



# Project Report December 8, 2006

**Strategic Plan**

Facilitate management of aquatic habitats on national and regional scales.

**Objectives:**

15 projects found

13310-A-106 - <a href="#">Bull Trout Recovery Planning</a>	
<b>Facility</b>	Columbia River Fisheries Program Office
<b>Expended</b>	\$50000
<b>Objective</b>	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
<b>Primary Benefited Species</b>	Bull trout ( <a href="#">Salvelinus confluentus</a> )
<b>Primary Benefited Population</b>	Not specified
<b>Plans</b>	<ul style="list-style-type: none"> <li>Bull Trout Recovery Plan (Draft)</li> <li>Bull Trout Draft Recovery Plan, Chapter 10</li> <li>Bull Trout Draft Recovery Plan, Chapter 6</li> <li>Bull Trout Draft Recovery Plan, Chapter 7</li> <li>Bull Trout Draft Recovery Plan, Chapter 9</li> <li>Bull Trout Draft Recovery Plan, Chapter 20</li> <li>Bull Trout Draft Recovery Plan, Chapter 12</li> </ul>
<b>Keyword</b>	Recovery

**Accomplishment Summary**

Progress made in bull trout status review and recovery planning.

**Description**

**The importance to the Resource:**

Bull trout remain listed as threatened and need to have a finalized recovery plan.

**The problem:**

The five year review process is still ongoing and finalizing the recovery plan has been put on hold pending the outcome of the review.

**Further description:**

<b>Need Number</b>	N-002	
<b>Partners</b>		
<b>Accomplishments</b>		
Number of population assessments completed	24	
Number of other Recovery Plan tasks implemented for T&E populations	7	

13310-A-112 - [Financially Support the Columbia Basin Fish and Wildlife Authority](#)

<b>Facility</b>	Columbia River Fisheries Program Office	<p><b>Accomplishment Summary</b></p> <p>The Service continued to provide financial support for the Columbia Basin Fish and Wildlife Authority (Authority) and was an active participant in Authority coordination activities.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The Columbia Basin Fish and Wildlife Authority (Authority) is an association of seven state and federal fish and wildlife agencies and thirteen Indian tribes established to assure comprehensive and effective planning and implementation of fish and wildlife programs in the Columbia River Basin through consensus-building.</p> <p><b>The problem:</b></p> <p>Within the Columbia Basin there are a multitude of management jurisdictions with varying perspectives on how to best manage, rebuild, and recover species. A broad based forum such as the Authority is needed for the entities to express their interests and try to reach consensus on complex management issues.</p> <p><b>The objective:</b></p> <p>The Authority provides: coordination of the fish and wildlife activities of interagency and tribal concern; facilitation of interagency and tribal involvement in implementation of the NW Power &amp; Conservation Council's Fish and Wildlife Program; and interaction with the water and land planning and management authorities of the Columbia River Basin.</p> <p><b>The method:</b></p>
<b>Expended</b>	\$0	
<b>Objective</b>	Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	Not specified	
<b>Plans</b>	Columbia River Basin Fish and Wildlife Program (NPPC 2000)	
<b>Keyword</b>	Interjurisdictional	
<b>Need Number</b>	N-002	
<b>Partners</b>	<p>Columbia River Inter Tribal Fish Commission</p> <p>Confederated Tribes of The Warm Springs</p> <p>Fish Passage Center</p> <p>Idaho Department of Fish and Game</p> <p>Montana Fish, Parks and Wildlife</p> <p>National Oceanic and Atmospheric Administration, Fisheries (\$750)</p> <p>Nez Perce Tribe</p> <p>Oregon Department of Fish and Wildlife</p>	

	<p>Shoshone-Bannock Tribe Umatilla Tribe Washington Department of Fish and Wildlife Yakama Indian Nation</p>	<p>The Service provided its share of the dues, \$750, to the Authority in FY-06 and staff from the Columbia River Fisheries Program Office were active participants in Columbia Basin Fish and Wildlife Authority coordination activities.</p> <p><b>Further description:</b></p> <p>The Service is a member agency of the Columbia Basin Fish and Wildlife Authority and provides annual funding and staffing support for Authority activities.</p>
<p><b>Accomplishments</b></p>		
<p>Number of other Fishery Management Plan tasks implemented for populations of management concern.</p>	<p>1</p>	

**13310-A-120 - [Evaluate Spawning and Rearing Habitat for Fall Chinook and Chum Salmon in the Columbia River.](#)**

<b>Facility</b>	Columbia River Fisheries Program Office	<p><b>Accomplishment Summary</b></p> <p>Described habitat use/requirements for Chinook and chum salmon in Lower Columbia River near Bonneville Dam; initiated new research on habitat use near The Dalles, John Day, and McNary dams and in the lower Columbia near Vancouver. Results used to configure hydro operations for benefit of species</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Populations of ESA-listed chum and fall Chinook salmon affected by operation of The Federal Columbia River Power System (FCRPS) must be protected and enhanced.</p> <p><b>The problem:</b></p> <p>Quantify the location and level of spawning and rearing activity by chum and fall Chinook salmon in the Columbia River near Bonneville, The Dalles, John Day, and McNary dams. The extent of spawning, and conditions needed to provide successful spawning and rearing below the mainstem dams, and the measures needed to protect those fish, are required.</p> <p><b>The objective:</b></p> <p>Describe physical habitat use and requirements for fall Chinook salmon in the Columbia River downstream from The Dalles, John Day, and McNary dams and for chum salmon downstream from Bonneville Dam. These data will be used to help configure the hydrosystem, operation of the FCRPS, for the long term benefit of these species.</p> <p><b>The method:</b></p>
<b>Expended</b>	\$0	
<b>Objective</b>	Develop and share applied aquatic scientific and technologic tools with partners.	
<b>Primary Benefited Species</b>	Chum salmon ( <a href="#">Oncorhynchus keta</a> )	
<b>Primary Benefited Population</b>	<a href="#">Lower Gorge Chum Salmon</a>	
<b>Plans</b>	<p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>Lower Columbia Salmon Recovery And Fish &amp; Wildlife Subbasin Plan: Volume II, Chapter A – Lower Columbia Mainstem and Estuary for Washington State - 2004</p> <p>Columbia Gorge Subbasin Plan</p> <p>Lower Mid-Columbia Mainstem Subbasin Plan - 2004</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p>	
<b>Keyword</b>	Monitoring and Assessment	
<b>Need</b>	N-002	

<b>Number</b>		<p>Conducted boat deployed field surveys with survey grade instrumentation to precisely map the bathymetric surfaces of previously unmapped spawning sites. Conducted deep water redd surveys using a 2-man boat mounted underwater videography system equipped with on the fly GIS/GPS mapping capabilities. Collate data with in-season flows.</p> <p><b>Further description:</b></p> <p>The purpose of this project is to quantify the location and level of spawning activity by chum and fall Chinook salmon in the Columbia River near Bonneville, The Dalles, John Day, and McNary dams. These data will be used to help configure they hydrosystem for the long term benefit of these species. Research continued to determine day/night spawning and movement patterns by ESA-listed chum salmon. We also collected geographic and hydrologic data at chum spawning sites in the lower Columbia in preparation for a habitat assessment at these new locations. Work continued to quantify fall Chinook spawning activity downstream from The Dalles, John Day, and McNary dams. Mapping of spawning areas continued for all three locations, and collection of habitat use data continued. Hydrodynamic modeling was used to determine the effect of hydrosystem operations on the availability of spawning habitat for fall Chinook. Hydrophones were used to detect day/night spawning below The Dalles, John Day and McNary dams.</p>
<b>Partners</b>	<p>Bonneville Power Administration (\$59842)  Oregon Department of Fish and Wildlife  U.S. Geological Survey  Washington Department of Fish and Wildlife</p>	
<b>Accomplishments</b>		
Number of population assessments completed	2	
Number of other Recovery Plan tasks implemented for T&E populations	3	
Number of other Fishery Management Plan tasks implemented for populations of management concern.	16	
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2	

13310-A-123 - [Comparative Survival Study Tagging and Evaluation Project](#)

<b>Facility</b>	Columbia River Fisheries Program Office	<p><b>Accomplishment Summary</b></p> <p>Tagged and released 14,982 spring Chinook at Carson NFH and 51,955 spring Chinook at Dworshak NFH with Passive Integrated Transponder (PIT) tags and participated in systemwide survival studies.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The PIT tag study is a long term, basin wide program measuring smolt-to-adult survival for spring chinook salmon and steelhead from the Columbia River Basin. This program is also evaluating mitigation measures such as flow augmentation, spill, and fish transportation for the recovery of listed salmon stocks.</p> <p><b>The problem:</b></p> <p>There is significant uncertainty regarding the efficacy of juvenile fish transportation as a recovery implementation strategy. Therefore, the co-managers are engaged in a long term transportation study to better define the benefits and risks of this management strategy.</p> <p><b>The objective:</b></p> <p>The study addresses whether transportation of fish to below Bonneville Dam can compensate for the effect of the hydrosystem on juvenile survival rates and will allow comparison of survival rates of fish handled at the dams versus those that migrate without or with less handling.</p> <p><b>The method:</b></p> <p>CRFPO staff PIT tagged spring Chinook at Carson and Dworshak NFHs, worked with co-managers to develop simulation programs,</p>
<b>Expended</b>	\$21500	
<b>Objective</b>	Recover fish and other aquatic resource populations protected under the Endangered Species Act.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	Not specified	
<b>Plans</b>	<p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p>	
<b>Keyword</b>	Monitoring and Assessment	
<b>Need Number</b>	N-002	
<b>Partners</b>	<p>Bonneville Power Administration (\$47322)</p> <p>Columbia River Inter Tribal Fish Commission</p> <p>Idaho Department of Fish and Game</p> <p>Oregon Department of Fish and Wildlife</p> <p>Washington Department of Fish and</p>	

Wildlife

### Accomplishments

Number of population assessments completed	64
Number of other Recovery Plan tasks implemented for T&E populations	3
Number of other Fishery Management Plan tasks implemented for populations of management concern.	4
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	3

performed statistical analyses, helped prepare the 2005 CSS Annual Report, responded to comments on the draft Annual Report, and developed a proposal to evaluate the effectiveness of fall Chinook transportation.

### Further description:

The objectives of the Comparative Survival Study are consistent with the Plan for Analyzing and Testing Hypotheses process and the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP).

13310-A-142 - [Smolt Monitoring Program Tagging](#)

<b>Facility</b>	Columbia River Fisheries Program Office	<p><b>Accomplishment Summary</b></p> <p>Tagged and released 14,987 spring Chinook salmon, 5,996 summer Chinook salmon, and 2,989 fall Chinook salmon with Passive Integrated Transponder tags (PIT) at Leavenworth NFH and Wells and Priest Rapids State Hatcheries in the mid-Columbia River.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The Smolt Monitoring Program is a long term, basin wide assessment program of smolt passage survival of salmonids migrating out of the Columbia and Snake River Basins. Smolt migration data are collected each year to aid the fisheries agencies and tribes in making water management decisions to enhance juvenile fish passage through the hydrosystem.</p> <p><b>The problem:</b></p> <p>Annual tagging is needed to track the timing and survival of juvenile fish through the hydrosystem so that decisions on the best use of limited flow manipulations to enhance juvenile fish passage can be made.</p> <p><b>The objective:</b></p> <p>The objective is to maintain an annual cooperative program of fish tagging of index stocks throughout the upper basin and monitoring at mainstem Columbia and Snake River dams for the purpose of making in-season water management decisions that benefit juvenile fish passage.</p> <p><b>The method:</b></p> <p>Fish are PIT tagged and data are collected at the mainstem dams for the purpose of in-</p>
<b>Expended</b>	\$0	
<b>Objective</b>	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	Not specified	
<b>Plans</b>	Columbia River Basin Fish and Wildlife Program (NPPC 2000) 2000 NMFS FCRPS Biological Opinion - December 21, 2000	
<b>Keyword</b>	Monitoring and Assessment	
<b>Need Number</b>	N-002	
<b>Partners</b>	Bonneville Power Administration (\$39154) Columbia River Inter Tribal Fish Commission Fish Passage Center Idaho Department of Fish and Game National Marine Fisheries Service Oregon Department of Fish and Wildlife Washington Department of Fish and Wildlife	

## Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	4
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	3

season management of flows and spills and the post-season evaluation of the effect of that year's management actions on migrating salmonids.

### Further description:

This cooperative tagging program provides information critical to the overall flow management assessment and is a reimbursable project funded by the Bonneville Power Administration.

13310-A-147 - [Fish Passage, Water Quality, and TMDL's in the Columbia River Basin](#)

<b>Facility</b>	Columbia River Fisheries Program Office	<p><b>Accomplishment Summary</b></p> <p>Represented the Service on technical fish passage and water quality issues in the mainstem Columbia River Basin by participating in regional forums that address the recovery of listed fish species. Helped assure adequate water quality and passage conditions while maintaining power production.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The Columbia River Fisheries Program Office is the lead for fish passage and water management issues that address specific operations or programs of the Federal Columbia River Power System (FCRPS).</p> <p><b>The problem:</b></p> <p>Identify critical uncertainties of specific causes of ESA-listed and non-listed fish passage and survival problems related to the existence and the operation of the FCRPS, and associated infra-structure. Develop actions for specific data and remedial actions to protect the fish under treaty trust responsibilities and mandates of applicable laws.</p> <p><b>The objective:</b></p> <p>An interagency Regional Forum is responsible for implementation of actions required by the biological opinions of the National Marine Fisheries Service and the Fish and Wildlife Service for operation of the FCRPS.</p> <p><b>The method:</b></p> <p>Significant modeling activity has been conducted to develop alternative management strategies for streamflow and spill to improve</p>
<b>Expended</b>	\$105078	
<b>Objective</b>	Facilitate management of aquatic habitats on national and regional scales.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	Not specified	
<b>Plans</b>	<p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>2006 Fish Passage Implementation Plan (In accordance with the Court Order)</p> <p>2006 Water Management Plan</p> <p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p>	
<b>Keyword</b>	Fish Passage	
<b>Need Number</b>	N-002	
<b>Partners</b>	<p>Bonneville Power Administration</p> <p>Columbia River Inter Tribal Fish Commission</p> <p>Environmental Protection Agency</p>	

National Marine  
 Fisheries Service  
 Oregon Department of  
 Fish and Wildlife  
 U.S. Army Corps of  
 Engineers  
 Washington  
 Department of Fish and  
 Wildlife

passage conditions and survival for  
 anadromous fish.

**Further description:**

ESA listed bull trout, Kootenai River sturgeon,  
 Snake River snails, and twelve stocks of  
 salmon and steelhead continue to contribute to  
 the complexity of fish passage issues in the  
 Columbia River basin. The listings and  
 associated biological opinions, and basin  
 management plans require a constant and  
 ongoing effort to balance the competing needs  
 of the listed species, trust responsibilities,  
 hydropower production, flood control,  
 navigation, and irrigation.

**Accomplishments**

Number of population assessments completed	72
Number of other Recovery Plan tasks implemented for T&E populations	12
Number of other Fishery Management Plan tasks implemented for populations of management concern.	5
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

**13310-A-209 - [Develop Geographic Information System Program for staff & provide analytical support and training.](#)**

<b>Facility</b>	Columbia River Fisheries Program Office
<b>Expended</b>	\$110000
<b>Objective</b>	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )
<b>Primary Benefited Population</b>	Not specified
<b>Plans</b>	Columbia River Basin Fish and Wildlife Program (NPPC 2000) Bull Trout Draft Recovery Plan, Chapter 10 Bull Trout Recovery Plan (Draft)
<b>Keyword</b>	Monitoring and Assessment
<b>Need Number</b>	N-002
<b>Partners</b>	

**Accomplishments**

Number of habitat assessments completed	2.0
Number of miles of in-stream habitat assessed	59.0
Number of other Recovery Plan tasks implemented for T&E populations	5
Number of other Fishery Management	2

**Accomplishment Summary**

Acquired GIS analyst who planned, developed, and is implementing our GIS program and capabilities to assess aquatic habitat for resident and anadromous fish in the Columbia River basin. Training was provided to staff on using software for analysis and display. GIS layers were developed for hydrologic modeling and a fall Chinook spawning habitat assessment in the Hanford Reach of the Columbia R. GIS layers were developed for a bull trout spawning habitat assessment and multi-basin patch analysis.

**Description**

**The importance to the Resource:**

GIS analysis has become critical for resource assessments due to the ability to perform complex spatial and statistical analyses. Spatial problem solving produces more realistic, understandable solutions since most problems are spatially oriented. Adequate GIS capabilities are critical for recovery planning and developing conservation strategies.

**The problem:**

Complex spatial and statistical analyses and queries are not possible without a fully functioning GIS program. Analytical products are difficult to understand in numeric and text formats. Easy to understand maps that depict results of analyses are not available. Recovery planning is more difficult and less intuitive without GIS capabilities.

**The objective:**

The objective of the project is to obtain a GIS analyst (FTE) and the necessary hardware,

Plan tasks implemented for populations of management concern.		<p>software, and field equipment to work towards implementation of an enterprise GIS program along with the ability to conduct spatially oriented field work that will be compatible with, and benefit from analytical and display capabilities of the program.</p> <p><b>The method:</b></p> <p>A GIS analyst with the necessary skills will develop and implement the program and provide analytical assistance and training. Hardware (e.g. servers, plotters) and software (e.g. ARCGis) will be acquired that will enable GIS assessments and analyses. Field equipment (e.g. GPS) will be acquired that will enable spatially oriented data collection.</p> <p><b>Further description:</b></p> <p>Advanced GIS analysis has become a requirement for many CRFPO resource assessment activities due to the ability to perform complex spatial and statistical analyses that were not previously feasible. Spatial problem solving produces more realistic on-the-ground solutions since most problems are spatially distributed. Our GIS capabilities will be better able to adequately provide technical support for recovery plans and multi-state conservation strategies such as those for bull trout, cutthroat trout, and Pacific lamprey. Hardware, software, and field equipment need to be acquired to complete development of our comprehensive, integrated GIS program. Because of the diverse nature of the CRFPO and the strong spatial orientation of its work, a functional GIS with appropriate equipment will provide essential information for many products currently required by the agency. Developed GIS layers for building a hydrologic model in the Hanford Reach of the Columbia River. Developed GIS layers for assessing spawning habitat suitability of fall chinook salmon in the Hanford Reach. Developed GIS</p>
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1	

	layers for assessing spawning habitat suitability of bull trout in the South Fork of the Walla Walla River, Oregon
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13231-A-006 - [Fish Health Inspections and Certifications](#)

<b>Facility</b>	Lower Columbia River Fish Health Center	<b>Accomplishment Summary</b>  Twenty-eight stocks of salmon and other fish used to fulfill mitigation and restoration plans in the Columbia River Basin were monitored for health, inspected for disease, and certified as fit and healthy for release.
<b>Expended</b>	\$338629	
<b>Objective</b>	Meet the Service's responsibilities for mitigating fisheries.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	<a href="#">White Salmon River fall run (tule) Chinook</a>	
<b>Plans</b>	<p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</p> <p>Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan</p> <p>Spring Creek NFH Hatchery and Genetic Management Plan</p> <p>Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan</p> <p>Little White NFH Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan</p> <p>1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.</p> <p>Warm Springs Hatchery and Genetic Management Plan (draft)</p> <p>Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan</p>	<b>Description</b>
		<b>The importance to the Resource:</b>
		The fish at 6 National Fish Hatcheries and Abernathy Fish Technical Ctr. are regularly examined throughout their life cycle to ensure that healthy fish, meeting the requirements of National, State, and Tribal Fish Health Policies, are produced and released in the lower Columbia River Basin.
		<b>The problem:</b>
		Disease outbreaks reduce viability and survival of hatchery fish. The fish from these hatcheries are critical to help overcome the impaired habitat and obstruction from dams, and to allow harvest in the Columbia River Basin and ocean fisheries; unhealthy fish do not survive.
		<b>The objective:</b>
		Regular exams at each hatchery provides information necessary to manipulate the environmental/cultural conditions to maintain healthy fish and to avoid losses due to disease. We also provide technical and certification/diagnostic services to tribal, federal, state, and private biologists to improve health and conserve fish resources in the NW.
		<b>The method:</b>
		The Lower Columbia River Fish Health Ctr. uses veterinary technology to monitor health

	Eagle Creek NFH Winter Steelhead Hatchery and Genetic Management Plan	
<b>Keyword</b>	Fish Health	
<b>Need Number</b>	N-002	
<b>Partners</b>	National Oceanic and Atmospheric Administration, Fisheries	
<b>Accomplishments</b>		
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	6	
Number of other Recovery Plan tasks implemented for T&E populations	9	
Number of Fishery Management Plan production tasks implemented (PART)	1	
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1	
Number of applied aquatic scientific and technologic tools shared with partners.	1	
Number of techniques and culture technology tools developed.	1	
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2	
		and prevent disease in 5 salmon species, lamprey, steelhead and sturgeon. In FY2006, we conducted 220 exams on over 7000 fish at the hatcheries to monitor, inspect and certify the health of 16,500 adult fish and over 35 million juveniles.
		<b>Further description:</b>
		The fish at 6 National Fish Hatcheries and Abernathy Fish Technical Ctr. are regularly examined throughout their life cycle to ensure that healthy fish, meeting the requirements of National, State, and Tribal Fish Health Policies, are produced and released. The fish from these hatcheries are critical to help overcome the impaired habitat and obstruction from dams, and to allow harvest in the Columbia River Basin and ocean fisheries; unhealthy fish do not survive. The Lower Columbia River Fish Health Ctr. uses veterinary technology to monitor health and prevent disease in 5 salmon species, lamprey, steelhead and sturgeon. Regular exams at each hatchery provides information necessary to manipulate the environmental/cultural conditions to maintain healthy fish and to avoid losses due to disease. In FY2006, we conducted 220 exams on over 7000 fish at the hatcheries to monitor, inspect and certify the health of 16,500 adult fish and over 35 million juveniles. We also provided technical assistance for tribal, federal, and state biologists and certification/diagnostic services to private aquaculture facilities, all to conserve aquatic resources through improved fish health. Mitchell Act funding from NOAA helps support this work.

13231-A-007 - [National Wild Fish Health Survey](#)

<b>Facility</b>	Lower Columbia River Fish Health Center	<p><b>Accomplishment Summary</b></p> <p>Surveyed over 1500 wild fish from 21 watersheds in WA, OR, ID and the Columbia River to evaluate disease and to prevent spread of aquatic pathogens for improved aquatic ecosystem management.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Initiated by Congress in 1997 because wild fish populations were being decimated by disease, the National Wild Fish Survey gathers health information for wild fish to ascertain the extent of disease problems and ways to manage disease in the wild.</p> <p><b>The problem:</b></p> <p>Disease disables and kills wild fish. A limited knowledge of disease sources and their environmental inducers inhibits better management of habitat problems for wild fish.</p> <p><b>The objective:</b></p> <p>The 9 National Fish Health Ctrs undertook this project to survey the health of wild fish and to make this information available to federal, state, and tribal fishery managers. Information is used to improve fisheries management and monitor specific populations. The national database (<a href="http://wildfishsurvey@fws.gov">http://wildfishsurvey@fws.gov</a>) is available for public use.</p> <p><b>The method:</b></p> <p>In FY06, the Lower Columbia River FHC examined over 1500 wild fish from 21 watersheds in WA, OR, ID and the Columbia River. We tested for 13 pathogens (virus, bacteria, parasites) using state-of-the-art</p>
<b>Expended</b>	\$64977	
<b>Objective</b>	Facilitate management of aquatic habitats on national and regional scales.	
<b>Primary Benefited Species</b>	Rainbow trout ( <a href="#">Oncorhynchus mykiss</a> )	
<b>Primary Benefited Population</b>	<a href="#">Wind River summer run steelhead</a>	
<b>Plans</b>	<p>National Wild Fish Health Survey</p> <p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.</p> <p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>Yakima Subbasin Plan</p>	
<b>Keyword</b>	Fish Health	
<b>Need Number</b>	N-002	
<b>Partners</b>	<p>Confederated Tribes of The Warm Springs</p> <p>Oregon Department of Fish and Wildlife</p> <p>U.S. Geological Survey</p>	

(\$5000)  
 Washington  
 Department of Fish and  
 Wildlife  
 Yakama Indian Nation  
 (\$900)

technology to confirm presence/absence of disease in freshwater and seagoing fish.

**Further description:**

The National Wild Fish Health Survey was initiated by Congress in 1997 because wild fish populations were being decimated by disease and there was little information available on the extent of the problem and ways to manage disease in the wild. The 9 National Fish Health Ctrs undertook this project to survey the health of wild fish and to make this information available to federal, state, and tribal fishery managers. This year, the Lower Columbia River Fish Health Ctr, in cooperation with the Yakama Nation, extensively sampled over 10 fish species in Drano Lake, a popular fishing lake that also serves as nursery habitat for Chinook salmon, a resting area for salmonid adults migrating up the Columbia River and the inlet/outlet for the Little White Salmon Hatchery fish. In anticipation of Condit Dam removal, fish in the White Salmon River were sampled for future health comparisons. Information from the wild fish health surveys are used by state/federal agencies for Ecosystem Diagnosis models for improving aquatic resource management and by the various cooperators for monitoring specific populations of fish. The national database, a repository of all survey information, is available for managerial and public use.

**Accomplishments**

Number of population assessments completed	21
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	1
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	3
Number of applied aquatic scientific and technologic tools shared with partners.	1
Number of techniques and culture technology tools developed.	1
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

**13231-A-012 - [Ecological Interactions of Wild and Hatchery Fish in the Warm Springs and Deschutes River System](#)**

<b>Facility</b>	Lower Columbia River Fish Health Center	<p><b>Accomplishment Summary</b></p> <p>Measured health of wild Chinook salmon and other native fish from the Warm Springs River and Shitike Creek. Fish health testing shows that wild and hatchery salmon carry the same pathogens, an indication of their identical genetic origins, similar ocean destinations and food sources. Additional field sampling and testing of other native species is ongoing. DNA technology is used for disease detection and to prevent the spread of microbial aquatic nuisance species that cause disease.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The Warm Springs National Hatchery annually releases 750,000 fish into the Deschutes River system which contains wild Chinook salmon, steelhead and endangered bull trout. It is important to ensure that both the wild and hatchery fish cohabit without adverse consequences, a goal of the Confederated Tribes of the Warm Springs.</p> <p><b>The problem:</b></p> <p>Interactions of wild and hatchery fish can result in disease transmission.</p> <p><b>The objective:</b></p> <p>To increase fish survival and to prevent disease transmission between hatchery and wild fish. While the common myth states that hatchery fish transmit disease to wild fish, the converse can be true and pathogens of native fish may be transmitted through the river water to the captive hatchery fish. This study examines both hatchery and wild fish</p>
<b>Expended</b>	\$9731	
<b>Objective</b>	Facilitate management of aquatic habitats on national and regional scales.	
<b>Primary Benefited Species</b>	Bull trout ( <a href="#">Salvelinus confluentus</a> )	
<b>Primary Benefited Population</b>	<a href="#">Lower Deschutes River core area Bull Trout</a>	
<b>Plans</b>	<p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</p> <p>National Wild Fish Health Survey</p> <p>Warm Springs Hatchery and Genetic Management Plan (draft)</p> <p>1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.</p> <p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p>	
<b>Keyword</b>	Fish Health	
<b>Need Number</b>	N-002	
<b>Partners</b>	Confederated Tribes of The Warm Springs	

U.S. Geological  
Survey, Columbia River  
Research Lab

## Accomplishments

Number of population assessments completed	2
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	3
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2
Number of consultations conducted to support Tribal fish & wildlife conservation.	1
Number of techniques and culture technology tools developed.	1
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	3

### **The method:**

Since the inception of the hatchery, its fish have been subjected to intensive health exams and management by the Lower Columbia River Fish Health Ctr. To address issues of disease transmission between hatchery and wild fish in FY06, wild fish were examined for disease pathogens using DNA technology and standard methodology.

### **Further description:**

Interactions of wild and hatchery fish can result in disease transmission. The Warm Springs National Hatchery annually releases 750,000 fish into the Deschutes River system which contains wild Chinook salmon, steelhead and endangered bull trout. Since the inception of the hatchery, its fish have been subjected to intensive health exams and management by the Lower Columbia River Fish Health Ctr. This is to increase fish survival and to prevent disease transmission to the wild fish. Conversely, the pathogens of native fish can be transmitted through the river water to the captive hatchery fish. To address issues of disease transmission between hatchery and wild fish in FY06, wild fish were examined for disease pathogens. Clinical testing shows that wild and hatchery salmon carry the same pathogens, an indication of their identical genetic origins, similar ocean destinations and food sources. Additional field sampling and testing of other native species is ongoing. DNA technology is used for disease detection and to prevent the spread of microbial aquatic nuisance species that cause disease. This technology is also being tested to determine whether non-lethal sampling methods can be used to detect infections. FONS# 2000-003.

13231-A-015 - [Wild Fish Health Information Management](#)

<b>Facility</b>	Lower Columbia River Fish Health Center
<b>Expended</b>	\$38089
<b>Objective</b>	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
<b>Primary Benefited Species</b>	Rainbow trout ( <a href="#">Oncorhynchus mykiss</a> )
<b>Primary Benefited Population</b>	<a href="#">Wind River summer run steelhead</a>
<b>Plans</b>	National Wild Fish Health Survey 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
<b>Keyword</b>	Management
<b>Need Number</b>	N-002
<b>Partners</b>	

**Accomplishments**

Number of other Recovery Plan tasks implemented for T&E populations	3
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species	1

**Accomplishment Summary**

Information on over 20 wild fish species in WA ,OR and ID has been inputted into the National Wild Fish Health Survey Database for use in fish management by states, federal, tribal and private entities. The Fish Health Ctr. helped assess the spread of Whirling Disease in the Clackamas watershed and in cooperation with researchers at Oregon State University, published a paper detailing the dissemination of the parasite. Other information is being used for management of fisheries in OR and WA.

**Description**

**The importance to the Resource:**

Data from wild fish health exams is used to provide information to help guide management decisions by the states, federal and tribal entities.

**The problem:**

The Lower Columbia River Fish Health Ctr. has collected over 13,500 wild/native fish for health assessment as mandated by the National Wild Fish Health Survey Initiative.

**The objective:**

To expedite completion of lab assays of microbial aquatic nuisance species, like the parasite causing Whirling Disease.

**The method:**

Using state-of-the-art technology for detection of DNA and standard lab assays, a backlog of fish samples were processed and the information entered into the National Wild Fish Health Survey database. This information is being used by state agencies and universities

(PART)			
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1		
Number of applied aquatic scientific and technologic tools shared with partners.	1		
		for management planning.	
		<b>Further description:</b>	
		The Lower Columbia River Fish Health Ctr. has collected over 13,500 wild/native fish for health assessment as mandated by the National Wild Fish Health Survey Initiative. Data from wild fish health exams is used to provide information to help guide management decisions by the states, federal and tribal entities. The Fish Health Ctr. was able to expedite completion of lab assays of microbial aquatic nuisance species, like the parasite causing Whirling Disease. The Fish Health Ctr. helped assess the spread of Whirling Disease in the Clackamas watershed and in cooperation with researchers at Oregon State University, published a paper detailing the dissemination of the parasite. Other information has and will be used in ecosystem diagnosis modeling to determine how to best manage fisheries in the Wind River, White Salmon and Klickitat Watersheds. This is FONS project 13231-2000-005, funded by the Columbia Basin Salmon Initiative.	

13231-A-022 - [Ecological Interactions between Hatchery and Wild Fish in the Wind River, WA](#)

<b>Facility</b>	Lower Columbia River Fish Health Center	<p><b>Accomplishment Summary</b></p> <p>The interaction, habitat use, and disease status of hatchery salmon and wild steelhead in the Wind River has been done. No fish health problems have been found thus far. According to PIT tag data, the young hatchery salmon that reared naturally in the river in 2005-6 survived and migrated to Bonneville Dam. This year's crop of salmon have a poor survival rate, likely due to the big spring rains and river flush-outs. This information is available for management decisions.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Valuable tribal, sport and commercial fishing is provided by Chinook salmon from Carson National Fish Hatchery on the Wind River in the Columbia River Basin. However, these fish are not native to the river and may interfere with the native-borne steelhead which are a threatened population. Results from this work apply to other NW basins.</p> <p><b>The problem:</b></p> <p>Concerns have been raised whether current salmon management practices (leaving some hatchery salmon in the river to spawn outside the hatchery) are limiting the recovery of steelhead. This may have disease and competition implications that could be easily avoided.</p> <p><b>The objective:</b></p> <p>Determine if the Carson salmon fry that rear naturally in the Wind River are a source of competition and/or disease for the native steelhead, the original inhabitants of the Wind River in WA.</p>
<b>Expended</b>	\$24083	
<b>Objective</b>	Recover fish and other aquatic resource populations protected under the Endangered Species Act.	
<b>Primary Benefited Species</b>	Rainbow trout ( <a href="#">Oncorhynchus mykiss</a> )	
<b>Primary Benefited Population</b>	<a href="#">Wind River summer run steelhead</a>	
<b>Plans</b>	<p>Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan</p> <p>National Wild Fish Health Survey</p> <p>1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.</p> <p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>Comprehensive Hatchery Management Plan - Carson NFH</p>	
<b>Keyword</b>	Recovery	
<b>Need Number</b>	N-002	
<b>Partners</b>	U. S. Forest Service U.S. Geological Survey,	

Columbia River Research Lab  
 (\$12000)  
 Underwood  
 Conservation District  
 Washington  
 Department of Fish and  
 Wildlife  
 Yakama Indian Nation

**The method:**

The spawning habitat below and above the hatchery has been surveyed to ascertain the interactions, densities, habitat use and disease levels of salmon and steelhead. Salmon fry that have reared naturally in the river have been individually identified by PIT tags so that their survival can be tracked. Young salmon are checked for disease.

**Further description:**

Valuable tribal, sport and commercial fishing is provided by Chinook salmon from Carson National Fish Hatchery on the Wind River in the Columbia River Basin. However, these fish are not native to the river and may interfere with the native-borne steelhead which are a threatened population. Concerns have been raised whether current salmon management practices (leaving some hatchery salmon in the river to spawn outside the hatchery) are limiting the recovery of steelhead. Good progress has been made in FY06, the third year of this study. The spawning habitat below and above the hatchery has been surveyed by biologists to ascertain the interactions, densities, habitat use and disease levels of salmon and steelhead. Salmon fry that have reared naturally in the river have been individually identified by PIT tags so that their survival can be tracked. This contributes needed information to meet the Biological Opinions and the hatchery's Genetic and Management Plan. Tribal, state and USFWS entities can manage the Wind River to save and protect the native steelhead by minimizing negative interactions while providing highly valued salmon to tribal fisheries, Columbia River and Wind River recreational fisheries. FONS 2002-002

**Accomplishments**

Number of miles of in-stream habitat assessed	9.0
Number of population assessments completed	1
Number of other Recovery Plan tasks implemented for T&E populations	4
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

13295-A-008 - [Wild Fish Health Survey](#)

<b>Facility</b>	Olympia Fish Health Center	<p><b>Accomplishment Summary</b></p> <p>1598 Wild fish scientifically tested to determine the presence, range and importance of fish diseases in the wild.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Wild fish and the habitats they inhabit are important to the Service and the public. Diseases that may be transmitted by wild fish can cause reductions of populations and may be limiting factors in wild and hatchery populations.</p> <p><b>The problem:</b></p> <p>Determining the presence of pathogens in wild populations. Information gaps exist because of the magnitude in numbers of populations and geographic areas to be surveyed.</p> <p><b>The objective:</b></p> <p>Sample and test wild populations as opportunities arise with partnerships.</p> <p><b>The method:</b></p> <p>Scientifically sound testing provides information for sound management decisions. 1598 juvenile fish from 5 cooperating partners were sampled and tested for diseases at 20 locations representing 9 watersheds</p> <p><b>Further description:</b></p> <p>The information gathered was transmitted to the National Wild Fish Health database for access by the public through the Internet.</p>
<b>Expended</b>	\$95950	
<b>Objective</b>	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
<b>Primary Benefited Species</b>	(0) Can Not Assign	
<b>Primary Benefited Population</b>	Not specified	
<b>Plans</b>	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy	
<b>Keyword</b>	Fish Health	
<b>Need Number</b>	N-002	
<b>Partners</b>	Hood Canal Salmon Enhancement Group Northwest Indian Fisheries Commission Olympic National Park Washington Department of Fish and Wildlife Yakama Indian Nation	

13320-A-004 - [Outreach and Inreach Activities of the Western Washington Office's Fisheries Program](#)

<b>Facility</b>	Western Washington Fisheries Resource Office	<p><b>Accomplishment Summary</b></p> <p>We conducted outreach and inreach activities with Service staff, external partners, and professional organizations. These activities included four professional presentations on salmon ecology at the Western Division and National Meetings of the American Fisheries Society (AFS), publication of an AFS paper on "best available science" in fisheries and environmental science, and preparation of a brochure that explains marking and tagging at the Olympic Peninsula National Fish Hatcheries.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>We conducted a variety of outreach and inreach activities in FY 2006 to enhance understanding and improve support of the Western Washington Fisheries program.</p> <p><b>The problem:</b></p> <p>The Service needs to foster support for Fisheries Program activities to achieve resource conservation.</p> <p><b>The objective:</b></p> <p>Increase public support for the Service's Fisheries Program in western Washington.</p> <p><b>The method:</b></p> <p>We participated in professional society activities and developed an outreach brochure describing marking and tagging at the Olympic Peninsula National Fish Hatcheries.</p> <p><b>Further description:</b></p>			
<b>Expended</b>	\$65000				
<b>Objective</b>	Provide support to States, Tribes, and other partners to identify and meet shared or complementary recreational fishing and aquatic education and outreach objectives.				
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )				
<b>Primary Benefited Population</b>	Not specified				
<b>Plans</b>	Shared Strategy for Puget Sound and Recovery Plan, Draft				
<b>Keyword</b>	Outreach				
<b>Need Number</b>	N-002				
<b>Partners</b>	American Fisheries Society Puget Sound Treaty Tribes Washington Department of Fish and Wildlife				
<p><b>Accomplishments</b></p> <table border="1"> <tr> <td>Number of other Recovery Plan tasks implemented for T&amp;E populations</td> <td>1</td> </tr> <tr> <td>Number of aquatic outreach and education activities.</td> <td>4</td> </tr> </table>			Number of other Recovery Plan tasks implemented for T&E populations	1	Number of aquatic outreach and education activities.
Number of other Recovery Plan tasks implemented for T&E populations	1				
Number of aquatic outreach and education activities.	4				

13320-A-016 - [Elwha River Fishery Restoration](#)

<b>Facility</b>	Western Washington Fisheries Resource Office	<p><b>Accomplishment Summary</b></p> <p>We assisted in completing the draft salmonid restoration plan for the Elwha River Fisheries and Ecosystem Restoration Project in FY 2006. The final plan will be published in FY 2007 as a NOAA technical document.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The Elwha River Fisheries and Ecosystem Restoration Act of 1992 calls for removal of the Elwha River dams to achieve restoration of the Elwha River's ecosystem and native anadromous fisheries. Removal of the Elwha River dams will re-open 70 miles of pristine salmon habitat in Olympic National Park to 10 native fish stocks.</p> <p><b>The problem:</b></p> <p>Prior to removal of the Elwha River dams, a comprehensive and updated plan to restore the fish and fisheries of the river basin was needed.</p> <p><b>The objective:</b></p> <p>The plan is designed to secure appropriate broodstocks prior to dam removal (2002-2008), safeguard these stocks during the period of dam removal (2009-2010), restore these stocks, and monitor and manage the restoration project. The goal is to restore these stocks to harvestable levels throughout the watershed in the 10 years after dam removal.</p> <p><b>The method:</b></p> <p>We developed a plan to restore these stocks after dam removal. Due to changing funding and delays in starting the project, however, an</p>	
<b>Expended</b>	\$75000		
<b>Objective</b>	Facilitate management of aquatic habitats on national and regional scales.		
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )		
<b>Primary Benefited Population</b>	<a href="#">Puget Sound ESU/Elwha River Independent Population</a>		
<b>Plans</b>	Elwha Ecosystem and Fishery Restoration Act of 1992 Shared Strategy for Puget Sound and Recovery Plan, Draft		
<b>Keyword</b>	Restoration		
<b>Need Number</b>	N-002		
<b>Partners</b>	Hatchery Scientific Review Group Lower Elwha Klallam Tribe National Oceanic and Atmospheric Administration, Fisheries Olympic National Park Washington Department of Fish and Wildlife		
<p><b>Accomplishments</b></p> <table border="1"> <tr> <td>Number of other Recovery Plan tasks</td> <td>1</td> </tr> </table>			Number of other Recovery Plan tasks
Number of other Recovery Plan tasks	1		

Number of other Recovery Plan tasks implemented for T&E populations	1	amended EIS and updated fish restoration plan became necessary. The draft plan was completed in FY 2006 and the final plan will be published in FY 2007 as a NOAA technical document.
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