bureau of Reclamation |
| USDA | U.S. Department of Agriculture |
| USDA | U. S. Department of Agriculture |
| USFS | U.S. Forest Service |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| USRC | Upper Salmon River at Challis Project |
| USRITAT | Upper Salmon River Interagency Technical Advisory Team |
| UWR | Upper Willamette River |
| VARQ | variable (VAR) outflow (Q) |
| VH | Very High (see Table 6.1 for description) |
| VL | Very Low (see Table 6.1 for description) |
| VSP | viable salmonid population |
| W/LC TRT | Willamette/Lower Columbia TRT |

| | |
|---|---|
| WA DNR | Washington Department of Natural Resources |
| WCS BRT | West Coast Salmon Biological Review Team |
| WDF | Washington Department of Fisheries |
| WDFW | Washington Department of Fish and Wildlife |
| WF | west fork |
| WQT | Water Quality Team |
| WRIA | water resource inventory area |
| YN | Yakama Nation |