



Project Report December 8, 2006

Strategic Plan Objectives: Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.

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13210-A-010 - [Use of Vegetable Protein Diet to Lower Contaminant Levels in NFH Reared Fish.](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>Completed a feeding trial to determine whether contaminant levels (i.e. PCBs and dioxins) could be reduced in NFH reared fish by developing and testing a vegetable protein fish feed. Fish and feed are being analyzed for contaminants.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Palatable and nutritious feeds containing little or no fish products, therefore low contaminant loads are needed for use at NFHs. Use of vegetable protein diets should reduce tissue contaminant concentrations in NFH fish, because vegetable oils and meals (e.g. soybean meal) contain low levels of contaminants.</p> <p>The problem:</p> <p>Fish meal and oil, major components in feed, often contain contaminants such as PCBs and dioxins. NFH-reared fish will store these compounds when fed most commercial diets. Diets containing moderate levels of plant products of low contaminant load are often unpalatable to carnivorous fish, particularly salmon and trout.</p> <p>The objective:</p>	
Expended	\$14648		
Objective	Develop and share applied aquatic scientific and technologic tools with partners.		
Primary Benefited Species	Lahontan cutthroat trout (Oncorhynchus clarkii henshawi)		
Primary Benefited Population	LNFH - Lahontan cutthroat trout Pilot Peak Broodstock		
Plans	Lahontan Cutthroat Trout Recovery Plan Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)		
Keyword	Fish Technology		
Need Number	N-002		
Partners			
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>2</td> </tr> </table>			Number of other Recovery Plan tasks implemented for T&E populations
Number of other Recovery Plan tasks implemented for T&E populations	2		

Number of techniques and culture technology tools developed.

1

The objective of this study is to determine what level of vegetable protein can be included in the feed and still maintain good palatability.

The *method*:

Vegetable protein diets must be evaluated in feeding trials to determine whether they will produce an acceptable level of feed consumption and growth rate in NFH fish. At the conclusion of the feeding trial, weight gain and feed efficiency will be determined.

Contaminant levels in the diets and fish will be analyzed.

13210-A-011 - [Identification of Contaminants in Commercially Produced Fish Feeds Used at NFHs](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>Using data from feed samples collected over 2 years from 11 NFHs nationwide, and analyzed by USFWS and USGS staffs, a final report and manuscript have been generated and submitted to both USFWS and USGS for final review. The final report for the project has been accepted by USFWS and USGS. The manuscript is currently under review for publication.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Contaminated commercial fish feed pose both fish and human health hazards. Exposure to contaminants can adversely affect the health and viability of declining, threatened, and endangered fish species reared at NFHs.</p> <p>The problem:</p> <p>Contaminated fish feed can negatively affect the quality of fish destined for human consumption. Fish feeds from various suppliers are used at Pacific Region NFH. Some of the same brands of fish feed were found to have elevated levels of heavy metals in the feeds used at Southwestern Region NFHs.</p> <p>The objective:</p> <p>The objective of this study was to determine if contaminants were wide spread in fish feeds used by the USFWS.</p> <p>The method:</p> <p>Feeds were sampled from Coleman, Spring Creek, Hagerman, Quilcene, Leavenworth, Garrison Dam(R6), Ennis(R6), Jordan</p>
Expended	\$17500	
Objective	Develop and share applied aquatic scientific and technologic tools with partners.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Not specified	
Plans	<p>Leavenworth Hatchery Genetics Management Plan</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>Comprehensive Hatchery Management Plan - Spring Creek NFH</p>	
Keyword	Fish Technology	
Need Number	N-002	
Partners	<p>National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center</p> <p>U.S. Geological Survey, Columbia River Research Lab</p> <p>Western Washington Fish and Wildlife Office</p>	
Accomplishments		

Number of Fishery Management Plan production tasks implemented (PART)	2	<p>River(R3), Genoa(R3), North Attleboro(R5), and White Sulphur Springs(R5) NFHs were for tested. Abernathy FTC staff processed feed samples, conducted proximate analyses and sent samples to USGS/BRD for contaminants analyses.</p> <p>Further description:</p> <p>Nutrition</p>
Number of applied aquatic scientific and technologic tools shared with partners.	5	

13210-A-014 - [Identify Critical Nutrient Requirements for Listed Broodstock](#)

Facility	Abernathy Fish Technology Center
Expended	\$68235
Objective	Develop and share applied aquatic scientific and technologic tools with partners.
Primary Benefited Species	Lahontan cutthroat trout (Oncorhynchus clarkii henshawi)
Primary Benefited Population	LNFH - Lahontan cutthroat trout Pilot Peak Broodstock
Plans	Lahontan Cutthroat Trout Recovery Plan
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	1
Number of applied aquatic scientific and technologic tools shared with partners.	1

Accomplishment Summary

Broodstock diets from Lahontan NFH, Mora FTC, Bears Bluff NFH were analyzed for key nutrients. One cutthroat trout broodstock feeding trial has been completed and a second trial has been started as parts of a study to to develop and formulate broodstock diets to improve condition and reproduction for species held in refugia. This accomplishment is associated with FONS project 13210-2003-004.

Description

The importance to the Resource:

More threaten and endangered fish are being held in refugia at NFHs as captive broodstock. Although there are broodstock diets available commercially, questions still remain on the nutritional adequacy of these feeds.

The problem:

Nutrition affects survival, fecundity, egg size, composition, egg hatchability and fry viability. Analysis of the fish and their reproductive products have identified nutrients needed by broodstock. This method is a start but needs to be fined tuned. Culture and fecundity problems are seen in some captive stocks which could be related to nutrition.

The objective:

But few well-structured feeding trials have been conducted to determine species specific nutritional requirements. Abernathy FTC, Mora NFH&TC, and Lahontan NFH staffs examined feeds currently in use to gain nutritional need information.

	<p>The <i>method</i>:</p> <p>Feeds of of the listed captive cutthroat trout broodstock in Pacific Region, Gila trout in the Southwest Region and sturgeon in the Southeast Region were examined. A feeding trial has been initiated with cutthroat trout broodstock. This accomplishment is associated with FONS project 13210-2003-004.</p> <p>Further description:</p> <p>Nutrition</p>
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13210-A-015 - [Fish Feed Development for the Captive Propagation of Threatened and Endangered Species](#)

Facility	Abernathy Fish Technology Center
Expended	\$23148
Objective	Develop and share applied aquatic scientific and technologic tools with partners.
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)
Primary Benefited Population	Not specified
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	2
Number of techniques and culture technology tools developed.	1
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1

Accomplishment Summary

Preliminary feeding trials with coho and steelhead were conducted evaluating the use of different lipid (fat) sources on fish feed used in captive propagation of threatened and endangered species. Data analysis and report writing are underway. One peer-reviewed paper was published examining the performance of bonytail chub fed different diets.

Description

The importance to the Resource:

Good nutrition is essential for wild fish when they are placed in NFHs, used as refuges, to protect and increase their numbers. Habitat destruction has brought about the realization that there will be a greater dependence on maintaining stocks to replenish the numbers in the wild.

The problem:

As more declining, threatened, and endangered species are moved into captive environments, it will be crucial to have feeds developed to meet their needs.

The objective:

Diets will be developed that are specific for the each species and will enhance the survival and maintain the health of the fish.

The method:

As diets are developed they will be fed to the fish using standard nutrition study protocols in controlled tank studies to determine which formulations perform optimally.

	<p>Further description:</p> <p>Nutrition</p>
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13210-A-019 - [Development of a Native Broodstock for Use in Restoration and Recovery](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>We have evaluated the behavior, morphology, physiology, genetic diversity, and reproductive success of hatchery and wild steelhead. 20,000 steelhead have been released from AFTC yearly since 2003. Wild smolt production has not been effected. Hatchery and wild fish differ morphologically and physiologically. We have maintained genetic diversity among the broodstock and progeny. Hatchery returns have reproduced naturally. Hatchery and wild fish produced equivalent numbers of offspring.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>To meet Service goals and a NMFS BiOp, Abernathy Fish Technology Center (AFTC) staff are establishing a native broodstock of natural spawning steelhead to recover wild steelhead populations. The study is evaluating the effects of integrated hatchery practices on wild ESA populations for application throughout the Columbia River basin.</p> <p>The problem:</p> <p>Many hatchery programs for steelhead pose genetic or ecological risks to natural populations because those programs release or outplant fish from non-native stocks. As a result, the USFWS and the NOAA Fisheries have recommended a policy that discourages the use of non-native hatchery stocks and encourages development of native broodstocks.</p> <p>The objective:</p> <p>We are developing methods to produce hatchery fish that do not involve the use of ESA-listed adults that in turn will be used to</p>					
Expended	\$395251						
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.						
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)						
Primary Benefited Population	Not specified						
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) National Broodstock Policy and Implementation Guidelines						
Keyword	Fish Technology						
Need Number	N-002						
Partners	Washington Department of Fish and Wildlife (\$70000)						
<p>Accomplishments</p> <table border="1"> <tr> <td>Recovery Plan production tasks implemented (PART)</td> <td>1</td> </tr> <tr> <td>Number of Fishery Management Plan production tasks implemented (PART)</td> <td>3</td> </tr> <tr> <td>Number of techniques and culture technology</td> <td>3</td> </tr> </table>			Recovery Plan production tasks implemented (PART)	1	Number of Fishery Management Plan production tasks implemented (PART)	3	Number of techniques and culture technology
Recovery Plan production tasks implemented (PART)	1						
Number of Fishery Management Plan production tasks implemented (PART)	3						
Number of techniques and culture technology	3						

tools developed.		<p>develop a native broodstock. Results should produce a means to produce self-sustaining stocks of steelhead that have applicability for use in salmon recoveries throughout the Pacific Region.</p> <p>The method:</p> <p>We initiated our steelhead broodstock program by captively rearing wild juveniles to sexual maturity. 20,000 juveniles have been released from AFTC yearly since 2003. We have been monitoring hatchery and wild smolt and returning adult steelhead behavior, morphology, physiology, genetic diversity, and reproductive success since 2003.</p> <p>Further description:</p> <p>Five hundred naturally spawned juvenile steelhead from the locally adapted population were collected over 3 years (1999-2001). Progeny produced from these fish are being released, monitored, and evaluated. The number of wild steelhead smolts migrating out of the treatment (1) and control (2) creeks has been consistent among years. Emigration date between hatchery and wild fish were similar and did not vary among years. However, hatchery and wild steelhead differed morphologically and physiologically. After genotyping and parentage analysis it appears that we have been successful, thus far at maintaining genetic diversity among our broodstocks as well as within the progeny produced at the hatchery. In addition, the individuals that we have passed upstream of the hatchery have been able to reproduce naturally. To date it appears that wild fish produced equivalent numbers of offspring as hatchery fish.</p> <p>Ecological Physiology</p>
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1	

13210-A-022 - [Field Identification and Genetic Validation of Steelhead, Cutthroat Trout, and Their Hybrids](#)

Facility	Abernathy Fish Technology Center
Expended	\$33148
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Cutthroat trout (Oncorhynchus clarkii)
Primary Benefited Population	Not specified
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Lower Columbia Salmon Recovery and Subbasin Plan
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Recovery Plan production tasks implemented (PART)	1
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

Accomplishment Summary

Maximize field biologist's ability to classify juvenile steelhead, coastal cutthroat trout, and their hybrids. We determined morphometric measurements, genotyping completed for steelhead, cutthroat trout and hybrids. We are currently completing a manuscript for peer-reviewed publication.

Description

The importance to the Resource:

Conservation of native species depends on accurate estimates of population demographics, including population abundance, survival, recruitment, and migration. Often these estimates are based on the identification of individual organisms in the field using one or more phenotypic characters and the assumption of a simple breeding structure.

The problem:

In systems where native species are closely related or known to hybridize field-based identifications may be inaccurate. This inaccuracy can lead to erroneous conclusions on basic life history characters and population demographics, causing poor decisions on species listings, critical habitat designations, and conservation plans.

The objective:

We are attempting to maximize field biologist's abilities to classify juvenile steelhead, coastal cutthroat trout, and their hybrids.

The method:

We have collected juvenile steelhead, coastal cutthroat trout, and their hybrids during outmigration and classified individuals using phenotypic and genotypic methods.

Further description:

Ecological Physiology and Genetics

13210-A-027 - [Evaluation of Water Diversion Screen Criteria for Pacific Lamprey](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>Behavioral experiments to protect the declining Pacific Lamprey at water diversion structures were initiated and completed. Data was analyzed and a final report was prepared and submitted to the USFWS Oregon FWO for use in management decisions.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Effective screening criteria are essential to prevent impingement and entrainment of petitioned Pacific lamprey in water diversion structures at the Pacific Region's NFHs, agricultural drainage ditches, and hydropower facilities.</p> <p>The problem:</p> <p>Existing criteria were based on and developed for salmon species, such as Chinook, and questions have arisen as to whether existing criteria could protect the declining Pacific Lamprey from impingement and entrainment at fishery facilities in Pacific Northwest watersheds.</p> <p>The objective:</p> <p>To determine if existing fish screen criteria protect Pacific Lamprey from impingement and entrainment.</p> <p>The method:</p> <p>Using current generic salmon screening criteria as a baseline, Tte Center's Applied Research Program in Ecological Physiology conducted experiments to determine what risks, if any, the current water diversion screens pose to Pacific lamprey petitioned under the Endangered</p>	
Expended	\$17650		
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.		
Primary Benefited Species	Pacific lamprey (Lampetra tridentata)		
Primary Benefited Population	Columbia River Pacific Lamprey		
Plans	Salmon Subbasin Summary Lower Columbia Salmon Recovery and Subbasin Plan		
Keyword	Fish Passage		
Need Number	N-002		
Partners	Columbia River Fisheries Program Office Oregon Fish and Wildlife Office		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>2</td> </tr> </table>			Number of other Fishery Management Plan tasks implemented for populations of management concern.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2		

	<p>Species Act. The study and final report has been completed and submitted.</p> <p>Further description:</p> <p>Ecological Physiology</p>
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13210-A-029 - [Emigration and Smolting of Net-Pen Reared Spring Chinook Salmon From Youngs Bay, OR](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>Completed final study report examining emigration rate and its relationship to smolt development in spring Chinook salmon. The final report has been submitted to Oregon Fish and Wildlife Departments Recreation and Enhancement Board. In addition the results have been shared with regional partners concerned with monitoring and restoration of the Columbia River estuary.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Terminal fisheries extend the hatchery rearing period and are used to increase commercial and sport fishing opportunities. These programs can have negative impacts on wild fish by increasing competition for food and habitat. The results of this study will provide information to determine whether this program can be expanded or should be curtailed.</p> <p>The problem:</p> <p>The Columbia River estuary is known to be an important nursery and rearing area for a number of threatened and endangered wild salmon stocks. Whether there are negative interactions between the hatchery fish released for this terminal fishery program and wild fish is unknown.</p> <p>The objective:</p> <p>Project objectives are to determine: 1) the emigration rate of juvenile net-pen reared salmon; and 2) if there is a correlation between gill ATPase (a hormone used as a physiological measure of smolting) and emigration rate.</p>	
Expended	\$15500		
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.		
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)		
Primary Benefited Population	Lower Columbia River		
Plans	<p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>Lower Columbia Salmon Recovery and Subbasin Plan</p>		
Keyword	Fish Technology		
Need Number	N-002		
Partners	<p>Battelle Pacific Northwest National (\$1500)</p> <p>Clatsop Economic Development Council (\$1000)</p> <p>Oregon Department of Fish and Wildlife (\$1500)</p> <p>Salmon for All (\$500)</p>		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Fishery Management Plan</td> <td>1</td> </tr> </table>			Number of other Fishery Management Plan
Number of other Fishery Management Plan	1		

tasks implemented for populations of management concern.		<p>The <i>method</i>:</p> <p>Chinook physiology and emigration route and speed were measured using radio-telemetry techniques. This was a cooperative project, and including Salmon for All, Clatsop County, OR, Columbia River Estuary Study Team, and Oregon Department of Fish & Wildlife Recreation and Enhancement Board.</p> <p>Further description:</p> <p>Ecological Physiology</p>
Number of applied aquatic scientific and technologic tools shared with partners.	1	
Number of techniques and culture technology tools developed.	1	

13210-A-047 - [Recovery and Genetic Monitoring of Chinook Salmon on the Warm Springs Indian Reservation, OR](#)

Facility	Abernathy Fish Technology Center
Expended	\$48171
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Warm Springs hatchery spring chinook
Plans	Warm Springs Hatchery and Genetic Management Plan (draft) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Genetics
Need Number	N-002
Partners	Columbia River Fisheries Program Office (\$20000) Confederated Tribes of The Warm Springs (\$5000)

Accomplishments

Number of population assessments completed	1
Number of other Recovery Plan tasks implemented for T&E populations	1

Accomplishment Summary

Fin clips were collected from outplanted NFH origin adults and natural origin juvenile, spring Chinook salmon. 180 adults and 450 juveniles were genotyped at 10 DNA loci for assessing natural reproductive success of outplanted NFH-origin adults. Approximately half of the juveniles were parented by an outplant Chinook salmon. A manuscript is in development for submission to a peer-reviewed journal.

Description

The importance to the Resource:

Shitike Creek supports a depressed population of spring Chinook salmon. The USFWS and Confederated Tribes of the Warm Springs Reservation are attempting to rebuild this stock by outplanting surplus NFH adults from the Warm Springs NFH with the goal that those adults will spawn naturally in Shitike Creek.

The problem:

Surplus adults returning to NFHs are potential source of fish for restoring depressed natural populations. The ability of NFH-origin adults to successfully reproduce in the wild and contribute to natural population recovery is unknown.

The objective:

To determine the natural spawning success of Warm Springs NFH adult spring Chinook salmon in Shitike Creek and their ability to contribute to recovery of the population.

The method:

Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1	All NFH-origin adult spring Chinook salmon outplanted into Shitike Creek are genotyped with a suite of DNA markers, and samples of naturally produced juveniles representing potential offspring are also genotyped. The pedigree relationships between potential parents and offspring will be determined by DNA analyses.
Number of applied aquatic scientific and technologic tools shared with partners.	1	
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1	

13210-A-051 - [Genetic Analyses of Resident and Migratory Coastal Cutthroat Trout in the Lower Columbia River](#)

Facility	Abernathy Fish Technology Center
Expended	\$27350
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)
Primary Benefited Population	lower Columbia River Steelhead
Plans	Lower Columbia Salmon Recovery and Subbasin Plan Coastal Cutthroat Trout Framing Document (draft)
Keyword	Genetics
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	2
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2
Number of techniques and culture technology tools developed.	1

Accomplishment Summary

Genetic data was used to determine if the migratory and resident forms of coastal cutthroat trout represent distinct populations or if both life history types descended from a single random mating population in two Lower Columbia River streams. Two-hundred samples were genotyped at 21 microsatellite loci. Data analysis will be completed in FY07.

Description

The importance to the Resource:

Understanding the genetic relationship between resident and migratory groups within and among streams is critical to properly managing and conserving coastal cutthroat trout populations. For example, genetic data can help determine whether the resident form can potentially assist with recovery of the migratory form.

The problem:

Do the migratory and resident forms represent distinct coastal cutthroat trout populations or do both life history types descended from a single random mating population? This information is critically needed to assess the true status of the migratory form in the lower Columbia River.

The objective:

This study addresses the genetic relationship of sympatric migratory and resident coastal cutthroat trout in Aberrantly Creek and the Chinook River in Washington State.

The method:

DNA markers were used to compare genetic

	<p>profiles of resident and migratory forms in each of two tributaries in the lower Columbia River. Those results will determine whether the two life history forms represent two genetically-distinct populations or simply represent alternative life history strategies of a single population within each stream.</p>
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13210-A-057 - [Development of Native Broodstock Techniques for Conservation, Harvest, and Recovery of Steelhead](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>New technologies will be developed for developing native, hatchery broodstock programs for steelhead that can provide fish for harvest and contribute to the recovery of naturally spawning populations</p> <p>Description</p> <p>The importance to the Resource:</p> <p>To meet Service goals and a NMFS BiOp, Abernathy Fish Technology Center (AFTC) staff are establishing a native broodstock of natural spawning steelhead to recover wild steelhead populations. The study is evaluating the effects of integrated hatchery practices on wild ESA populations for application throughout the Columbia River basin.</p> <p>The problem:</p> <p>Many hatchery programs for steelhead pose genetic or ecological risks to natural populations because those programs release or outplant fish from non-native stocks. As a result, the USFWS and the NOAA Fisheries have recommended a policy that discourages the use of non-native hatchery stocks and encourages development of native broodstocks.</p> <p>The objective:</p> <p>We are developing methods to produce hatchery fish that do not involve the use of ESA-listed adults that in turn will be used to develop a native broodstock. Results should produce a means to produce self-sustaining stocks of steelhead that have applicability for use in salmon recoveries throughout the Pacific Region.</p>			
Expended	\$62468				
Objective	Develop and share applied aquatic scientific and technologic tools with partners.				
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)				
Primary Benefited Population	lower Columbia River Steelhead				
Plans	<p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>National Broodstock Policy and Implementation Guidelines</p>				
Keyword	Fish Technology				
Need Number	N-002				
Partners	<p>Bonneville Power Administration</p> <p>Washington Department of Fish and Wildlife</p>				
<p>Accomplishments</p> <table border="1"> <tr> <td>Recovery Plan production tasks implemented (PART)</td> <td>1</td> </tr> <tr> <td>Number of Fishery Management Plan production tasks implemented (PART)</td> <td>3</td> </tr> </table>			Recovery Plan production tasks implemented (PART)	1	Number of Fishery Management Plan production tasks implemented (PART)
Recovery Plan production tasks implemented (PART)	1				
Number of Fishery Management Plan production tasks implemented (PART)	3				

Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)

1

The method:

We initiated our steelhead broodstock program by captively rearing wild juveniles to sexual maturity. 20,000 juveniles have been released from AFTC yearly since 2003. We have been monitoring hatchery and wild smolt and returning adult steelhead behavior, morphology, physiology, genetic diversity, and reproductive success since 2003.

Further description:

Five hundred naturally spawned juvenile steelhead from the locally adapted population were collected over 3 years (1999-2001). Progeny produced from these fish are being released, monitored, and evaluated. The number of wild steelhead smolts migrating out of the treatment (1) and control (2) creeks has been consistent among years. Emigration date between hatchery and wild fish were similar and did not vary among years. However, hatchery and wild steelhead differed morphologically and physiologically. After genotyping and parentage analysis it appears that we have been successful, thus far at maintaining genetic diversity among our broodstocks as well as within the progeny produced at the hatchery. In addition, the individuals that we have passed upstream of the hatchery have been able to reproduce naturally. To date it appears that wild fish produced equivalent numbers of offspring as hatchery fish.

Ecological Physiology

13210-A-093 - [Genetic Structure of Chinook Salmon Populations in the Big White Salmon River Prior to Dam Removal](#)

Facility	Abernathy Fish Technology Center	<p>Accomplishment Summary</p> <p>A study plan was developed and a proposal for funding was submitted to BPA to determine the genetic structure of Chinook salmon populations in the Big White Salmon River. This genetic baseline will be used for monitoring recolonization of the upper watershed after removal of Condit Dam. The potential restoration role of the Spring Creek NFH will be established.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The natural spawning habitat of Chinook salmon in the Columbia River Gorge has been severely reduced because of flooding by Bonneville Dam and upstream blockage by Condit Dam on the Big White Salmon River (BWSR), a major tributary to the Columbia River.</p> <p>The problem:</p> <p>Natural spawning of Chinook salmon currently occurs in a three-mile reach of the BWSR between Condit Dam and the Bonneville pool. In addition, Spring Creek NFH propagates a unique strain of Chinook salmon near the mouth of the BWSR. Condit Dam is scheduled to be removed in 2006, opening up miles of watershed to Chinook salmon.</p> <p>The objective:</p> <p>A genetic baseline will be developed for monitoring the recolonization of the BWSR by Chinook salmon after Condit Dam is removed. The genetic data will also be used to determine the potential role of Spring Creek NFH in the overall restoration effort.</p>
Expended	\$10000	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	White Salmon River fall run (tule) Chinook	
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)	
Keyword	Genetics	
Need Number	N-002	
Partners	<p>Columbia River Fisheries Program Office (\$5000)</p> <p>Columbia River Inter Tribal Fish Commission (\$20000)</p> <p>National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center (\$20000)</p> <p>Oregon Department of Fish and Wildlife (\$1000)</p> <p>Spring Creek National Fish Hatchery (\$1000)</p> <p>Washington</p>	

Department of Fish and
Wildlife (\$1000)

Accomplishments

Number of population assessments completed	5
Recovery Plan production tasks implemented (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	1
Number of applied aquatic scientific and technologic tools shared with partners.	1
Number of techniques and culture technology tools developed.	1

The *method*:

DNA markers will be used to determine the genetic structure or breeding relationships of three strains of Chinook salmon currently spawning in the BWSR. Those genetic relationships will be compared to four NFH populations of Chinook salmon in the lower Columbia River.

13310-A-111 - [Fish Passage Facilities Inspection Coordination Program](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>The Service provided funding to the Pacific States Marine Fisheries Commission to match the equal contributions of the other agencies for this program for the purpose of conducting fishway inspections at Columbia River mainstem dams.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Since its inception in 1983, the Fish Passage Center has continuously had a program in effect to coordinate adult and juvenile passage facilities inspections. Since 1986, this program has been jointly funded by state and federal agencies through the Fish Passage Center budget.</p> <p>The problem:</p> <p>Adult and juvenile fish passage facilities at mainstem dams continuously must be inspected and monitored to ensure that they are functioning within defined operational criteria.</p> <p>The objective:</p> <p>The Inspection Coordinator is responsible for advising the fishery agencies and tribes and the Fish Passage Center Manager on fish passage relative to the operation and maintenance of adult and juvenile fish passage facilities in the mainstem Snake and Columbia Rivers.</p> <p>The method:</p> <p>The CRFPO assists with inspection and monitoring of passage facilities to assure efficient operation for passage and survival of</p>	
Expended	\$0		
Objective	Identify the mitigation responsibilities of Federal agencies related to water projects.		
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)		
Primary Benefited Population	Not specified		
Plans	<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>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p>		
Keyword	Fish Passage		
Need Number	N-002		
Partners	Fish Passage Center National Oceanic and Atmospheric Administration, Mitchell Act (\$9846)		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>2</td> </tr> </table>			Number of other Recovery Plan tasks implemented for T&E populations
Number of other Recovery Plan tasks implemented for T&E populations	2		

<p>Number of other Fishery Management Plan tasks implemented for populations of management concern.</p>	<p>1</p>	<p>juvenile and adult fish.</p> <p>Further description:</p> <p>The following agencies have historically equally supported this program: (1) National Marine Fisheries Service, (2) Idaho Department of Fish and Game, (3) Washington Department of Fish & Wildlife, (4) Oregon Department of Fish and Wildlife, and the (5) U.S. Fish and Wildlife Service.</p>
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13310-A-153 - [Subbasin Planning Activities in the Columbia River basin](#)

Facility	Columbia River Fisheries Program Office
Expended	\$121507
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	Lower Columbia Salmon Recovery and Subbasin Plan Columbia Estuary Province Sub-basin Plans Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Recovery
Need Number	N-002
Partners	Bonneville Power Administration Lower Columbia River Fish Recovery Board Northwest Power and Conservation Council Oregon Department of Fish and Wildlife

Accomplishments

Number of population assessments completed	50
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Accomplishment Summary

Provided technical assistance implementing subbasin plans, through assisting with project reviews submittals for fish and wildlife program funding at subbasin, State, and regional levels. In addition, staff represent the Service on advisory groups for implementation and monitoring subbasin plan activities.

Description

The importance to the Resource:

Through subbasin plans, the Northwest Power and Conservation Council identifies projects for funding under the fish and wildlife program. These projects are important to provide biological information on listed species of salmon (primarily) and resident species (to a lesser degree).

The problem:

Installing and operating the system of Federal Dams throughout the Columbia River Basin, in conjunction with other habitat altering activities from a range of sources, and the potential impact of climate change on habitat and hydrology, has decimated fish and some wildlife populations throughout the Columbia Basin.

The objective:

The Fish and Wildlife program is supposed to divert funds derived from marketing power at the Federal Dams, to projects and programs that mitigate impacts from installing and operating the system on fish and wildlife populations in the Columbia Basin.

The method:

Through a planning process, subbasin plans are supposed to identify conditions and factors that limit fish and wildlife populations in the Columbia Basin, and identify measures, where possible, to correct these conditions or address specific factors for decline. Present efforts are to implement plan recommendations.

Further description:

This project provides data and information on current restoration and monitoring activities and provide guidance for future restoration activities for the sub-basins in the Columbia River Gorge, Columbia River Estuary, Lower Columbia River, and Columbia Plateau provinces. Plans to recover Columbia Basin salmon and steelhead, the NMFS and FWS Biological Opinions on the Federal Columbia River Power System, and the Northwest Power and Conservation Council's (NPCC's) Fish and Wildlife Program all require the completion of sub-basin plans. In concept, subbasin plans will help integrate and guide recovery efforts for many species. A primary focus of the CRFPO was to try and ensure that subbasin plans contained elements that are necessary for bull trout recovery as well as include measures for all species under FWS jurisdiction, particularly those which are imperiled. CRFPO assisted with the development of 17 subbasin plans. CRFPO is now participating in the implementation phase of the completed subbasin plan in the Lower Columbia River Area, through the Technical Advisory Committee, and Recovery Steering Committee

13310-A-167 - [Evaluate Habitat Use and Population Dynamics of Lampreys in Cedar Creek](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>Estimated abundance, migration timing, and biological characteristics of adult and juvenile lampreys; conducted spawning ground surveys; and conducted evaluation of electrofishing efficiency for juvenile lamprey.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Three lower Columbia subbasin plans as well as the Columbia River Basin Lamprey Technical Workgroup outlines lamprey status, distribution, habitat use, and migration biology as some of the major critical uncertainties facing both anadromous and resident lamprey species. This project has addressed these specific uncertainties during FY 2006.</p> <p>The problem:</p> <p>The USFWS was petitioned in 2003 to list four species of lamprey. Three of these species are native to the Columbia River Basin. The petition was declined based on the paucity of information about lamprey status, distribution, and population structure. Too little research is being conducted in the CRB to understand these critical uncertainties.</p> <p>The objective:</p> <p>Estimate abundance, migration timing, biological characteristics of adult and juvenile Pacific and Western brook lampreys; Describe spawning habitat and assess approaches to monitor spawning activity; Determine susceptibility of larval lampreys to electrofishing and assess electrofishing as a tool for determining presence and estimating abundance.</p>
Expended	\$0	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Pacific lamprey (Lampetra tridentata)	
Primary Benefited Population	Not specified	
Plans	<p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>Lower Columbia and Columbia Estuary Bi-State Subbasin Plan - 2004</p> <p>Critical Uncertainties for Lamprey in the Columbia River Basin: Results from a strategic planning retreat of the Columbia River Lamprey Technical Workgroup 2005</p>	
Keyword	Monitoring and Assessment	
Need Number	N-002	
Partners	<p>Bonneville Power Administration (\$204465)</p> <p>Fish First Washington Washington</p> <p>Department of Ecology Washington</p> <p>Department of Fish and Wildlife</p>	

Accomplishments

Number of habitat assessments completed	1.0
Number of miles of in-stream habitat assessed	10.0
Number of population assessments completed	6
Number of other Fishery Management Plan tasks implemented for populations of management concern.	10
Number of applied aquatic scientific and technologic tools shared with partners.	1
Number of techniques and culture technology tools developed.	2
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

The *method*:

Adult PCL captured in pot traps and fish ladder. Mark recapture used for abundance estimates. Rotary screw trap used for migration timing and abundance estimates of juvenile PCL and WBL. Foot surveys completed for assessment of spawning activity. Controlled trials were conducted to assess efficiency of electroshocker and susceptibility of larvae.

Further description:

The goal of the project is to gain information on the distribution, abundance, and biological characteristics of lampreys in a watershed that is not directly influenced by reservoirs and passage impediments associated with dams in the Columbia River. It is funded by Bonneville Power Administration. This ongoing, multi-year study examined lamprey in Cedar Creek, Washington, a third-order tributary to the Lewis River. Adult (n = 151), macrophthalmia (n = 10), and ammocoete (n = 176) stages of Pacific and Western brook lamprey were examined in 2006. Thirty-one spawning ground surveys were conducted during which 246 Pacific lamprey nests were identified. Ammocoete movement was positively correlated with high flows and appeared to be passive while macrophthalmia movement was not associated with discharge. The ability to detect presence of larval lamprey with an electroshocker was assessed relative to larval size and larval density. Higher densities increased the probability of detection. Capture efficiency was higher for smaller fish.

13310-A-168 - [Movement of Coastal Cutthroat Trout in the Lower Columbia River: Tributary, Mainstem, and Estuary](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>The project goal is to provide guidance for monitoring and evaluation of populations and habitat use by various life history stages of cutthroat trout relative to potential disturbances to mainstem and estuarine habitats. This year continued investigations of investigations of movements from tributaries to the lower Columbia River; monitoring movement of fish within three tributaries using PIT tag technology; and assessing population status in lower Columbia River tributaries.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Effective management of coastal cutthroat trout relies upon an understanding of population status, migration patterns and habitat used by this sensitive species.</p> <p>The problem:</p> <p>This study continues a time series data set describing movement of trout within and between tributaries, mainstem and estuary habitat. Information collected through implementation of this project is critical to assess population status for prevention of listing.</p> <p>The objective:</p> <p>Quantify populations and identify those most in peril. Quantify trout movement between tributary and main stem habitat in time series sufficient to provide predictive power to habitat modifications and to describe trout utilization of important estuary habitat.</p> <p>The method:</p>
Expended	\$65218	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Cutthroat trout (Oncorhynchus clarkii)	
Primary Benefited Population	Not specified	
Plans	<p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>Coastal Cutthroat Trout Framing Document (draft)</p> <p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>Columbia Estuary Province Sub-basin Plans</p> <p>Lower Columbia Salmon Recovery And Fish & Wildlife Subbasin Plan: Volume II, Chapter A – Lower Columbia Mainstem and Estuary for Washington State - 2004</p>	
Keyword	Monitoring and Assessment	
Need Number	N-002	
Partners	Columbia River Estuary Study Taskforce	

Lower Columbia Fly Fishers
 Lower Columbia River Estuary Partnership
 Lower Columbia River Watershed Council
 North Coast Watershed Association
 Oregon Department of Fish and Wildlife
 Scappoose Bay Watershed Council
 Sea Resources
 U.S. Army Corps of Engineers (\$62564)
 Washington Department of Fish and Wildlife

A combination of PIT tag and acoustic tag technologies will be used to accomplish project objectives. PIT tag technology within tributaries will help quantify population status and describe movement between tributary and mainstem habitat. Monitoring acoustic tagged fish will describe estuary habitat utilization.

Further description:

Accomplishments

Number of population assessments completed	6
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13310-A-175 - [Columbia Basin Fish and Wildlife Authority and Habitat Initiative Activities](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>Coordinated with partners to develop proposals for funding by the Western Native Trout Initiative. Initiated development of projects to assess tidal marsh restoration at NWRs, and secured funding from the National Fish and Wildlife Foundation to assess 88-acre marsh restoration project at a NWR. Participated on teams to review habitat restoration proposals to the Community Salmon Fund in Washington. Assessed restoration potential of 180-acre parcel purchased by Columbia Land Trust.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>National Wildlife Refuges and partner's lands in watersheds provide opportunities to manage and restore fishery, habitat, and other aquatic resources. Restoration actions on refuges and partner lands may contribute to recovering listed species, reversing population declines, and protecting habitats. Monitoring is needed to assess effects.</p> <p>The problem:</p> <p>Opportunities for fish and aquatic habitat restoration, as well as appropriate monitoring and assessment of restoration actions, exist at National Wildlife Refuges and associated watersheds. The lack of information concerning specific areas and personnel to perform coordination may hinder opportunities to implement restoration actions.</p> <p>The objective:</p> <p>The objective is to provide fisheries assistance concerning restoration, coordination, and</p>
Expended	\$68903	
Objective	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.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Not specified	
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) National Fish Habitat Action Plan	
Keyword	Habitat	
Need Number	N-002	
Partners	Bandon Marsh National Wildlife Refuge Columbia Land Trust Confederated Tribes of Siletz Indians Ducks Unlimited Gee Creek Watershed Group Julia Butler Hansen National Wildlife Refuge (\$5000) Nestucca Bay National	

Wildlife Refuge
 Oregon Department of
 Fish and Wildlife
 Ridgefield National
 Wildlife Refuge
 The Nature
 Conservancy
 Washington Department
 of Fish and Wildlife

aquatic resources to a variety of partners (e.g., other Service programs, tribes, states, and other groups) that are implementing activities supportive of the National Fish Habitat Action Plan.

The method:

The CRFPO provided staff to establish working relationships with other service programs and partners involved in watershed planning and habitat restoration. These relationships allowed staff to develop proposals affecting aquatic habitat restoration, coordinate with those involved in restoration projects, and assist in watershed planning.

Further description:

The CRFPO has performed coordination for activities of several groups and processes involved in habitat restoration that is supportive of the NWPCF Fish and Wildlife Program and National Fish Habitat Action Plan. Staff participated on teams to review habitat restoration proposals for Washington's Community Salmon Fund, coordinated with ODFW to develop proposals for the Western Native Trout Initiative, and was successful in securing funding from the Northwest Native Fish Fund, administered by the National Fish and Wildlife Foundation. The funding is to assess a tidal marsh restoration project at Nestucca Bay NWR. The CRFPO is assessing habitat restoration potential of a 180-acre parcel of property adjacent to Julia Butler Hansen NWR that was acquired by the Columbia Land Trust. Staff are coordinating with multiple partners, including refuges, tribes, and conservation organizations, to assist in and develop comprehensive approaches for evaluating a 430-acre tidal marsh restoration project that is planned for implementation during 2009 at Bandon Marsh NWR, as well as

Accomplishments

Number of habitat assessments completed	1.0
Number of acres of wetland habitat assessed	180.0
Number of population assessments completed	35
Number of other Recovery Plan tasks implemented for T&E populations	1

	<p>assisting the new Gee Creek Watershed Coordinator. Staff kept partners informed of emerging developments in the National Fish Habitat Action Plan.</p>
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13310-A-185 - [Conservation Planning Activities](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>Provided input, leadership and coordination to efforts for conserving lamprey, freshwater mussels, coastal cutthroat trout and Oregon chub.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>CRFPO staff participate in various conservation planning arenas, particularly on aquatic species in the Pacific Northwest that have traditionally not received adequate attention.</p> <p>The problem:</p> <p>Management planning occurs that involves many of the trust species for the USFWS, particularly lamprey, cutthroat trout, Oregon chub, and western pearlshell mussels. To be effective, these planning forums need technical expertise from the USFWS.</p> <p>The objective:</p> <p>Staff serve to coordinate the Lamprey Technical Work Group which is managed under the CBFWA, coordinate and participate with a Coastal Cutthroat Tehnical Workgroup, participate on a Freshwater Mussel Technical Work Group and participate in decisions on Oregon chub management and recovery..</p> <p>The method:</p> <p>The various management groups met regularly and provided guidance to regional managers on priority work, management activities, proposal review, and funding recommendations.</p>
Expended	\$43400	
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.	
Primary Benefited Species	Pacific lamprey (Lampetra tridentata)	
Primary Benefited Population	Not specified	
Plans	<p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p> <p>Coastal Cutthroat Trout Framing Document (draft)</p> <p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>Recovery Plan for the Oregon Chub (<i>Oregonichthys crameri</i>)</p>	
Keyword	Interjurisdictional	
Need Number	N-002	
Partners	<p>Alaska Department of Fish and Game</p> <p>Bonneville Power Administration</p> <p>Columbia River Basin Tribes</p> <p>Columbia River Inter Tribal Fish Commission</p> <p>Confederated Tribes of</p>	

The Warm Springs
 Idaho Department of
 Fish and Game
 Oregon Department of
 Fish and Wildlife
 Oregon State
 University
 U.S. Geological Survey
 Umatilla Tribe
 Washington
 Department of Fish and
 Wildlife

Further description:

The lamprey group reviewed proposals for work on lamprey (e.g. AFEP proposals to COE and proposals to FWS and BPA). As coordinator of the group, CRFPO also acted as a liaison to other lamprey groups in the region. CRFPO staff provided technical guidance to the development of a lamprey conservation strategy being pursued by the Region (1) Office. Finally, CRFPO staff were (and are) one of the lead entities involved in the development of a coastal cutthroat symposium, monitoring framework design, and conservation plan.

Accomplishments

Number of population assessments completed	6
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.	2
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

13310-A-198 - [Fisheries Restoration and Irrigation Mitigation Act \(FRIMA\)](#)

Facility	Columbia River Fisheries Program Office
Expended	\$0
Objective	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.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	Fisheries Restoration and Irrigation Mitigation Act of 2000 (PL 106-502)
Keyword	Fish Passage
Need Number	N-002
Partners	Oregon Department of Fish and Wildlife (\$363739) Oregon Water Trust

Accomplishments

Fish passage barriers removed or bypassed	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2

Accomplishment Summary

Ranked projects competing for screens funding and, once selected, helped assure that all projects have completed the necessary environmental compliance procedures.

Description

The importance to the Resource:

Improperly screened or unscreened diversions may directly kill fish or indirectly kill fish through intrainment into irrigation works. In some cases, these fish are listed under the ESA, and mortality at diversions can impede recovery.

The problem:

Irrigation diversions throughout the Pacific Northwest may be unscreened or not screened to appropriate criteria. This may lead to direct fish mortality or indirect through intrainment into canal/irrigation works. Diversion structures may be impassable and restrict or inhibit habitat use by fish.

The objective:

The objective is to modify diversions to allow passage and screen diversions to prevent intrainment of adult and juvenile fish into irrigation works.

The method:

Projects install new screens and passage facilities at existing sites to bring them into compliance with Oregon guidelines.

Further description:

The Columbia River Fisheries Program Office assists FRIMA implementation by serving as

	<p>the coordinator for projects in Oregon. This entails working with the Oregon Department of Fish and Wildlife, and other cooperators to rank projects competing for funding and, once selected, assuring that all projects have completed the necessary environmental compliance procedures. The focus of FRIMA is to provide funding to construct and install screening and passage facilities at water diversion sites.</p>
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13310-A-206 - [Restoration of Aquatic Habitat and Monitoring on Refuges](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>Developed proposals to address aquatic habitat and monitoring needs at National Wildlife Refuges that were identified at the NWR-CRFPO workshop; Provided technical assistance on various planning, habitat, and monitoring issues; Conducted surveys of fish and aquatic habitats; Coordinated with partners in developing approaches to conduct and monitor habitat restoration projects at refuges, Participated in cross-program and partnership activities affecting refuges.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>National Wildlife Refuges and associated watersheds provide opportunities to manage and restore fishery, habitat, and other aquatic resources. Such opportunities may contribute to recovering listed species, reversing population declines, and protecting habitats. Monitoring effects of restoration activities is essential for informed management.</p> <p>The problem:</p> <p>Opportunities for fish and aquatic habitat restoration, as well as adequate monitoring and assessment of restoration actions, at National Wildlife Refuges are diminished due to lack of specific information concerning aquatic resources and access to personnel with fisheries expertise.</p> <p>The objective:</p> <p>The objective is to provide National Wildlife Refuges with fisheries assistance concerning aquatic resource issues such as habitat restoration projects and approaches to monitor and assess fish and aquatic habitats, which will</p>					
Expended	\$80743						
Objective	Increase the quantity and improve the quality of aquatic and riparian habitat on Service lands.						
Primary Benefited Species	(0) Multiple Species						
Primary Benefited Population	Not specified						
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) National Wildlife Refuge System Improvement Act of 1997						
Keyword	Service Lands						
Need Number	N-002						
Partners	National Wildlife Refuges and friends groups						
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of population assessments completed</td> <td>28</td> </tr> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>1</td> </tr> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of</td> <td>3</td> </tr> </table>			Number of population assessments completed	28	Number of other Recovery Plan tasks implemented for T&E populations	1	Number of other Fishery Management Plan tasks implemented for populations of
Number of population assessments completed	28						
Number of other Recovery Plan tasks implemented for T&E populations	1						
Number of other Fishery Management Plan tasks implemented for populations of	3						

<p>Number of other Fishery Management Plan tasks implemented for populations of management concern.</p>	<p>3</p>	<p>contribute management decisions and refuge planning.</p> <p>The method:</p> <p>The CRFPO provided refuges with fisheries staff time and resources to assist refuge managers in a variety of ways such as attending coordination and technical work meetings, conducting fish and habitat assessments, and developing plans and proposals to implement and monitor restoration actions.</p> <p>Further description:</p> <p>The Columbia River Fisheries Program Office and National Wildlife Refuges (i.e., those within the geographic area of responsibility of the CRFPO--Columbia River basin below McNary Dam, Oregon waters excluding the Klamath River basin, small tributaries of Willapa NWR) held a workshop to discuss aquatic resource issues and needs at refuges. Several needs were identified that the CRFPO could provide assistance to refuges, including fisheries assistance concerning habitat restoration and monitoring. Examples of assistance that the CRFPO provided to refuges to address needs during FY06 include: Conducting surveys in various habitats at Steigerwald Lake NWR to determine fish species composition; Providing equipment and assistance to personnel at Tualatin NWR to conduct surveys required by a biological opinion for a wetland restoration project; Coordinating among partners to develop proposals for assessing tidal marsh restoration projects at two Oregon Coast refuges for which funding was secured for one NWR from the National Fish and Wildlife Federation, and providing comments concerning aquatic habitats and resources for developing Comprehensive Conservation Plans at three NWRs.</p>
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13310-A-207 - [Aquatic Monitoring on Lower Columbia River Islands](#)

Facility	Columbia River Fisheries Program Office
Expended	\$0
Objective	Increase the quantity and improve the quality of aquatic and riparian habitat on Service lands.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	Biological and Conference Opinions for the Columbia River Channel Improvements Project National Wildlife Refuge System Improvement Act of 1997
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	Julia Butler Hansen National Wildlife Refuge Lewis and Clark National Wildlife Refuge U.S. Army Corps of Engineers (\$147224)

Accomplishments

Number of habitat assessments completed	1.0
Number of population assessments completed	4
Number of other Recovery Plan tasks	1

Accomplishment Summary

Conducted fish and habitat surveys at two islands on National Wildlife Refuges to collect baseline information for proposed modification of tidegates intended to improve habitat for juvenile salmonids

Description

The importance to the Resource:

Slough habitats function as important rearing areas for juvenile anadromous fish and provide sources of invertebrate production and organic matter that is transported to the lower Columbia River.

The problem:

Levees and tidegates were constructed at Julia Butler Hansen NWR during the early-to-mid 1900s, and have restricted fish access to slough and former tidal marsh habitats. Although the refuge is managed primarily for Columbian white-tailed deer, improvements to fish access to aquatic habitats can be made that are compatible with current management.

The objective:

Objective of the project is to assess habitat variables and fish use relative to tidegate operation at Julia Butler Hansen and reference sites at Lewis and Clark NWR. This information will be used to evaluate the effects of tidegate modifications and potential increase access of juvenile fish to rearing habitat.

The method:

The project will use an approach that compares physical and biological variables between conditions existing both pre- and post-

implemented for T&E populations		<p>construction of modified tidegates and additional points of access, as well as comparisons with conditions at appropriate reference sites at the refuge not affected by levees and tidegates.</p> <p>Further description:</p> <p>The Army Corps of Engineers has proposed a restoration project at Tenasillahe Island, located at Julia Butler Hanson NWR, intended to benefit juvenile salmonids. If hydraulic analyses indicate that habitat for listed Columbia white-tailed deer will not be negatively affected, activities of the interim phase include modifications to tidegates and construction of controlled water inlets to improve water exchange and juvenile salmonid passage between island sloughs and the Columbia River. Possible long-term activities include breaching dikes on the island to restore tidal circulation, which are contingent upon delisting of the deer and a positive compatibility determination with refuge purposes. The CRFPO conducted preliminary surveys to describe habitat and fish presence and distribution in sloughs on Tenasillahe Island and at an adjacent island lacking dikes and tidegates. These data will contribute to establishing a baseline to which data collected after construction will be compared to evaluate the effects of restoration activities.</p>
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2	

13310-A-213 - [Lamprey Population Structure](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>Collected western brook lamprey and contracted with GIS to isolate 20 microsatellite DNA markers</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The USFWS was recently petitioned to list four species of lamprey. One of the biggest uncertainties regarding lamprey, and a significant reason the petition was denied, revolved around a poor understanding of lamprey population structure.</p> <p>The problem:</p> <p>Pacific lamprey (PCL) and western brook lamprey (WBL) are the two focal species of lamprey in the Pacific Northwest. These species exhibit very different life histories, PCL are anadromous whereas WBL are freshwater residents. Almost no research has been conducted on WBL and their population structure but it is essential to prevent listing.</p> <p>The objective:</p> <p>Given that WBL are resident species and presumed to migrate very little, the hypothesis is that WBL populations are finely structured and will show very little mixing. If this is the case, management scenarios may need to be very different for these two species. This project is designed to increase our knowledge of lamprey population structure.</p> <p>The method:</p> <p>Fin clips were collected from WBL adults and sent to Genetic Identification Services for the development of microsatellite markers and</p>
Expended	\$10500	
Objective	Develop and share applied aquatic scientific and technologic tools with partners.	
Primary Benefited Species	Western brook lamprey (Lampetra richardsoni)	
Primary Benefited Population	Not specified	
Plans	<p>Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan: Volume II, Chapter G – Lewis Subbasin - 2004</p> <p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>Critical Uncertainties for Lamprey in the Columbia River Basin: Results from a strategic planning retreat of the Columbia River Lamprey Technical Workgroup 2005</p>	
Keyword	Genetics	
Need Number	N-002	
Partners	<p>Great Lakes Institute for Environmental Research</p> <p>Margaret Docker</p> <p>University of Manitoba</p>	
Accomplishments		

Number of population assessments completed	10	<p>custom primers. These tools are still being fine tuned and will be used for analyzing population structure of WBL.</p> <p>Further description:</p> <p>Although little research has been done on any native lamprey in the Northwest, what has been done has focused on PCL. This research includes work on the population structure of PCL, as inferred from genetic and behavioral analyses, and suggests that PCL populations are coarsely (if at all) structured and exhibit a large amount of mixing. Population structure for both species, Pacific and Western brook, are outlined as critical uncertainties by the Columbia River Basin Lamprey Technical Workgroup.</p>
Number of other Fishery Management Plan tasks implemented for populations of management concern.	3	
Number of applied aquatic scientific and technologic tools shared with partners.	1	
Number of techniques and culture technology tools developed.	1	

13310-A-217 - [South Fork John Day/John Day Watershed Fish Passage Projects](#)

Facility	Columbia River Fisheries Program Office
Expended	\$45000
Objective	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.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	John Day River upper mainstem Spring Chinook
Plans	Oregon Conservation Strategy The Oregon Plan for Salmon and Watersheds
Keyword	Fish Passage
Need Number	N-002
Partners	Grant County Soil and Water Conservation District, Oregon (\$314211) Oregon Water Trust (\$5000) Oregon Watershed Enhancement Board (\$27736)

Accomplishments

Number of miles re-opened to fish passage	23.0
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Accomplishment Summary

Four projects are addressed this season, opening 23 miles of habitat to year round access and removing nine barriers

Description

The importance to the Resource:

The John Day River is the 2nd longest free flowing river system in the U.S., running nearly 300 miles. Upper river projects benefit several species: bull trout, Mid_Columbia River steelhead, resident interior redband, and westslope cutthroat trout. Bull trout and steelhead are listed as threatened.

The problem:

Numerous small push-up dams are constructed along the river seasonally, as well as numerous fixed diversion points on the mainstem and tributaries. These may block access as well as intrain fish into irrigation systems if unscreened or improperly screened.

The objective:

The objective is to restore passage and prevent intrainment into irrigation systems.

The method:

Several methods may be applied, replacing diversions with pumps, lay-flat stanchion structures that provide passage for all life stages, and consolidating several diversion points into a single diversion with passage and screening facilities.

Further description:

The first stage of this project addresses Lower

Fish passage barriers removed or bypassed	9	South Fork John Day, Roberts Creek, Lawrence Diversion, and South Reynolds Creek.
Number of population assessments completed	3	
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1	

13310-A-218 - [Elk Creek Nehalem River fish Passage Project](#)

Facility	Columbia River Fisheries Program Office
Expended	\$15000
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)
Primary Benefited Population	Lower Columbia River ESU (Threatened)
Plans	Oregon Conservation Strategy
Keyword	Fish Passage
Need Number	N-002
Partners	Columbia County, Oregon (\$2500) Oregon Department of Fish and Wildlife (\$2400) Oregon Watershed Enhancement Board (\$10194)

Accomplishments

Number of miles re-opened to fish passage	3.6
Number of population assessments completed	3

Accomplishment Summary

Upon completion of this project we will eliminate fish passage barrier associated with undersized culverts on Elk Creek at two crossings. Final designs will allow removal of the culvert and replacement with an appropriately sized bridge or culvert. Correcting this barrier will restore access to 3.6 miles of stream. Initial funding in year one will be used to design the project. Subsequent funding will be used to implement the design and restore full passage conditions

Description

The importance to the Resource:

Elk Creek is a key tributary within the watershed with high intrinsic value for Coho production. Fish species verified as using this creek include coho, sea-run and residential coastal cutthroat trout, and brook lamprey. This system contains a large percentage of low gradient habitat, suggesting high potential for coho habitat use.

The problem:

Improperly sized culverts impede passage at two crossings on Elk Creek. The current condition impedes adult passage, conditional upon depth and velocity of flow, and a year round juvenile passage barrier.

The objective:

The objective of the project is to remove the undersized culverts and replace them with an appropriately sized bridge or culvert to restore full passage.

The method:

	<p>Culvert replacement with a bridge or appropriately sized culvert.</p> <p>Further description:</p> <p>This is a cross program project in conjunction with ecological services and State and local partners. Upon completion of this project we will eliminate fish passage barrier associated with undersized culverts on Elk Creek at two crossings. Final designs will allow removal of the culvert and replacement with an appropriately sized bridge or culvert. Correcting this barrier will restore access to 3.6 miles of stream. Initial funding in year one will be used to design the project. Subsequent funding will be used to implement the design and restore full passage conditions</p>
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13310-A-221 - [Tryon Creek Monitoring](#)

Facility	Columbia River Fisheries Program Office	<p>Accomplishment Summary</p> <p>Conducted pre-restoration monitoring of lamprey species on Tryon Creek. Lamprey are one of several species being monitored (Coho, Steelhead, Cutthroat trout).</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Steelhead (Lower Willamette River ESU-threatened), coho (Lower Columbia River ESU-threatened), resident rainbow and cutthroat trout and lamprey historically spawned and reared in Tryon Creek. Habitat is still suitable for spawning/rearing anadromous fish but the Highway 43 culvert has probably impeded passage since its construction 50 years ago.</p> <p>The problem:</p> <p>Although fish habitat appears to exist in upstream areas, a 400 foot culvert near the mouth of the creek inhibits fish passage, particularly upstream. ODOT is conducting a culvert retrofit to improve fish passage. Pre- and post-restoration monitoring of salmonid and lamprey species is necessary to assess the retrofit.</p> <p>The objective:</p> <p>CRFPO has partnered with several federal, state and local agencies to monitor salmonid and lamprey species in Tryon Creek Natural Area. Monitoring before and after the proposed culvert retrofit is necessary to assess the restoration effort.</p> <p>The method:</p> <p>Tryon Creek was electroshocked to determine presence of juvenile Pacific and juvenile and</p>
Expended	\$2000	
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.	
Primary Benefited Species	Pacific lamprey (Lampetra tridentata)	
Primary Benefited Population	Columbia River Pacific Lamprey	
Plans	<p>Columbia River Basin Fish and Wildlife Program (NPPC 2000)</p> <p>Lower Columbia and Columbia Estuary Bi-State Subbasin Plan - 2004</p> <p>Critical Uncertainties for Lamprey in the Columbia River Basin: Results from a strategic planning retreat of the Columbia River Lamprey Technical Workgroup 2005</p>	
Keyword	Recovery	
Need Number	N-002	
Partners	<p>City of Lake Oswego (\$20000)</p> <p>City of Portland</p> <p>Friends of Tryon Creek</p> <p>National Marine Fisheries Service</p> <p>National Oceanic and Atmospheric Administration, Fisheries</p> <p>Oregon Department of</p>	

Fish and Wildlife
 Oregon Department of
 Transportation (\$60000)
 Tryon Creek Watershed
 Council

Accomplishments

Number of Friends Groups	1
Number of miles of in-stream habitat assessed	7.0
Number of population assessments completed	4
Number of other Fishery Management Plan tasks implemented for populations of management concern.	9

adult Western brook lamprey. This was the first effort in a large scale project involving pre- and post restoration monitoring of lamprey and salmonid species.

Further description:

Tryon Creek is one of the largest, relatively protected, urban watersheds in Oregon. Pacific lamprey numbers have declined to a remnant of those for historical populations. Pacific lamprey are limited by many of the same factors and threats as salmon, particularly habitat (including passage) and ecological interactions. Preliminary survey data shows that all species of anadromous fish are underrepresented in Tryon Creek upstream of the culvert. While resident fish seem to be the primary inhabitants upstream of the culvert, habitat surveys have suggested that there is suitable habitat both downstream and upstream of the culvert for spawning and rearing of anadromous fish. The culvert in Tryon Creek has likely been impeding fish passage for more than 50 years. Overall, there is a conservation need to improve fish passage conditions in Tryon Creek. The short-term conservation need for the proposed project is to assess the current status of anadromous fish species in Tryon Creek before changing fish passage conditions. The long-term restoration needs of the proposed project are to determine if anadromous fish passage is improved by culvert modification as well as if status improves above the culvert after modification.

13280-A-016 - [Stream Nutrient Enrichment Program](#)

Facility	Eagle Creek National Fish Hatchery	<p>Accomplishment Summary</p> <p>Coho salmon carcasses were provided for stream nutrient supplementation.</p> <p>Description</p> <p>Further description:</p> <p>In cooperation with the U. S. Forest Service, Oregon Department of Fish and Wildlife and the US Bureau of Land Management, 6,096 coho salmon carcasses were supplied for stream nutrient supplementation in the upper Clackamas River and other streams. The salmon, from spawning operations and surplus to hatchery needs, were killed and put into refrigerated vans for the U.S. Forest Service or frozen for later use. Some carcasses were frozen and utilized by Oregon Department of Fish & Wildlife and Bureau of Reclamation. The cooperating agencies assisted by Salmon Corps staff picked up the frozen carcasses and distributed them in streams in the Willamette River and Sandy River basins. These carcasses will provide a needed nutrient base to natural spawning Chinook, coho, steelhead and cutthroat trout populations in addition to many other species of animals which are part of the ecosystem. The carcasses received by the U.S. Forest Service were distributed via helicopter drop to inaccessible areas of the Clackamas River.</p>	
Expended	\$10693		
Objective	Develop and share applied aquatic scientific and technologic tools with partners.		
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)		
Primary Benefited Population	Clackamas River Spring Chinook		
Plans	Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan		
Keyword	Habitat		
Need Number	N-002		
Partners	Bureau of Land Management Oregon Department of Fish & Wildlife U. S. Forest Service		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of applied aquatic scientific and technologic tools shared with partners.</td> <td>1</td> </tr> </table>			Number of applied aquatic scientific and technologic tools shared with partners.
Number of applied aquatic scientific and technologic tools shared with partners.	1		

14226-A-110 - [Health Monitoring of Spring & Fall Chinook at Tribal Facilities and coho at Dworshak NFH](#)

Facility	Idaho Fish Health Center	<p>Accomplishment Summary</p> <p>Monitored juvenile SCS & FCS at Nez Perce Tribe hatchery and acclimation sites resulting in the release of 1.5 million healthy fish into the Snake & Clearwater rivers to re-establish naturally spawning populations.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>As part of this relatively new tribal fisheries program, the Idaho Fish Health Center insured that healthy fish were released into the Snake and Clearwater rivers to assist in reestablishing natural spawning populations of fall and spring chinook salmon.</p> <p>The problem:</p> <p>historic populations of chinook and coho salmon were exterpedated from the Clearwater drainage and severely reduced in the Snake River by dams put in the early part of last century.</p> <p>The objective:</p> <p>The Nez Perce Tribe is making an effort to restore populations of chinook and coho salmon in the Snake and Clerawter drainages to a point where Tribal and sport harvests as well as natural reproduction occurs.</p> <p>The method:</p> <p>The Tribe operates FCS acclimation facilities, SCS hatchery and acclimation facilities and have a growing coho program. The Tribe is now spawning many of their own fish. The IFHC samples during spawning, rearing, and prior to release for these programs.</p>
Expended	\$27309	
Objective	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.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries	
Plans	Federal Columbia River Power System 2002 Biological Opinion U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) Biological Opinion on Artificial Propagation in the Columbia River Basin.	
Keyword	Fish Health	
Need Number	N-002	
Partners	Nez Perce Tribe (\$4570)	
Accomplishments		
Number of population assessments completed	9	

Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2	Further description:
Number of training session to support Tribal fish & wildlife conservation.	1	
		<p>The Nez Perce Tribe has contracted with the Idaho Fish Health Center to do fish health monitoring and prerelease exams at three Tribal Acclimation sites, one Washington Department of Fish and Wildlife hatchery facilities, one Tribal Hatchery complex, and one cho program. Center staff does the fish health sampling for the import permit into Idaho, weekly health monitoring at these sites, any diagnostic and treatment prescriptions necessary, and conduct prerelease examinations at all sites. Funding is under subactivity 1937 and amounted to \$31870 in 2006.</p>

14330-A-003 - [Increasing the Survival of Juvenile Fall Chinook Salmon in the Snake River.](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>We provided in-season data to help time releases of reservoir water and then verified that these releases increased survival of fall Chinook salmon passing downstream in the FCRPS.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>This project will help to recover of Snake River fall Chinook salmon listed as threatened under the ESA. It was identified as research activity 190 in the 2000 Federal Columbia River Power System (FCRPS) Biological Opinion.</p> <p>The problem:</p> <p>The migrational corridor of juvenile Snake River fall Chinook salmon was impounded by eight hydroelectric dams comprising the FCRPS. To increase passage survival, cool water is released from reservoirs located upstream to increase velocity and decrease temperature during the summer. Analyses were needed to evaluate passage survival.</p> <p>The objective:</p> <p>The objective of this project is to determine if releasing cool water from reservoirs located upstream of the FCRPS increases survival of Snake River fall Chinook salmon juveniles passing downstream in the FCRPS.</p> <p>The method:</p> <p>We are using passive integrated transponder tags (PIT tags) to monitor downstream passage survival of wild fall Chinook salmon juveniles in the FCRPS.</p>					
Expended	\$166000						
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.						
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)						
Primary Benefited Population	Snake River Fall Chinook Salmon						
Plans	2000 NMFS FCRPS Biological Opinion - December 21, 2000						
Keyword	Recovery						
Need Number	N-002						
Partners	Bonneville Power Administration U.S. Geological Survey Washington Department of Fish and Wildlife						
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of population assessments completed</td> <td>1</td> </tr> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>1</td> </tr> <tr> <td>Number of consultations conducted to support Tribal fish & wildlife conservation.</td> <td>1</td> </tr> </table>			Number of population assessments completed	1	Number of other Recovery Plan tasks implemented for T&E populations	1	Number of consultations conducted to support Tribal fish & wildlife conservation.
Number of population assessments completed	1						
Number of other Recovery Plan tasks implemented for T&E populations	1						
Number of consultations conducted to support Tribal fish & wildlife conservation.	1						

14330-A-007 - [Federal Hydropower Fish and Wildlife Mitigation Program](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Increased the effectiveness of the Columbia River Hydropower Fisheries Mitigation Program.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Bonneville Power Administration spends approximately \$150 million annually on fish and wildlife mitigation.</p> <p>The problem:</p> <p>IFRO staff was assigned the lead role for USFWS representation on the Columbia Basin Fish and Wildlife Authority Resident Fish Committee (RFC) in 1999. Our participation ensures that Service priorities and needs are addressed in the FCRPS Fisheries Mitigation Program.</p> <p>The objective:</p> <p>Special emphasis needs to be placed on recovery needs of Bull Trout and Kootenai White Sturgeon in selecting projects for implementing the mitigation program.</p> <p>The method:</p> <p>IFRO staff will play an active role, and provide leadership to the Resident Fish Advisory Committee for the Columbia Basin Fish and Wildlife Authority.</p> <p>Further description:</p> <p>In 2005, we participated in a technical review of the Northwest Power and Conservation Council's proposed research plan for the Columbia Basin. We also played an active role</p>	
Expended	\$25000		
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.		
Primary Benefited Species	(0) Multiple Species		
Primary Benefited Population	Not specified		
Plans	Kootenai River White Sturgeon Recovery Plan Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)		
Keyword	Mitigation		
Need Number	N-002		
Partners	Columbia Basin Fish and Wildlife Authority		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>2</td> </tr> </table>			Number of other Recovery Plan tasks implemented for T&E populations
Number of other Recovery Plan tasks implemented for T&E populations	2		

	<p>in the development and delivery of the 2005 International Kokanee Workshop and Resident Fish Conference in Spokane, WA. The RFC is currently developing a status report of resident fish populations in the Columbia River Basin.</p>
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14330-A-022 - [Determining survival of Juvenile Fall Chinook Salmon in the Snake River during Winter](#)

Facility	Idaho Fisheries Resource Office
Expended	\$26485
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Snake River Fall Chinook Salmon
Plans	2000 NMFS FCRPS Biological Opinion - December 21, 2000
Keyword	Recovery
Need Number	N-002
Partners	Bonneville Power Administration U.S. Geological Survey Washington Department of Fish and Wildlife

Accomplishments

Number of population assessments completed	1
Number of other Recovery Plan tasks implemented for T&E populations	1
Number of applied aquatic scientific and technologic tools shared with partners.	1

Accomplishment Summary

We verified winter passage of fall Chinook salmon when the juvenile fish bypass systems were not operated in the Snake River portion of the FCRPS.

Description

The importance to the Resource:

This project will help to recover Snake River fall Chinook salmon listed as threatened under the ESA. It was identified as research activity 4.3 and as RPA 199 in the 2000 Federal Columbia River Power System (FCRPS) Biological Opinion.

The problem:

The fish passage facilities at Snake River dams are not operated in the winter, thus winter migrants pass via the turbine intakes and are susceptible to turbine related injury and death. Little is known about fall Chinook salmon passage at Snake River dams in the winter.

The objective:

The objective of this project is to determine if the absence of juvenile fish bypass at Snake River dams in the winter is affecting survival of fall Chinook salmon juveniles.

The method:

We are using radio telemetry to monitor the winter movement of fall Chinook salmon juveniles in the Snake River portion of the FCRPS.

14330-A-032 - [Fisheries Restoration and Irrigation Mitigation Act \(FRIMA\)](#)

Facility	Idaho Fisheries Resource Office
Expended	\$20000
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Bull trout (Salvelinus confluentus)
Primary Benefited Population	Not specified
Plans	Fisheries Restoration and Irrigation Mitigation Act of 2000 (PL 106-502)
Keyword	Fish Passage
Need Number	N-002
Partners	Idaho Department of Fish and Game NOAA Fisheries

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	2
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Accomplishment Summary

We reviewed and ranked Idaho FRIMA proposals, assisted the State of Idaho with environmental compliance requirements for Idaho projects. We completed 4 contracts, performed partner outreach, and visited several potential and completed project sites. Participated in CBFWA Fish Screen Oversight Committee meetings and discussions.

Description

The importance to the Resource:

Preventing listed anadromous and resident salmonids from being lost down unscreened water diversions is a direct benefit to the population in question. The risks posed by improving water diversions are low, the potential success at increasing numbers of fish is high, and dislocation of existing social and economic activities is minor.

The problem:

Large numbers of migrating fish, including listed anadromous and resident salmonids, are killed annually by unscreened irrigation diversions.

The objective:

The FRIMA program in Idaho is administered by the Idaho FRO. In FY06 Congress appropriated \$2,000,000 to match federal funds with local, state, and tribal water use programs that increase fish survival, reduce entrainment in water distribution systems, and increase access to productive fish habitats. The Idaho FY06 allocation was \$463,000.

The method:

	<p>Projects are identified and proposals are submitted for review and ranking by state, local, tribal, and federal representatives to insure that the requirements of the act are met and the greatest benefit projects are funded.</p>
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14330-A-033 - [East Fork American River Culvert Replacement](#)

Facility	Idaho Fisheries Resource Office
Expended	\$1
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Bull trout (Salvelinus confluentus)
Primary Benefited Population	South Fork Clearwater
Plans	Bull Trout Recovery Plan, Ch 16 Clearwater RU
Keyword	Fish Passage
Need Number	N-002
Partners	Bureau of Land Management (\$10000)

Accomplishments

Fish passage barriers removed or bypassed	1
Number of other Recovery Plan tasks implemented for T&E populations	2

Accomplishment Summary

All work completed during summer of 2006 includes (1) culvert removed, new bridge constructed; (2) rock upstream v check dam, and large woody debris installed in American River, mouth area E. Fk. American River; (3) all initial erosion control, mulching, seeding completed, and (4) road gravelled. Follow-up for revegetation scheduled for fall 2006. This project is complete. Project was funded with \$19,000 FY05 funds, on-the-ground work was not completed until FY06.

Description

The importance to the Resource:

The East Fork American River provides habitat for steelhead trout, spring/summer Chinook salmon, and bull trout (adult/subadult foraging). This stream is 4 - 5 C cooler than American River, and provides an important thermal refuge during the summer months.

The problem:

A round culvert installed in 1984 at the mouth is currently a partial/full fish passage barrier, restricting movement of spring/summer Chinook, steelhead trout and bull trout into the drainage during low flows. During high spring flows a velocity barrier occurs in this culvert.

The objective:

Remove the barrier culvert and associated fill materials and replace it with a bridge, enabling passage of all aquatic organisms at all flows.

The method:

The culvert will be replaced with a bridge, eroding fill will be removed, and habitat

	<p>structures will be placed in American River near the mouth of the East Fork American River.</p> <p>Further description:</p>
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14330-A-054 - [Thomas Fork Rigby](#)

Facility	Idaho Fisheries Resource Office
Expended	\$1
Objective	Expand the use of Fisheries Program expertise to avoid, minimize, or mitigate impacts of habitat alteration on fish and other aquatic species.
Primary Benefited Species	Bonneville cutthroat trout (Oncorhynchus clarkii utah)
Primary Benefited Population	Bonneville cutthroat trout, Bear River, UT, ID, WY
Plans	Range-wide Conservation Agreement and Strategy for Bonneville Cutthroate Trout(Oncorhynchus clarki utah).
Keyword	Fish Passage
Need Number	N-002
Partners	Bear Lake Regional Commission (\$1000) Faucet Irrigation Company (\$2100) Idaho Department of Fish and Game (\$3500) Trout Unlimited (\$12000)

Accomplishments

Number of miles re-opened to fish passage	7.0
Fish passage barriers removed or bypassed	1

Accomplishment Summary

One irrigation diversion was modified to incorporate a fish screen and upstream passage past the diversion. The loss of juvenile and post-spawning Bonneville cutthroat trout down the irrigation ditch was eliminated. All work has been completed. Project was funded with \$34,500 FY05 funds, on-the-ground work was completed in FY06.

Description

The importance to the Resource:

The Thomas Fork is a major spawning and rearing tributary for Bonneville cutthroat in the Bear River drainage.

The problem:

The Mumford/Rigby Diversion blocks access to 80 miles of spawning habitat, and causes entrainment of both adults and juvenile Bonneville cutthroat trout.

The objective:

Re-establish fish passage and prevent loss of Bonneville cutthroat down the irrigation ditch.

The method:

Install fish passage and fish screen at the Rigby Diversion.

Number of other Fishery Management Plan tasks implemented for populations of management concern.	1	
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14330-A-055 - [Thomas Fork Taylor Ditch](#)

Facility	Idaho Fisheries Resource Office
Expended	\$1
Objective	Expand the use of Fisheries Program expertise to avoid, minimize, or mitigate impacts of habitat alteration on fish and other aquatic species.
Primary Benefited Species	Bonneville cutthroat trout (Oncorhynchus clarkii utah)
Primary Benefited Population	Bonneville cutthroat trout, Bear River, UT, ID, WY
Plans	Fisheries Restoration and Irrigation Mitigation Act of 2000 (PL 106-502) Range-wide Conservation Agreement and Strategy for Bonneville Cutthroate Trout(Oncorhynchus clarki utah).
Keyword	Fish Passage
Need Number	N-002
Partners	Bear Lake Regional Commission (\$10000) McMurray Foundation (\$20000) Trout Unlimited (\$4000) Trout and Salmon Foundation (\$10000)

Accomplishments

Number of miles re-opened to fish	63.0
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Accomplishment Summary

One irrigation diversion was modified to incorporate a fish screen and upstream passage past the diversion. The loss of juvenile and post-spawning Bonneville cutthroat trout down the irrigation ditch was eliminated. All work has been completed. Project was funded with \$80,000 FY05 funds, on-the-ground work was completed in FY06.

Description

The importance to the Resource:

The Thomas Fork is a major spawning and rearing tributary for Bonneville cutthroat in the Bear River drainage.

The problem:

The Taylor Diversion blocks access to 80 miles of spawning habitat, and causes entrainment of both adults and juvenile Bonneville cutthroat trout.

The objective:

Re-establish fish passage and prevent loss of Bonneville cutthroat down the irrigation ditch.

The method:

Install fish passage and fish screen at the Rigby Diversion.

passage		
Fish passage barriers removed or bypassed	1	
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1	

14330-A-059 - [Evaluate factors limiting migration success and spawning distribution of adult Pacific Lamprey](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Work began the end of June. Lamprey collected at Little Goose and Lower Monumental dams are outfitted with radio transmitters and transported to release sites upstream from Lower Granite Dam. To date we have tagged 20 adult lamprey out of a target of 50. Collection and tagging will continue until migration ends in late September. Stationary receiver sites in the Snake and Clearwater rivers and mobile units will be used to track fish through the winter and spawning period, spring of 2007.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Pacific lamprey are the least understood anadromous fish in the Columbia and Snake river basins, and their populations in the Snake River have declined significantly. Those Pacific lamprey returning to Idaho are the farthest migrating populations in the range of Pacific lamprey.</p> <p>The problem:</p> <p>Factors affecting the adult and juvenile migrations are thought to be critical in limiting current reproductive potential of these upstream populations. Basic understanding of spawning distributions and habitat preferences are also lacking.</p> <p>The objective:</p> <p>Use radiotelemetry to monitor migration, identify spawning distributions and classify habitat and stream conditions preferred by spawning adult lamprey. All information will be geo-referenced and placed in GIS databases</p>	
Expended	\$48715		
Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.		
Primary Benefited Species	Pacific lamprey (Lampetra tridentata)		
Primary Benefited Population	Columbia River Pacific Lamprey		
Plans	Draft Clearwater Subbasin Management Plan		
Keyword	Native Species		
Need Number	N-002		
Partners	U.S. Army Corps of Engineers, Walla Walla District (\$46500) University of Idaho (\$50000)		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>1</td> </tr> </table>		Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1		

to facilitate use by relevant management agencies.

The method:

Adult Pacific lamprey will be trapped at McNary, Ice Harbor and Lower Granite dams during summer, surgically outfitted with radio transmitters, and monitored as they migrate upstream past dams, through reservoirs and into spawning tributaries of the Snake River. Identify areas and conditions that create passage barriers to lamprey.

14330-A-061 - [Burns Creek Fish Passage Project](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Undersized perched culvert was replaced with correct sized arched culvert that simulates natural stream bottom. All work is complete.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Burns Creek, tributary to Palisades Reservoir is a stronghold for Yellowstone cutthroat trout (USFS sensitive species, State species of concern), and its habitat quality is considered to be good. Resident cutthroat trout exist throughout the stream and adfluvial cutthroat migrate upstream to the culvert at FS Road 087.</p> <p>The problem:</p> <p>At its crossing with Burns Creek, the original culvert was placed poorly. It is perched, out of alignment with the stream, and under capacity. Fluvial Yellowstone cutthroat trout cannot pass upstream into spawning and rearing habitat.</p> <p>The objective:</p> <p>Replace this culvert to restore upstream passage for fluvial Yellowstone cutthroat trout. The restoration of fish passage at this crossing will restore the migratory run of Yellowstone cutthroat trout to Burns Creek, increasing the potential for the long term viability of the Burns Creek population.</p> <p>The method:</p> <p>Replace existing culvert with bottomless arch culvert that will pass all life stages of aquatic organisms at all flows.</p>			
Expended	\$15053				
Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.				
Primary Benefited Species	Yellowstone cutthroat trout (Oncorhynchus clarkii bouvieri)				
Primary Benefited Population	Palisades-Salt River				
Plans	2003 Revised Caribou-Targhee Forest Plan Memorandum of Agreement for Conservation and Management of Yellowstone Cutthroat Trout (<i>Oncorhynchus clarkii bouvieri</i>) among Montana, Idaho, Wyoming, Nevada, Utah, U S. Forest Service, Yellowstone National Park and Grand Teton National Park.				
Keyword	Fish Passage				
Need Number	N-002				
Partners	Caribou Targhee National Forest (\$24000) Trout Unlimited (\$24000)				
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of miles re-opened to fish passage</td> <td>5.0</td> </tr> <tr> <td>Fish passage barriers removed or bypassed</td> <td>1</td> </tr> </table>			Number of miles re-opened to fish passage	5.0	Fish passage barriers removed or bypassed
Number of miles re-opened to fish passage	5.0				
Fish passage barriers removed or bypassed	1				

Number of other Fishery Management Plan tasks implemented for populations of management concern.	1	
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14330-A-063 - [Skinner Creek Idaho Fish Passage and Restoration](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>An agreement has been established between the Forest and the Bureau of Reclamation Hydraulics Lab to design and install the 4 necessary bypass and screens in lower Skinner Creek. Construction will occur in 2007. Natural Resources Conservation Service and the C-T National Forest will re-establish the riparian vegetation in the old feedlot along Skinner Creek in October 2006. When photos are available, we will share them with USFWS.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Skinner Creek is a Bonneville cutthroat trout stronghold stream that flows off Caribou-Targhee National Forest, through private land in Nounan, Idaho, directly into Bear River.</p> <p>The problem:</p> <p>Cattle grazing and a feedlot operation have negatively impacted Skinner Creek and it's riparian corridor. The channel is wide and shallow, there is little stream habitat and riparian vegetation.</p> <p>The objective:</p> <p>Benefit approximately 5 miles of stream through increased shading and stream depth, and decreased stream width and sedimentation, and improvements to fish passage.</p> <p>The method:</p> <p>Remove a feedlot from the stream, exclude cattle from the stream, screen two small diversions, and create a bypass around another diversion. Bonneville cutthroat trout</p>	
Expended	\$10000		
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.		
Primary Benefited Species	Bonneville cutthroat trout (Oncorhynchus clarkii utah)		
Primary Benefited Population	Bonneville cutthroat trout, Bear River, UT, ID, WY		
Plans	Range-wide Conservation Agreement and Strategy for Bonneville Cutthroate Trout(Oncorhynchus clarki utah).		
Keyword	Fish Passage		
Need Number	N-002		
Partners	Bear River Project Environmental Coordination Committee (\$43000) Caribou Targhee National Forest (\$20000)		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>1</td> </tr> </table>			Number of other Fishery Management Plan tasks implemented for populations of management concern.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1		

	would directly benefit from the implementation of this project.
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14330-A-066 - [Restore/Recover Yellowstone Cutthroat in 50 acres in Falls Creek, ID per WNTI management priorities](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>The barrier rocks have been delivered to site and placement is occurring. Work is expected to be completed by the end of September 2006.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Falls Creek, tributary to the South Fork Snake River, contains an isolated population of Yellowstone cutthroat. This population is integral maintaining the species range and life history diversity.</p> <p>The problem:</p> <p>Currently, motorized vehicles have access to the riparian area of lower Fall Creek in many locations. Dispersed camping sites have been established and they continue to expand near the stream. This is impacting riparian vegetation, introduces sediment to the stream, and erodes stream banks.</p> <p>The objective:</p> <p>Benefit an isolated population of Yellowstone cutthroat trout through riparian and stream channel restoration and decreased sedimentation.</p> <p>The method:</p> <p>1) limit vehicular access in 50 acres of riparian area to defined areas; 2) rehabilitate dispersed camping sites and isolate them from the riparian area; 3) install interperative signs to educate the public on the importance of healthy riparian areas and stream habitat for Yellowstone cutthroat trout.</p>			
Expended	\$8000				
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.				
Primary Benefited Species	Yellowstone cutthroat throat (Oncorhynchus clarkii bouvieri)				
Primary Benefited Population	South Fork Snake River				
Plans	Memorandum of Agreement for Conservation and Management of Yellowstone Cutthroat Trout (<i>Oncorhynchus clarki bouvieri</i>) among Montana, Idaho, Wyoming, Nevada, Utah, U S. Forest Service, Yellowstone National Park and Grand Teton National Park.				
Keyword	Habitat				
Need Number	N-002				
Partners	Caribou Targhee National Forest (\$4000) Greater Yellowstone Coordinating Committee (\$4000)				
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of riparian miles restored</td> <td>2.0</td> </tr> <tr> <td>Number of other Fishery Management Plan</td> <td>1</td> </tr> </table>			Number of riparian miles restored	2.0	Number of other Fishery Management Plan
Number of riparian miles restored	2.0				
Number of other Fishery Management Plan	1				

tasks implemented for populations of management concern.		
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14330-A-067 - [Restore/Recover Bull Trout in 6 miles of Mores Creek, ID per NFHI/WNTI management habitat priorities](#)

Facility	Idaho Fisheries Resource Office
Expended	\$12500
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Bull trout (Salvelinus confluentus)
Primary Benefited Population	Boise River
Plans	Bull Trout Recovery Plan, Ch 18 Southwest Idaho RU
Keyword	Habitat
Need Number	N-002
Partners	City of Idaho City, Idaho (\$7000) Idaho Department of Fish and Game (\$8000) Southwest Idaho Resource Advisory Committee (\$177000)

Accomplishments

Number of riparian miles restored	6.0
Number of other Recovery Plan tasks implemented for T&E populations	1

Accomplishment Summary

Service funds were used to partially fund floodplain restoration, purchase native plants and salvage native plants that will be replanted in the floodplain. Revegetation will be done in fall 2006 and spring 2007

Description

The importance to the Resource:

Mores Creek is a migration corridor for bull trout and redband trout, and the headwater reaches are important for spawning and rearing for these two species.

The problem:

Mores Creek was extensively dredge-mined in the early and mid 1900's. Dredge piles confine the channel, altering the hydrology and floodplain function. There is a lack of vegetation and woody debris to provide habitat, thermal cover and channel integrity. Elevated water temperatures often are a thermal block to upstream passage.

The objective:

Restore Mores Creek to a naturally functioning ecosystem, with bank and instream integrity, vegetation and habitat so that spawning and rearing capacities for bull trout and redband trout are improved.

The method:

- 1) Excavate and isolate mine tailings from Mores Creek;
- 2) revegetate the floodplain with wetland trees, shrubs and grasses;
- 3) introduce large woody debris and boulders to modify the hydrology that now consists of long

	<p>straight runs lacking pool and riffle structure. This project will restore 6 miles of bank and instream habitat integrity.</p>
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14330-A-068 - [Restore/Recover Bonneville Cutthroat in 1 mile of Nieber Springs, ID per WNTI management priorities.](#)

Facility	Idaho Fisheries Resource Office	<h3>Accomplishment Summary</h3> <p>This project excludes cattle from Nieber Springs to benefit Bonneville cutthroat trout. The fence is currently being installed and photographs will be shared when they are available. Project should be completed in October 2006.</p> <h3>Description</h3> <p>The importance to the Resource:</p> <p>Nieber Spring is at the headwaters of Mill Creek, a tributary to Ovid Creek within the Bear River Drainage. It is an important rearing area for Bonneville cutthroat trout.</p> <p>The problem:</p> <p>Currently, cattle have access to Nieber Springs and their trampling and grazing has impacted a Bonneville cutthroat trout population.</p> <p>The objective:</p> <p>This fencing project will exclude cattle from riparian and upland aspen stands, restoring habitat for beaver and Bonneville cutthroat trout that exist in Mill Creek. Approximately 1 mile of Mill Creek will benefit, but indirect benefits are expected throughout upper Mill Creek due to a decrease in sediment delivery and an increase in shading.</p> <p>The method:</p> <p>Fence out cattle from the stream, riparian areas and upland aspen stands and restore riparian and aquatic habitat in Nieber Spring and upper Mill Creek. Beaver are expected to recolonize the area, creating additional rearing and holding habitat.</p>	
Expended	\$5000		
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.		
Primary Benefited Species	Bonneville cutthroat trout (Oncorhynchus clarkii utah)		
Primary Benefited Population	Bonneville cutthroat trout, Bear River, UT, ID, WY		
Plans	Range-wide Conservation Agreement and Strategy for Bonneville Cutthroate Trout(Oncorhynchus clarki utah).		
Keyword	Habitat		
Need Number	N-002		
Partners	Bear River Project Environmental Coordination Committee (\$5000) Caribou Targhee National Forest (\$5000)		
<h3>Accomplishments</h3> <table border="1"> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>1</td> </tr> </table>			Number of other Fishery Management Plan tasks implemented for populations of management concern.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1		

14330-A-069 - [Restoring/Recovering Bull Trout in 8 miles of Little Lost River, ID per WNTI management priorities.](#)

Facility	Idaho Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Consultant was hired to design the restoration project. Designs are being finalized, and construction will occur after the irrigation season in fall 2006.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Little Lost River has an isolated population of listed bull trout, and Badger Creek is an important spawning and rearing stream in the drainage.</p> <p>The problem:</p> <p>The existing irrigation diversion on private property is a complete barrier to upstream passage, and irrigation withdrawals totally dewater the stream below the diversion. Paast land use has altered the riparian vegetation and habitat within Badger Creek. Bull trout cannot access the headwaters of Badger Creek.</p> <p>The objective:</p> <p>Restore passage into Badger Creek from the Little Lost River, and improve riparian and instream habitat that has been impacted by previous land use.</p> <p>The method:</p> <p>1) remove the existing diversion on Badger Creek, which is a passage barrier; 2) reconnect Badger Creek, which is currently diverted and isolated from the Little Lost River, back to the Little Lost River; 3) revegetate the reconstructed Badger Creek channel; 4) fence Badger Creek from cattle grazing.</p>
Expended	\$8206	
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.	
Primary Benefited Species	Bull trout (Salvelinus confluentus)	
Primary Benefited Population	Little Lost River	
Plans	Bull Trout Recovery Plan, Ch 19 Little Lost RU	
Keyword	Habitat	
Need Number	N-002	
Partners		

14235-A-001 - [Production of spring Chinook salmon](#)

Facility	Kooskia National Fish Hatchery	<p>Accomplishment Summary</p> <p>Kooskia NFH produced 637,333 spring Chinook salmon smolts for release to the Clearwater River, ID.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Kooskia NFH contributes spring Chinook salmon to assist with run rebuilding and to replace lost fisheries.</p> <p>The problem:</p> <p>The Clearwater River Spring Chinook Salmon were lost due to water development projects in the Snake and Columbia River basins.</p> <p>The objective:</p> <p>The goal of the production program is to produce 600,000 spring Chinook smolts for release into the Clearwater River.</p> <p>The method:</p> <p>These smolts are reared using standard fish cultural methods.</p>			
Expended	\$132394				
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.				
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)				
Primary Benefited Population	Not specified				
Plans	Kooskia National Fish Hatchery HGMP				
Keyword	Fish Technology				
Need Number	N-002				
Partners					
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of Fishery Management Plan production tasks implemented (PART)</td> <td>1</td> </tr> <tr> <td>number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)</td> <td>1</td> </tr> </table>			Number of Fishery Management Plan production tasks implemented (PART)	1	number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)
Number of Fishery Management Plan production tasks implemented (PART)	1				
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	1				

14235-A-002 - [Collection of spring Chinook salmon adults at Kooskia NFH](#)

Facility	Kooskia National Fish Hatchery
Expended	\$56853
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	Kooskia National Fish Hatchery HGMP National Broodstock Policy and Implementation Guidelines
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1
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Accomplishment Summary

There were 670 spring Chinook adults collected at the Kooskia NFH wier in the spring/summer of 2006. Of those 670 fish, 30 were naturals passed above the weir and 640 were hauled to Dworshak NFH for spawning. The adults kept for broodstock will produce aproximately 650,000 green eggs.

Description

The importance to the Resource:

Kooskia NFH contributes spring Chinook salmon to assist with run rebuilding and to replace lost fisheries.

The problem:

The Clearwater River Spring Chinook Salmon were lost due to water development projects in the Snake and Columbia River basins.

The objective:

The goal of the adult collection is to obtain 600 adult spring Chinook salmon for broodstock.

The method:

Adults are collected in Clear Creek using a picket wier. All unmarked Chinook are passed upstream of the wier to provide natural spawning in Clear Creek.

14235-A-008 - [Improve Passage of Listed Species at the Kooskia National Fish Hatchery Weir](#)

Facility	Kooskia National Fish Hatchery
Expended	\$23312
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)
Primary Benefited Population	Not specified
Plans	Kooskia National Fish Hatchery HGMP
Keyword	Fish Passage
Need Number	N-002
Partners	

Accomplishments

Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1
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Accomplishment Summary

Completed annual monitoring and evaluation to measure the effect the Kooskia NFH weir has on targeted species, resident fish, and ESA listed steelhead and bull trout.

Description

The importance to the Resource:

This project will develop an operations plan to allow passage of ESA listed fish at the permanent fish weir at Kooskia NFH, minimizing take of these species. Wild summer steelhead and bull trout in Clear Creek are listed as threatened under the ESA.

The problem:

The Service's BiOp regarding the construction and operation of the weir stated that the weir, may adversely affect but is not likely to jeopardize the continued existence of the Columbia Basin DPS of bull trout and that adult and sub-adult migrating bull trout could be taken as a result of this proposed action.

The objective:

Data collected by this project will: 1) Determine the timing and frequency of ESA listed fish encounters, 2) provide for an operations plan that will minimize the incidental take of ESA listed species, and 3) optimize broodstock collection for the hatchery.

Further description:

14235-A-009 - [Develop Highly Reliable Alternative Sources of Water Supply for Kooskia NFH](#)

Facility	Kooskia National Fish Hatchery
Expended	\$57049
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	Kooskia National Fish Hatchery HGMP
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	1

Accomplishment Summary

New water sources are being identified, including rehabing old or developing new wells. New water quality monitoring equipment was purchased and water quality is being monitored and logged weekly. Work was performed to improve water flow into the creek water intake.

Description

The importance to the Resource:

Currently, Kooskia NFH depends on well water from two ground wells and from Clear Creek.

The problem:

Clear Creek is not available during summer months due to decreased water quantity and quality. This forces Kooskia to depend entirely on well water and recirculation system for these months. In order to accommodate the loss of Clear Creek water, well water has to be pumped in conjunction with water chillers to benefit the salmon.

The objective:

Developing additional sources of high quality water decreases Kooskia's dependence on technology and would decrease energy costs. Water quality monitoring assures high quality fish rearing conditions and early detection of water sytem problems.

Further description:

14235-A-012 - [Improving Kooskia NFH evaluation and long term monitoring of listed species](#)

Facility	Kooskia National Fish Hatchery
Expended	\$14164
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Kooskia National Fish Hatchery HGMP
Keyword	Fish Passage
Need Number	N-002
Partners	

Accomplishments

Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1
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Accomplishment Summary

Completed collecting information on numbers and sizes of juvenile steelhead and bull trout in the adult fish trap at the Kooskia NFH weir.

Description

The importance to the Resource:

Under Incidental Take, the NMFS lists two specific RPMs for agencies operating artificial production programs: monitoring and evaluating their programs, and reducing potential negative impacts to listed Chinook and steelhead.

The problem:

In the NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin, operation of weirs for the collection of broodstock is listed as one potential effect on listed species.

The objective:

Implement a monitoring and evaluation plan to measure the effectiveness of the Kooskia NFH SCS program, allowing for adaptive management and optimizing production while minimizing the impacts to ESA listed stocks. Data on the numbers, sizes, and migration timing of bull trout and wild summer steelhead will be compiled in the weir and adult pond

The method:

These data will be used for comparison with data collected by the Idaho Fishery Resource Office on the numbers, sizes, and status of bull trout and wild summer steelhead populations residing in the upper reaches of Clear Creek. These comparisons will be used to assess and

	evaluate the effects of the weir operation on these listed populations.
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13230-A-100 - [Rear and release fall chinook on tribal lands to restore locally adapted stocks.](#)

Facility	Little White Salmon National Fish Hatchery	<p>Accomplishment Summary</p> <p>Upriver bright fall chinook, a native fish stock, were transferred to tribal acclimation ponds on the Yakima River to assist the Yakama Nation tribal restoration effort.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Transfer and release of fish at upriver (Columbia River) acclimation sites assists with mitigation efforts and supports reaffirmation of tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Construction and operation of John Day Dam on the Columbia River has reduced the survival and production of upriver bright fall chinook salmon destined to upriver areas.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for transfer and release at upriver acclimation sites.</p> <p>The method:</p> <p>Spawn an adequate number of adult fish to achieve a production goal of 1.7 million pre-smolt upriver bright fall chinook at the Little White Salmon NFH for transfer and acclimation at sites operated by the Yakama Nation.</p> <p>Further description:</p> <p>A total of 1.682 million upriver bright fall chinook were reared at the Little White Salmon/Willard National Fish Hatchery Complex and transferred by Service personnel</p>
Expended	\$38303	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Not specified	
Plans	<p>U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon</p> <p>Comprehensive Hatchery Management Plan-Little White NFH Complex Little White NFH Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan</p>	
Keyword	Restoration	
Need Number	N-002	
Partners	<p>U.S. Army Corps of Engineers</p> <p>Yakama Indian Nation</p>	
Accomplishments		

Recovery Plan production tasks implemented (PART)	1	<p>to acclimation ponds on the Yakima River, WA. This project is partially funded by the U.S. Army Corps of Engineers (COE) and is a critical component of the Service's obligation under the U.S. v Oregon agreement to assist with the development of naturally spawning fish stocks on tribal lands in the mid-Columbia River basin. Funding received by the COE is used to provide feed to the tribal fisheries program to assist with the off-site rearing of these fish following transfer and during the acclimation period. Funds (subactivity 1932-0017) are also used to feed an additional 1.7 million upriver bright fall chinook salmon located at the Priest Rapids Hatchery under co-manager agreement and to meet U.S. vs. Oregon agreement obligations. Returning adult fish are designated for the development of locally adapted, naturally spawning populations within the Yakima River Basin and for tribal harvest.</p>
Number of Fishery Management Plan production tasks implemented (PART)	2	
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1	
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3	
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1	

13230-A-101 - [Rear and release spring chinook on tribal lands to support a cooperative restoration effort.](#)

Facility	Little White Salmon National Fish Hatchery	<p>Accomplishment Summary</p> <p>Reared and released native, locally adapted spring chinook salmon into the Umatilla River, OR in cooperation with the State and Tribe to develop self-sustaining, naturally spawning stocks.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Transfer and release of fish at upriver (Columbia River) acclimation sites assists with mitigation efforts and supports reaffirmation of tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have reduced the survival and production of spring chinook salmon returning to the Umatilla River, Oregon.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for transfer and release at acclimation sites located on the Umatilla River.</p> <p>The method:</p> <p>Receive eyed eggs, taken from a locally adapted stock of fish returning to the Umatilla River, to produce 210,000 spring chinook at the Little White Salmon NFH for transfer and acclimation at sites operated by the Confederated Tribes of the Umatilla Indian Reservation.</p> <p>Further description:</p>
Expended	\$28937	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Not specified	
Plans	U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon Comprehensive Hatchery Management Plan-Little White NFH Complex Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan	
Keyword	Restoration	
Need Number	N-002	
Partners	Bonneville Power Administration Confederated Tribes of the Umatilla Indian Reservation Oregon Department of	

Fish and Wildlife

Accomplishments

Recovery Plan production tasks implemented (PART)	1
Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

A total of 218,764 spring chinook salmon, derived from a native, locally adapted stock returning to and spawned on the Umatilla River, OR, were reared at the Little White Salmon/Willard National Fish Hatchery Complex and transferred to acclimation ponds operated by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). This project is funded by the Bonneville Power Administration (subactivity 1937-1045 and 1101) and is a cooperative effort between the CTUIR, the Oregon Department of Fish and Wildlife (ODFW), and the Service. The ODFW is responsible for the monitoring and evaluation program necessary to determine the success of this restoration effort. Fish returning to the Umatilla River are collected at Three mile Dam. A small percentage of fish are collected and spawned. The remaining fish are then trucked and released upstream and allowed to spawn naturally to continue development of locally adapted, self sustaining and naturally spawning populations.

13230-A-102 - [Rear and release native spring chinook salmon to support mitigation and tribal treaty obligations.](#)

Facility	Little White Salmon National Fish Hatchery	<p>Accomplishment Summary</p> <p>Reared and released native spring chinook salmon into the Little White Salmon River, WA to provide mitigation for Bonneville Dam and to meet obligations under the U.S. v Oregon Court agreement.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Rear and release of fish into the Little White Salmon River to mitigate for fisheries and habitat lost and to reaffirm tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have reduced the survival and production of Pacific salmon returning to areas above Bonneville Dam.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for release into the Little White Salmon River, WA that exhibit a high smolt-to-adult survival that allows contribution to various sport, commercial and tribal fisheries.</p> <p>The method:</p> <p>Collect and spawn an adequate number of adult fish to produce 1,000,000 spring chinook at the Little White Salmon NFH for release into the Little White Salmon River.</p> <p>Further description:</p>
Expended	\$171809	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Not specified	
Plans	U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon Comprehensive Hatchery Management Plan-Little White NFH Complex Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan	
Keyword	Mitigation	
Need Number	N-002	
Partners	National Oceanic and Atmospheric Administration, Mitchell Act Washington Department of Fish and Wildlife	

Yakama Indian Nation

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
Recovery Plan production tasks implemented (PART)	1
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

A total of 1,016,406 native spring Chinook salmon were reared and released from Little White Salmon National Fish Hatchery with funds provided by the National Marine Fisheries Service under authority of the Mitchell Act (subactivity 1932-0005). While this project helps to maintain a fish population that is incapable of becoming self-sustaining due to habitat loss resulting from flooding, siltation, and fluctuating water levels caused by the Bonneville Pool, it also provides fish to reaffirm tribal treaty granted fishing rights as mandated by the U.S. v Oregon Court agreement. Returning adult fish support a Columbia River sport, commercial and tribal fishery, and a highly successful terminal area tribal gillnet and sport fishery in Drano Lake. This terminal fishery allows harvest of a hatchery stock without impact to ESA-listed and wild fish.

13230-A-103 - [Reared and released native fall chinook salmon to support mitigation and tribal treaty obligations.](#)

Facility	Little White Salmon National Fish Hatchery	<p>Accomplishment Summary</p> <p>Reared and released native fall chinook salmon into the Little White Salmon River, WA to provide mitigation for Bonneville Dam and to meet obligations under the U.S. v Oregon Court agreement.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Rear and release of fish into the Little White Salmon River to mitigate for fisheries and habitat lost and to reaffirm tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have reduced the survival and production of Pacific salmon returning to areas above Bonneville Dam. This program also provides mitigation for fish and habitat lost due to the construction and operation of John Day Dam.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for release into the Little White Salmon River, WA that exhibit a high smolt-to-adult survival that allows contribution to various sport, commercial and tribal fisheries.</p> <p>The method:</p> <p>Collect and spawn an adequate number of adult fish to produce 2,000,000 upriver bright fall chinook at the Little White Salmon NFH for release into the Little White Salmon River.</p>
Expended	\$196697	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Not specified	
Plans	<p>U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon</p> <p>Comprehensive Hatchery Management Plan-Little White NFH Complex Little White NFH Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan</p>	
Keyword	Mitigation	
Need Number	N-002	
Partners	<p>National Oceanic and Atmospheric Administration, Mitchell Act</p> <p>U.S. Army Corps of Engineers Washington</p>	

Department of Fish and
Wildlife
Yakama Indian Nation

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
Recovery Plan production tasks implemented (PART)	1
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3
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)	1

Further description:

A total of 1.8 million native fall Chinook salmon were reared and released from Little White Salmon National Fish Hatchery with funds provided by the National Marine Fisheries Service under authority of the Mitchell Act (subactivity 1932-0005) and funds for fish food from the Corps of Engineers John Day Mitigation program (subactivity 1932-0017). Additional funds were received to assist with the development of an Upriver Bright fall Chinook Hatchery Genetics Management Plan to help guide this production program. While this project helps to maintain a fish population that is incapable of becoming self-sustaining due to habitat loss resulting from flooding, siltation, and fluctuating water levels caused by the Bonneville Pool, it also provides fish to reaffirm tribal treaty granted fishing rights as mandated by the U.S. v Oregon Court agreement. Returning adult fish support a Columbia River sport, commercial and tribal fishery, and a highly successful terminal area tribal gillnet and sport fishery in Drano Lake. This terminal fishery allows harvest of a hatchery stock without impact to ESA-listed and wild fish.

13230-A-105 - [Rear and release spring chinook on tribal lands to restore locally adapted stocks.](#)

Facility	Little White Salmon National Fish Hatchery	<p>Accomplishment Summary</p> <p>Spring chinook salmon were reared and transferred for release in the Walla Walla River in cooperation with the Tribe to develop self-sustaining, naturally spawning stocks in this watershed.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Transfer and release of fish at upriver (Columbia River) acclimation sites assists with mitigation efforts and supports reaffirmation of tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have reduced the survival and production of spring chinook salmon returning to the Walla Walla River, Oregon.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for transfer and release into the Walla Walla River.</p> <p>The method:</p> <p>Spawn an adequate number of adult fish to achieve a production goal of 250,000 pre-smolt spring Chinook at the Little White Salmon NFH for transfer and release into the Walla Walla River, OR.</p> <p>Further description:</p> <p>A total of 250,004 spring chinook salmon were reared at the Little White Salmon/Willard National Fish Hatchery Complex and released</p>
Expended	\$171304	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Walla Walla River Spring Chinook	
Plans	<p>U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon</p> <p>Comprehensive Hatchery Management Plan-Little White NFH Complex</p>	
Keyword	Restoration	
Need Number	N-002	
Partners	<p>Confederated Tribes of the Umatilla Indian Reservation</p> <p>National Oceanic and Atmospheric Administration, Mitchell Act</p>	
Accomplishments		

Number of Fishery Management Plan production tasks implemented (PART)	2	<p>in the Walla Walla River, WA watershed to support a cooperative restoration effort with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). This project is funded by the Mitchell Act administered by NOAA-Fisheries (subactivity 1932-0005) and is a cooperative effort between the CTUIR and the Service. This production commitment was transferred to Little White Salmon NFH following the finding of eastern brook trout in Carson NFH raceways. This non-native species entered the Carson NFH water intake and mixed with fish destined for transfer to the Walla Walla River. The presence of bull trout in the Walla Walla River heightened the Service's concern for the potential introduction of a non-native species to this watershed. As a result, Little White Salmon NFH assumed this production responsibility until adequate screening can be installed at Carson NFH to preclude the collection of eastern brook trout. Future returning adult fish will be allowed to spawn naturally to continue development of locally adapted, self sustaining and naturally spawning populations.</p>
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1	
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3	
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1	

13231-A-025 - [Development of Native Broodstock Techniques for Use in Restoration and Recovery: Steelhead](#)

Facility	Lower Columbia River Fish Health Center	<p>Accomplishment Summary</p> <p>Develop methods to rear naturally produced steelhead to adulthood under hatchery conditions, spawn them, and use their progeny to produce a self-sustaining population of 5,000 fish. Progeny from these steelhead were sampled for over 13 different pathogens to check their health and enhance their survival.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>To comply with NMFS' Biological Opinion and USFWS restoration and recovery efforts, Abernathy Fish Technology Center staff are working to establish a native stock of naturally-spawned fish to return a natural population of steelhead to Abernathy Creek, WA.</p> <p>The problem:</p> <p>Most of the native wild stock of Abernathy Creek had been extirpated.</p> <p>The objective:</p> <p>Develop methods to rear naturally produced fish under hatchery conditions; use the progeny of this native broodstock to recover the depleted population; avoid the removal of ESA listed adult fish as native broodstock; and ultimately produce a self-sustaining stock of steelhead.</p> <p>The method:</p> <p>The fish will be spawned, the progeny stocked in Abernathy Creek, and the entire population will be monitored for health, physiology, and abundance. Fish were monitored for the presence of over 13 different pathogens by the</p>
Expended	\$6000	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)	
Primary Benefited Population	lower Columbia River Steelhead	
Plans	<p>National Wild Fish Health Survey</p> <p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</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>	
Keyword	Fish Health	
Need Number	N-002	
Partners		
Accomplishments		

Number of other Recovery Plan tasks implemented for T&E populations	4	<p>Lower Columbia River Fish Health Ctr. to assay health indices and survival in the wild.</p> <p>Further description:</p> <p>To comply with NMFS' Biological Opinion and USFWS restoration and recovery efforts, Abernathy Fish Technology Center staff are working to establish a native stock of naturally-spawned fish to return a natural population of steelhead to Abernathy Creek, WA. Study goals are: 1) develop methods to rear naturally produced fish under hatchery conditions; 2) use the progeny of this native broodstock to recover the depleted population; 3) avoid the removal of ESA listed adult fish as native broodstock; and 4) ultimately produce a self-sustaining stock of steelhead. In Sept. 1999, 500 naturally-spawned juvenile steelhead were collected from Abernathy Creek. Using minimal human contact, automatic feeders, raceway covers and predator netting, an 88% survival rate has been achieved. Another 500 were collected Sept.2000, year 2 of the study. The fish will be spawned, the progeny stocked in Abernathy Creek, and the entire population will be monitored for health, physiology, abundance, and the Wild Fish Health Survey. In comparison, undisturbed steelhead populations in adjoining drainages will also be monitored. This project is shared with Abernathy FTC and Columbia River Fisheries Program Office.</p>
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)	1	

13231-A-027 - [Hatchery Review Team Participation by Lower Columbia River Fish Health Ctr](#)

Facility	Lower Columbia River Fish Health Center	<p>Accomplishment Summary</p> <p>Fish health expertise was contributed to the Hatchery Review Team's analysis and recommendations of Warm Springs National Fish Hatchery (NFH), the Leavenworth NFH Complex, and Eagle Creek NFH.</p> <p>Description</p> <p>The <i>importance</i> to the Resource:</p> <p>All USFWS National Fish Hatcheries in the Pacific NW are undergoing a scientific review of their effectiveness in managing fisheries, fulfilling mitigation needs, and to ensure that they meet the critical missions and enhance needs of states, tribes and federal agencies, now and into the future.</p> <p>The <i>problem</i>:</p> <p>Not all hatcheries are effectively achieving the best results needed.</p> <p>The <i>objective</i>:</p> <p>There is a need to thoroughly investigate and review the stocks being reared in NW hatcheries to ensure that they are producing the fish stocks best suited for their basins.</p> <p>The <i>method</i>:</p> <p>A team of experts from USFWS and NMFS gather information, inspect each hatchery and make recommendations for each hatchery. All information is supplied via the hatchery review team website.</p>
Expended	\$15678	
Objective	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.	
Primary Benefited Species	(0) Multiple Species	
Primary Benefited Population	Not specified	
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)	
Keyword	Management	
Need Number	N-002	
Partners	<p>Confederated Tribes of The Warm Springs</p> <p>National Oceanic and Atmospheric Administration, Fisheries</p> <p>Oregon Department of Fish and Wildlife</p> <p>U. S. Forest Service</p> <p>Washington Department of Fish and Wildlife</p> <p>Yakama Indian Nation</p>	

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	4
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1

13330-A-102 - [Fish Restoration and Tribal Trust Responsibilities in the Yakima River Basin](#)

Facility	Mid-columbia River Fisheries Resource Office
Expended	\$195288
Objective	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.
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)
Primary Benefited Population	Upper Yakima River (YRUMA-s) . This population includes the Upper Yakima and its tributaries.
Plans	Bull Trout Draft Recovery Plan, Chapter 21 Yakima Subbasin Plan
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	U. S. Forest Service U.S. Bureau of Reclamation Washington Department of Ecology Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishments

Number of habitat assessments completed	1.0
Number of miles of in-stream habitat	1.2

Accomplishment Summary

Increase survival of listed salmon, steelhead and bull trout in the Yakima River Basin through active participation on multi-agency technical and advisory committees.

Description

The importance to the Resource:

The Yakima Basin is home to 3 species of Pacific salmon, ESA-listed steelhead and bull trout, and many other native fish species. The basin was once one of the most prolific salmonid spawning and rearing areas in the Columbia River Basin. The loss of the Yakima Basin to the Columbia ecosystem, in terms of salmonid production, would be devastating.

The problem:

All salmonid populations have experienced precipitous declines from historic levels. Water storage and withdrawal for irrigation have severely altered the natural flow regime and impaired ecosystem function. Habitat loss and degradation has occurred as a result of land and water development in the basin

The objective:

The objective of the MCRFRO's efforts in the basin is to recover natural ecosystem processes where possible and to protect and restore essential habitats so that healthy wild native populations of fishes are distributed throughout their historic ranges.

The method:

Work collaboratively with all stakeholders, the Yakima Nation, other agencies and the USBR to address the issues. MCRFRO staff is active

assessed	
Number of other Recovery Plan tasks implemented for T&E populations	2
Number of other Fishery Management Plan tasks implemented for populations of management concern.	3
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1

on numerous committees and technical advisory groups. They also conduct biological evaluations and participate in array of recovery efforts for both listed (bull trout and steelhead) and unlisted fish species.

Further description:

Mid-Columbia River Fishery Resource Office (MCRFRO) was active in 2006 in the Yakima River Basin with salmon, steelhead and bull trout restoration issues and related tribal trust responsibilities. Staff participated in bull trout presence/absence surveys and conducted bull trout and steelhead redd surveys in numerous rivers and creeks. An MCRFRO staff biologist represented the USFWS on the System Operations Advisory Committee which makes recommendations to the Bureau of Reclamation (USBR) Yakima Field Office Manager to minimize impacts to anadromous and resident fish resulting from Yakima Project operations. Staff participated as member of the Technical Advisory Group (TAG) for the USBR Yakima Basin Fish Passage Assessment, the Yakima Basin Salmon Recovery Board, the Ahtanum Creek watershed assessment, and the South Naches Irrigation District conservation planning board. Staff worked directly with managers of the Yakima River Basin Water Enhancement Project on biological evaluations of BOR operations and potential fish/water enhancement projects under consideration.

13330-A-106 - [Partners for Fish and Wildlife -- Habitat Restoration](#)

Facility	Mid-columbia River Fisheries Resource Office	<p>Accomplishment Summary</p> <p>This project will will improve limiting factors (stream habitat quantity, quality, and connectivity) for five federal and state listed salmonids and numerous native fish species.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Methow River Basin is a proposed focus area for the Partner's Program and Open Water (lakes, rivers, & streams) is a high priority habitat in this basin. Projects supported by this funding will improve limiting factors (stream habitat quantity, quality, and connectivity) for 5 federal and state listed salmonids and numerous native fish species.</p> <p>The problem:</p> <p>Limiting factors in the Methow River watershed include but are not limited to loss of habitat quantity, quality, and connectivity; and inadequate water quantity and quality. Threats include but are not limited to residential and agricultural development.</p> <p>The objective:</p> <p>The main objective for habitat restoration work will be to improve stream habitat quantity, quality, and connectivity under the confines of the current environment. Improvements will be secured for at least 10 years with landowner agreements.</p> <p>The method:</p> <p>Current and appropriate habitat restoration techniques for each site will be applied to accomplish objectives.</p>			
Expended	\$49511				
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.				
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)				
Primary Benefited Population	Methow River (UCMET) spring chinook salmon.				
Plans	Bull Trout Draft Recovery Plan, Chapter 22 Methow Subbasin Plan				
Keyword	Fish Passage				
Need Number	N-002				
Partners	Bonneville Power Administration Chewuch Basin Council U.S. Bureau of Reclamation Washington State Salmon Recovery Board				
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>2</td> </tr> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>1</td> </tr> </table>			Number of other Recovery Plan tasks implemented for T&E populations	2	Number of other Fishery Management Plan tasks implemented for populations of management concern.
Number of other Recovery Plan tasks implemented for T&E populations	2				
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1				

Further description:

In FY 2006 the Mid-Columbia River Fishery Resource Office (MCRFRO) established a Cooperative Agreement with the Methow Salmon Recovery Foundation (MSRF). Through this agreement we provided Partners (1121) funding to the MSRF for the purposes of: (1) helping to reverse the trend of declining fish and wildlife habitat by restoring such habitats on an ecosystem/watershed basis; and (2) promoting natural resource stewardship by actively cooperating in information and education programs and technical assistance on fish and wildlife habitat issues by implementing in-stream and riparian habitat restoration projects in the Methow River watershed. ESA listed spring Chinook salmon, steelhead, and bull trout along with other native fish species will benefit from in-stream and riparian restoration work in the Methow River watershed.

Additionally, MCRFRO has been actively participating on the technical team and assisting in writing portions of the Regional Step-down Plan for the Partner's for Fish and Wildlife Program for our geographic area.

13330-A-108 - [Recovery planning and technical assistance to statewide aq/fish/water and local watershed groups](#)

Facility	Mid-columbia River Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Completed final draft Upper Columbia Salmon Recovery Plan and continued participation in watershed planning in the Upper Columbia River Ecoregion, Regional Technical Team and the Interior Columbia Basin Technical Review Coordination Group</p> <p>Description</p> <p>The importance to the Resource:</p> <p>MCRFRO participated in development and completion of the Draft Upper Columbia Spring Chinook, Steelhead and Bull Trout Recovery Plan and Implementation Schedule and provided technical assistance to a variety of federal, state, tribal and local aquatic resource groups including the FCRPS BiOp process, Wenatchee and Entiat Watershed Planning Units.</p> <p>The problem:</p> <p>Salmon and bull trout populations in the Pacific Northwest have declined to the point of being listed under the Endangered Species Act due to habitat degradation, over harvest, hatcheries, hydro-electric projects and introduction of non-native species.</p> <p>The objective:</p> <p>The objective is to recover spring Chinook, steelhead and bull trout through a variety of actions identified in the Upper Columbia Spring Chinook, Steelhead and Bull trout Recovery Plan and the Wenatchee and Entiat Watershed Plans.</p> <p>The method:</p>
Expended	\$155062	
Objective	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.	
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)	
Primary Benefited Population	Entiat River (UCENT-s) population, part of the Upper-Columbia River steelhead ESU.	
Plans	Federal Columbia River Power System 2002 Biological Opinion 2000 NMFS FCRPS Biological Opinion - December 21, 2000	
Keyword	Habitat	
Need Number	N-002	
Partners	Arapaho Tribe National Marine Fisheries Service Shoshone Tribe Washington Department of Fish and Wildlife Washington State Salmon Recovery Board Washington Department of Ecology	

Objectives will be met through the implementation of habitat restoration projects, modified hatchery programs and modified harvest and hydro activities. Most of this work is being completed in coordination with the FCRPS process.

Further description:

The MCRFRO participated in development and completion of the Draft Upper Columbia Spring Chinook, Steelhead and Bull Trout Recovery Plan (Plan) and Implementation Schedule. We increased our ability to provide technical assistance to federal, state, tribal and local aquatic resource groups including the FCRPS BiOp process, the Wenatchee Watershed Plan and Implementation of the Entiat Watershed Plan. These efforts increased the efficacy of restoration efforts leading toward recovery of ESA listed species. The MCRFRO assisted local groups in developing and securing funding for riparian and aquatic habitat restoration proposals. These activities support recovery efforts and communication between the USFWS, NOAA Fish, NRCS, BOR, BPA, ACOE, EPA, Yakama Nation, Colville Confederated Tribes, Washington State, county governments, local conservation districts and watershed groups. In addition, we participated in the numerous technical teams and the Washington State Salmon Recovery Funding Board. Finally, this project allowed the MCRFRO to participate in the review and comments on 50 restoration proposals requesting approximately \$15M from 4 different funding sources. A total of \$3M was allocated to the Upper Columbia Region in FY2006.

13330-A-113 - [Implementation of the Upper Columbia Basin Effectiveness Monitoring Strategy in the Entiat River.](#)

Facility	Mid-columbia River Fisheries Resource Office	<p>Accomplishment Summary</p> <p>We implemented the Upper Columbia Basin Effectiveness Monitoring Strategy in the Entiat River. Our role in this study is to evaluate the degree of benefit habitat restoration efforts have on the fish population by comparing pre and post fish utilization at restoration structures. During FY 2006 we conducted snorkel surveys at existing and proposed habitat modification sites within the mainstem Entiat River. We received 2-year extension (through FY 2007) contract with BPA for another \$100K.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>This project will ultimately help determine the most effective habitat restoration actions benefiting aquatic species. Therefore restoration monies are expended efficiently yielding maximum benefit to the resource greatly increasing the ability to recover depressed populations and maintain those healthier populations.</p> <p>The problem:</p> <p>The problem is that in many aquatic habitat restoration projects, long term monitoring to measure the effects of restoration efforts on aquatic life is not undertaken. The need to track the performance of habitat restoration efforts is paramount to improving restoration designs and ultimately improving aquatic habitat to recover ESA listed fish.</p> <p>The objective:</p> <p>The objective of this study is to monitor the fish habitat utilization of planned in-stream</p>			
Expended	\$40500				
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.				
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)				
Primary Benefited Population	Entiat River (UCENT) spring chinook salmon.				
Plans	Entiat Subbasin Plan				
Keyword	Monitoring and Assessment				
Need Number	N-002				
Partners	Chelan County Conservation District (\$10000) TerrAqua, Inc. (\$5000) U. S. Forest Service (\$1000)				
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of population assessments completed</td> <td>3</td> </tr> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>1</td> </tr> </table>			Number of population assessments completed	3	Number of other Fishery Management Plan tasks implemented for populations of management concern.
Number of population assessments completed	3				
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1				

restoration efforts in the Entiat River by conducting pre and post habitat construction snorkel surveys at selected control and treatment sites.

The *method*:

Fish were surveyed by direct observation using single-pass night-day snorkeling at 11 sites and three seasonal periods. Site locations were divided into proposed habitat structures (treatment sites), existing habitat structure sites, and non-modified locations (control sites). All fish observed were counted by species and assigned to size class.

Further description:

In 2005, the Chelan County Conservation District (CCCD) in association with the Entiat Watershed Planning Unit (EWPU), government agencies, and interest groups initiated a large scale restoration program in the Entiat River watershed, known as the "Entiat Bridge-to-Bridge Project." This is a phased program that will, over a several year period, incorporate a suite of stream restoration measures that include in-stream habitat structures, the reconnection of relict stream channels, and riparian plantings to address salmon habitat limiting factors. The restoration efforts in the Entiat River are intended to provide complexity to the river system and a positive benefit for aquatic organisms including ESA listed fish species.

The role of this study is to evaluate the degree of benefit habitat restoration efforts have on the fish population by comparing pre and post fish utilization at restoration structures. Additionally, information from this study will be used to improve future habitat restoration projects through an adaptive management strategy. This study will address the question of

	restoration accountability by providing information on the extent restoration efforts affect fish populations.
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13295-A-001 - [Fish Health Inspections for adult salmon and steelhead returning to Makah NFH](#)

Facility	Olympia Fish Health Center
Expended	\$32800
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	3
Number of Fishery Management Plan production tasks implemented (PART)	1

Accomplishment Summary

To prevent the spread of fish diseases at Makah NFH, 650 adult returning salmon and steelhead were tested for fish diseases.

Description

The importance to the Resource:

Fish Health Inspections are necessary to monitor and control viruses, bacteria and parasites that may enter hatcheries through returns of salmon and steelhead adults.

The problem:

Pathogens cause disease and losses of fish if not detected and held in check. Pathogens occur naturally in the wild and anadromous fish populations are constantly exposed.

The objective:

Prevent and reduce the loss of salmon and steelhead essential to meeting Service fishereis goals.

The method:

Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. Inspections of adults are also required if egg transfers are made to other locations.

Further description:

Pathogen inspections of adults are also required by policy and regulation if egg transfers are made to other locations.

13295-A-002 - [Inspect, monitor and treat juvenile salmon and steelhead at Makah NFH](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>Prevent excess loss and increase survival of approximately 3,000,000 chinook, coho, and steelhead juvenile fish. All groups were inspected, monitored, and treated to prevent the spread of disease.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Pathogens can cause disease and losses of fish critical to Makah NFH goals if not detected and held in check. Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations.</p> <p>The problem:</p> <p>Pathogens and disease can cause significant losses in hatcheries.</p> <p>The objective:</p> <p>Prevent and reduce pathogens and disease losses at Makah NFH.</p> <p>The method:</p> <p>Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. Treatments and fish cultural modifications will be recommended to minimize losses.</p> <p>Further description:</p> <p>Inspections are also required to transfer fish to other locations. 605 juveniles were tested to determine presence and monitor pathogens in fish populations at Makah NFH. Treatments</p>	
Expended	\$30800		
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.		
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)		
Primary Benefited Population	Not specified		
Plans	Makah NFH Cooperative Agreement U.S. Fish and Wildlife Service National Aquatic Animal Health Policy		
Keyword	Fish Health		
Need Number	N-002		
Partners			
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of Fishery Management Plan production tasks implemented (PART)</td> <td>3</td> </tr> </table>			Number of Fishery Management Plan production tasks implemented (PART)
Number of Fishery Management Plan production tasks implemented (PART)	3		

	and recommended environmental modifications have reduced losses that would have occurred from these pathogens and diseases.
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13295-A-003 - [Disease testing of adult salmon and steelhead at Quinault NFH](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>To prevent the introduction and spread of diseases at Quinault NFH, 959 adult salmon and steelhead were sampled and tested for pathogens.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Pathogens cause disease and losses of fish if not detected and held in check.</p> <p>The problem:</p> <p>Pathogens and disease levels in adults can have an impact on resultant eggs and progeny. Anadromous adults are exposed to pathogens while they are in the wild.</p> <p>The objective:</p> <p>Detect critical pathogens in spawning adults and provide risk management information to managers to minimize impacts to hatchery programs.</p> <p>The method:</p> <p>831 adult fish were scientifically tested to determine the presence and magnitude of pathogens to determine the threat of disease. Risk assessments then determine facility and production measures needed to prevent catastrophic losses.</p> <p>Further description:</p> <p>Adult inspections are also required if eggs are to be transferred to other locations.</p>
Expended	\$31500	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	Not specified	
Plans	Quinault NFH Cooperative Agreement U.S. Fish and Wildlife Service National Aquatic Animal Health Policy	
Keyword	Fish Health	
Need Number	N-002	
Partners		

13295-A-004 - [Disease testing, monitoring, and treatment of juvenile salmon and steelhead at Quinault NFH](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>Prevent loss and increase survival of approximately 2,500,000 Chinook, coho, chum and steelhead juvenile fish by inspecting, monitoring, and treating to prevent the spread of disease.</p> <p>Description</p> <p>The <i>importance</i> to the Resource:</p> <p>Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Quinault NFH rears fish to meet those goals.</p> <p>The <i>problem</i>:</p> <p>Pathogens and disease can cause catastrophic losses to hatchery populations if not prevented or held in check. Pathogen exposure can come from adults or free roaming fish in the hatchery water supply.</p> <p>The <i>objective</i>:</p> <p>Prevent and reduce the prevalence and magnitude of pathogens and disease in juveniles at Quinault NFH.</p> <p>The <i>method</i>:</p> <p>Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. Treatments and recommended environmental modifications have reduced losses that would have occurred from these pathogens and diseases.</p> <p>Further description:</p>
Expended	\$32000	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	Not specified	
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Quinault NFH Cooperative Agreement	
Keyword	Fish Health	
Need Number	N-002	
Partners		

	<p>742 juveniles were tested to determine presence and levels of pathogens in fish populations at Quinault NFH. Inspections are also required for any transfers from this station to other locations.</p>
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13295-A-005 - [Fish Health Inspections of returning adult salmon at Quilcene NFH](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>Adult salmon are tested to determine diseases that may be present that will threaten the success of fish production at Quilcene NFH.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Quilcene NFH produces fish to meet Service goals. Inspections are critical to determine disease risk to the resource.</p> <p>The problem:</p> <p>Pathogens cause disease and losses of fish if not detected and held in check. Anadromous adults are exposed to pathogens in the wild.</p> <p>The objective:</p> <p>Prevent and reduce pathogen and disease risk to Quilcene NFH</p> <p>The method:</p> <p>Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. 245 adult salmon were tested to determine the presence and numbers of pathogens and threat of disease.</p> <p>Further description:</p> <p>Fish Health Inspections are necessary to monitor and control viruses, bacteria and parasites that may enter hatcheries through returns of salmon adults. Inspections of adults are necessary before transfers of eggs can be made to other locations.</p>
Expended	\$25000	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	Not specified	
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) U.S. Fish and Wildlife Service National Aquatic Animal Health Policy	
Keyword	Fish Health	
Need Number	N-002	
Partners		

13295-A-006 - [Disease testing, monitoring, and treatment of juvenile salmon at Quilcene NFH](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>Juvenile salmon are monitored, tested and treated to prevent losses of over 400,000 production fish in support of management and restoration plans for Hood Canal interjurisdictional fisheries.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Fish production at Quilcene NFH supports interjurisdictional fisheries in Canadian fisheries, Puget Sound and Hood Canal. Disease monitoring and control are essential to prevent significant losses to the resource.</p> <p>The problem:</p> <p>Diseases can reduce survival and cause losses to production of salmon. Exposure to pathogens can come from surface water or other vectors.</p> <p>The objective:</p> <p>Prevent and reduce the prevalence and magnitude of pathogens and disease at Quilcene NFH.</p> <p>The method:</p> <p>Scientifically based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. 173 juveniles were tested to determine levels of pathogens in fish populations at Quilcene NFH. Treatments and cultural modifications were recommended to reduce losses from disease.</p>
Expended	\$28300	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	Not specified	
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) U.S. Fish and Wildlife Service National Aquatic Animal Health Policy	
Keyword	Fish Health	
Need Number	N-002	
Partners		

	<p>Further description:</p> <p>Juvenile inspections are also necessary before transfers or releases may be done.</p>
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13295-A-010 - [Disease testing, monitoring and treatment of juvenile salmon and steelhead at Winthrop NFH](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>Juvenile salmon and steelhead are monitored, tested and treated to prevent losses of production of fish in support of management and restoration plans for the Columbia River Basin.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Fish production at Winthrop NFH supports recovery of listed Chinook and steelhead plus coho for mitigation and restoration of interjurisdictional fisheries in the Columbia River, Washington and Oregon.</p> <p>The problem:</p> <p>Diseases can reduce survival and cause losses to production of salmon.</p> <p>The objective:</p> <p>Prevent and reduce pathogen and disease in juveniles at Winthrop NFH.</p> <p>The method:</p> <p>Scientifically based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. 330 juveniles were tested for pathogens to determine disease status and proper treatments when necessary.</p> <p>Further description:</p> <p>Juvenile inspections are also necessary before release or transfer of fish.</p>
Expended	\$51000	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Methow River (UCMET) spring chinook salmon.	
Plans	<p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</p> <p>Winthrop Hatchery Genetics Management Plan (Steelhead)</p> <p>Winthrop National Fish Hatchery Genetics Management Plan</p>	
Keyword	Fish Health	
Need Number	N-002	
Partners	U.S. Bureau of Reclamation	

13295-A-015 - [Disease testing and monitoring of adult spring Chinook for the Yakama Indian Nation](#)

Facility	Olympia Fish Health Center	<p>Accomplishment Summary</p> <p>Adult salmon were tested to prevent disease and losses to fish at the Yakama Nation Research and Enhancement facility.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Yakama Indian Nation manages the Cle Elum Supplementation and Research Facility (CESRF) for fishery and restoration purposes in the Yakima river system. CESRF also provides research studies comparing hatchery techniques and studies hatchery and wild fish to scientifically determine the benefits and risk of hatchery supplementation.</p> <p>The problem:</p> <p>Water use patterns, passage barriers, and habitat degradation have contributed to declines in spring chinook in the Yakima River. The CESRF facility can potentially have the same problems as many other hatcheries in controlling the prevalence and impact of pathogens and disease on fish reared at the facility</p> <p>The objective:</p> <p>Monitor adults for prevalence and magnitude of critical fish pathogens. Identify high risk adults and eliminate those eggs which are the result of adults with a high pathogen profile and resulting high risk of contracting disease.</p> <p>The method:</p> <p>Test all females and representative males for critical fish pathogens that will affect juvenile survival. Identify high risk egg groups for</p>
Expended	\$30000	
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Upper Yakima River spring chinook salmon	
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy	
Keyword	Fish Health	
Need Number	N-002	
Partners	Yakama Indian Nation	

	<p>segregation and/or elimination from the production population.</p> <p>Further description:</p> <p>The Yakama Nation is actively trapping and enhancing wild spring Chinook salmon within the Yakima River. Adult testing is necessary to monitor and control viruses, bacteria and parasites that may enter facilities through returns of salmon adults. Pathogens cause disease and losses of fish if not detected and held in check. Restoration and supplementation of Pacific salmon in the Yakima and Columbia River are essential to meet Service goals and obligations. The Yakama Tribe requested assistance and the Service responded to meet Tribal Trust and resource responsibilities. Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. 310 adults were tested to determine numbers of pathogens and threat of disease.</p>
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13295-A-016 - [Disease testing, monitoring and treatments of juvenile spring Chinook salmon for the Yakama Nation](#)

Facility	Olympia Fish Health Center
Expended	\$42702
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Upper Yakima River spring chinook salmon
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	Yakama Indian Nation

Accomplishments

Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2
Number of training session to support Tribal fish & wildlife conservation.	2

Accomplishment Summary

Juvenile salmon were tested, monitored, and treated to prevent loss of production at the Yakama Nation Cle Elum Facility and 3 additional satellite release facilities.

Description

The importance to the Resource:

Disease can have an devastating impact on juvenile populatons before and after release from hatcheries. Losses in the hatchery and potential spread of disease in the wild can cause significant losses to fish resources.

The problem:

Hatchery rearing may amplify pathogens and disease. Disease may be caused by exposure to surface waters and the mere fact that fish are more crowded in hatcheries.

The objective:

Reduce the prevalence, magnitude and impact of pathogens and disease in fish reared at CESRF.

The method:

Monitor hatchery populations for prevalence and magnitude of critical pathogens. If necessary, recommend treatments to prevent and reduce pathogens and disease at the facility.

Further description:

Fish production at the Cle Elum Research Hatchery supports recovery of wild spring Chinook salmon for interjurisdictional fisheries

	<p>in the Columbia River, Washington and Oregon. Diseases can reduce survival and cause losses to production of salmon. Scientifically based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. Over 700 representative juveniles were tested to determine pathogens and severity of disease. This information is used for determining the need for treatments and to contribute to efforts by the Tribe to determine the effect of disease status on out migration and adult returns.</p>
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13250-A-011 - [Steelhead Production and Distribution](#)

Facility	Quinault National Fish Hatchery
Expended	\$238354
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)
Primary Benefited Population	Not specified
Plans	Quinault NFH Cooperative Agreement
Keyword	Tribal
Need Number	N-002
Partners	Quinault Indian Nation

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1
Number of consultations conducted to support Tribal fish & wildlife conservation.	1

Accomplishment Summary

Brood Year 2004: 248,687 winter Steelhead trout were released into Cook Creek on the Quinault Indian Reservation.

Description

The importance to the Resource:

Cook Creek winter Steelhead trout returning to the Quinault River and its tributaries provide important commercial and subsistence fisheries to tribal members on the Quinault Tribal Reservation and offer quality tribal-guided sport fishing opportunities available to the general public

The problem:

As part of Quinault NFH's Tribal Trust responsibilities, yearly releases of young steelhead trout within the Quinault Reservation help to rebuild and maintain harvestable levels of fish needed for commercial and subsistant fisheries.

The objective:

Rear and release at least 190,000 Steelhead smolts into Cook Creek, a tributary of the Quinault River.

The method:

Eggs from returning adults will be collected and fish from these eggs will be reared on station for 15-16 months and then released into Cook Creek.

13250-A-019 - [Fall Chinook Salmon Production](#)

Facility	Quinault National Fish Hatchery	<p>Accomplishment Summary</p> <p>Brood Year 2005; Quinault National Fish Hatchery reared and released 251,870 Fall Chinook salmon into Cook Creek on the Quinault Indian Reservation.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Cook Creek Fall Chinook salmon contribute to restoration of returning salmon to the Quinault River and its tributaries, providing important commercial, sport and subsistence fisheries to tribal members of the Quinault Indian Nation.</p> <p>The problem:</p> <p>Quinault NFH's Chinook salmon program was initiated in response to the low returns of adult salmon to the region beginning in the early 70's, due primarily to overfishing, habitat degradation and poor ocean survival conditions.</p> <p>The objective:</p> <p>As part of Quinault NFH's Tribal Trust responsibilities, yearly releases of young fall chinook salmon within the Quinault Reservation help to rebuild to harvestable levels, maintain or supplement runs of this unique species in order to maintain adequate harvest levels.</p> <p>The method:</p> <p>During FY06, 251,870 BY05 fry were released in Cook Creek, a tributary of the Quinault River of the Quinault Indian Reservation.</p>							
Expended	\$54651								
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.								
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)								
Primary Benefited Population	Not specified								
Plans	Quinault NFH Cooperative Agreement								
Keyword	Tribal								
Need Number	N-002								
Partners									
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of Fishery Management Plan production tasks implemented (PART)</td> <td>1</td> </tr> <tr> <td>number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)</td> <td>1</td> </tr> <tr> <td>Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation</td> <td>1</td> </tr> <tr> <td>Number of consultations conducted to support Tribal fish & wildlife conservation.</td> <td>1</td> </tr> </table>			Number of Fishery Management Plan production tasks implemented (PART)	1	number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	1	Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1	Number of consultations conducted to support Tribal fish & wildlife conservation.
Number of Fishery Management Plan production tasks implemented (PART)	1								
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	1								
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1								
Number of consultations conducted to support Tribal fish & wildlife conservation.	1								

13250-A-021 - [Hoh River Steelhead Distribution Program](#)

Facility	Quinault National Fish Hatchery
Expended	\$5555
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Rainbow trout (Oncorhynchus mykiss)
Primary Benefited Population	Not specified
Plans	Quinault NFH Cooperative Agreement
Keyword	Tribal
Need Number	N-002
Partners	Hoh Indian Nation Quinault Indian Nation

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	2
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1
Number of consultations conducted to support Tribal fish & wildlife conservation.	1

Accomplishment Summary

Distributed 50,381 Steelhead yearlings to Chalaat Creek (a tributary of the Hoh River) on February 15, 2006. Distributed 59,926 Steelhead yearling smolts at Allen's bar on the Hoh River.

Description

The importance to the Resource:

Distribution of Steelhead Yearling smolts contribute to the commercial, subsistance and sport fishing activities of the Hoh Indian Nation.

The problem:

The Hoh Nation does not have the infrastructure to supplement steelhead runs in the Hoh River for commercial, subsistance and sprout fishing activities.

The objective:

The program is in place to produce adult Steelehead trout in the Hoh River.

The method:

Rear and distribute 100,000 Steelhead yearling smolts into the Hoh River drainage.

13320-A-003 - [Chehalis Fisheries Restoration Program - Planning, Administration, Coordination and Assistance](#)

Facility	Western Washington Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Staff administered the program, reviewed, planned, and assisted partners with design and implementation of projects. Eight cooperative agreements were written to assist partners with assessment, restoration, and outreach activities. Responded to 41 technical assistance requests by reviewing projects including designs and answering questions regarding fisheries habitat restoration. Specific accomplishments for the program are reported separately under each completed project.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Chehalis Basin is the second largest in Washington. It has unlisted stocks of Chinook, coho, and chum salmon and cutthroat and steelhead trout. The lower Chehalis Basin is designated foraging, migration, and overwintering habitat for bull trout. These resources are important for sport and commercial, tribal and interjurisdictional fisheries.</p> <p>The problem:</p> <p>Numerous habitat degradations have caused a decline in Chehalis Basin salmonid populations. This has diminished the fisheries opportunities and economic benefits for all users and the rural communities that depend on them.</p> <p>Degradations include: passage barriers, lack of riparian forests, livestock stream access, and wood removal from streams.</p> <p>The objective:</p>
Expended	\$64605	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	SW Washington Coast ESU	
Plans	Chehalis River Basin Fishery Resources Study and Restoration Act of 1990 (P.L. 101-452) Chehalis Basin Watershed Management Plan	
Keyword	Restoration	
Need Number	N-002	
Partners	Chehalis Basin Education Consortium Chehalis River Council Confederated Tribes of the Chehalis Reservation Conservation District, Lewis County Conservation District, Mason Educational Service District 113 Quinault Indian Nation Salmon Recovery Funding Board Thurston County	

	Noxious Weed Board	Restore the salmon fishery in the Chehalis Basin by working with partners to implement habitat restoration projects.
Accomplishments		The <i>method</i>:
Number of other Fishery Management Plan tasks implemented for populations of management concern.	7	Staff administered the program, planned projects, and assisted partners with projects. Served on technical advisory groups for Army Corps of Engineers' Ecosystem Restoration Project, Salmon Recovery Funding Board, and Watershed Management planning.

13320-A-007 - [Pacific Salmon Treaty Data Reporting](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$246198
Objective	Co-manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Treaty of 1999
Keyword	Service Lands
Need Number	N-002
Partners	

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	3
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Accomplishment Summary

We provided data to the coastwide database for 43 million salmon that were reared and released from Region 1 National Fish Hatcheries. We also provided data to the coastwide database representing 22,000 tag recoveries of adult salmon returning to Region 1 National Fish Hatcheries in FY 2006.

Description

The importance to the Resource:

Hatchery production and coded-wire-tag recovery data are essential to meet the goals of the Pacific Salmon Treaty, which are to: 1) conserve the salmon resource, and 2) equitably allocate salmon harvest between the United States and Canada.

The problem:

Timely and accurate data on hatchery production and tag recoveries are needed to manage the salmon fisheries under the purview of the Pacific Salmon Treaty. The FWS is a major contributor of data used in this process.

The objective:

To monitor progress of salmon restoration and harvest sharing under the Pacific Salmon Treaty, management agencies share data on hatchery fish production and recovery of tags from adult salmon recovered at the hatchery racks and in the fisheries.

The method:

We report Fish and Wildlife Service data for all USFWS hatcheries releasing and recovering anadromous fish in Region 1.

13320-A-008 - [Olympic Peninsula National Fish Hatchery Evaluation](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$188021
Objective	Co-manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	<p>Quinault NFH Cooperative Agreement Makah NFH Cooperative Agreement Hood Canal Salmon Management Plan (Quilcene NFH) FY 2003 Omnibus Bill and H.R. 2361--Department of the Interior, Environment, and Related Agencies Appropriations Act, 2006 (Reported in House)</p>
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	<p>Makah Indian Nation Point No Point Treaty Tribes Quinault Indian Nation</p>

Accomplishments

number of marking and tagging targets met, as prescribed by Fishery management plans.	8
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Accomplishment Summary

At the Quilcene, Quinault, and Makah National Fish Hatcheries on the Olympic Peninsula, we evaluated survival and fishery contribution. We continued fish marking and tagging, and collected biological data on fish production and adult returns. Approximately 4.5 million juvenile fish were tagged or marked in FY 2006. Most returning adults to these stations were sampled for tags and marks. Over 1,200 adults were aged to relate adult returns to the original broodyear releases.

Description

The importance to the Resource:

Fish produced at Quilcene, Quinault, and Makah National Fish Hatcheries provide important contributions to Chinook, coho, chum, and steelhead fisheries on the west coasts of the United States and Canada.

The problem:

Tagging and marking of juvenile fish, and sampling of adult salmon returns at the Olympic Peninsula National Fish Hatcheries are needed to effectively assess whether the Service is meeting its obligations to support fisheries and conserve the resource.

The objective:

Fish produced at Quilcene, Quinault and Makah NFHs on the Olympic Peninsula are needed to meet Pacific Salmon Treaty and local fishery obligations.

The method:

Coded-wire tagging and fin clipping of juvenile fish are the primary methods used to evaluate

(PART)		fish production. At adult return, tags, marks, and other biological data are collected that yield information on salmon survival and contribution to fisheries.
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2	

13320-A-015 - [Contaminants in Fish Feeds Used at National Fish Hatcheries](#)

Facility	Western Washington Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Quarterly fish feed samples were collected from 11 coldwater National Fish Hatcheries nationwide for analysis by a USGS contract lab to determine contaminant levels between October 2001 and October 2003. A final report titled "A Survey of Chemical Constituents in National Fish Hatchery Fish Feed" was issued in January 2006.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Exposure to metals and organochlorines can adversely affect the health and viability of declining, threatened, and endangered species raised at National Fish Hatcheries.</p> <p>The problem:</p> <p>Contaminated fish feed may pose risks to both ecological and human health. Fish feed from various suppliers is used at federal hatcheries in Region 1 and other Regions. In Region 2, Canada, and Europe, some of these same brands of fish feed have been found to have elevated levels of heavy metals and other organic contaminants.</p> <p>The objective:</p> <p>Determine if contaminants are also present at levels of concern in fish feeds used in Region 1.</p> <p>The method:</p> <p>Staff at Abernathy Fish Technology Center and Western Washington Fish and Wildlife Office, in cooperation with the USGS Cook Lab, sampled commercial and contract fish feeds for contaminants and are determining the potential</p>	
Expended	\$6500		
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.		
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)		
Primary Benefited Population	Not specified		
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy		
Keyword	Fish Technology		
Need Number	N-002		
Partners	Abernathy Fish Technology Center U.S. Geological Survey Western Washington Fish and Wildlife Office		
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)</td> <td>1</td> </tr> </table>			Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1		

	effects on fish reared at National Fish Hatcheries, as well as ramifications to human consumers of hatchery fish.
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13320-A-028 - [Sublethal Effects of Carbaryl on Coastal Cutthroat Trout in Washington](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$10000
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Coastal cutthroat trout (Oncorhynchus clarkii clarkii)
Primary Benefited Population	Washington Coast
Plans	Coastal Cutthroat Trout Framing Document (draft) Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule To List the Southwestern Washington/Columbia River Distinct Population Segment of the Coastal Cutthroat Trout as Threatened50 CFR Part 17
Keyword	Interjurisdictional
Need Number	N-002
Partners	National Oceanic and Atmospheric Administration, Fisheries Western Washington Fish and Wildlife Office

Accomplishments

Number of population assessments completed	1
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Accomplishment Summary

Physiological and behavioral data were generated which will be used to evaluate the effects that organophosphate and carbamate insecticides have on salmonids, including cutthroat trout, and their biological fitness in the presence of these pesticides. A draft final report titled "Neurobehavioral Effects of the Insecticide Carbaryl on Seawater-Phase Coastal Cutthroat Trout" has been prepared and will be submitted for peer review journal publication

Description

The importance to the Resource:

Carbaryl is sprayed on the mudflats of estuaries in southwestern Washington State to control a native species of burrowing shrimp which disrupts the culture of the commercially important oyster. These estuaries provide habitat for anadromous cutthroat trout and other salmonids.

The problem:

Carbaryl is toxic to the vertebrate nervous system and there is concern that short-term sublethal exposure to the pesticide may disrupt the normal function of the salmonid nervous system and interfere with behaviors that are essential for estuarine survival.

The objective:

The purpose of this study was to assess the behavioral and physiological impacts of a pesticide on coastal cutthroat trout and determine the environmental impacts of this pesticide on the survival and biological fitness of cutthroat and Chinook smolts.

	<p>The <i>method</i>:</p> <p>The Western Washington Fish and Wildlife Office, in collaboration with NOAA-Fisheries, investigated the sublethal effects of carbaryl on cutthroat trout. We conducted exposure assessment and behavioral assays, made neurophysiological recordings, and performed a predator-avoidance study.</p> <p>Further description:</p>
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13320-A-031 - [Impacts of Non-Point Source Pollution on the Health of Salmonids in Urban and Urbanizing Watersheds](#)

Facility	Western Washington Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Conducted surveys and analyses to better understand the causes and consequences of adult salmonid die-offs in two urban streams (Longfellow and Hylebos Creeks) that have been the focus of millions of restoration dollars. Continued work on the embryo toxicity study, as well as made progress on the population modeling and GIS land-use projects.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The primary benefit of this project will be a scientific understanding of the relative importance of water pollution on freshwater habitat quality and salmonid productivity. This understanding is urgently needed to ensure that ongoing and future restoration efforts in lowland watersheds are not critically undermined by degraded water quality.</p> <p>The problem:</p> <p>The reasons for pre-spawning mortality of coho salmon in urbanized streams are incompletely understood.</p> <p>The objective:</p> <p>Understand the relative importance of water pollution in terms of freshwater habitat quality and salmonid productivity.</p> <p>The method:</p> <p>The study involves biological sampling of salmonids, surveys for pre-spawn mortality, analyses of impacts on non-point stormwater runoff, analyses of fish health, analyses of water quality, GIS mapping of land-use</p>			
Expended	\$76000				
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.				
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)				
Primary Benefited Population	Puget Sound/Strait of Georgia ESU				
Plans	Shared Strategy for Puget Sound and Recovery Plan, Draft				
Keyword	Interjurisdictional				
Need Number	N-002				
Partners	County of King (\$10000) National Oceanic and Atmospheric Administration, Fisheries (\$53000) Seattle Public Utilities (\$9000) U.S. Geological Survey Washington Trout				
<p>Accomplishments</p> <table border="1"> <tr> <td>Number of population assessments completed</td> <td>2</td> </tr> <tr> <td>Number of other Recovery Plan tasks implemented for T&E populations</td> <td>1</td> </tr> </table>			Number of population assessments completed	2	Number of other Recovery Plan tasks implemented for T&E populations
Number of population assessments completed	2				
Number of other Recovery Plan tasks implemented for T&E populations	1				

characteristics, and evaluation of embryo larval viability in a typical urbanized Puget Sound stream.

Further description:

Following the initial year of study in Longfellow Creek and Des Moines Creeks, additional urbanized streams in the Puget Trough will be evaluated in years 2 and 3.

13320-A-034 - [Chehalis Fisheries Restoration Program - Railcar Creek Fish Passage](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$40000
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)
Primary Benefited Population	SW Washington Coast ESU
Plans	Chehalis River Basin Fishery Resources Study and Restoration Act of 1990 (P.L. 101-452) Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan
Keyword	Fish Passage
Need Number	N-002
Partners	Conservation District, Mason Green Diamond Resource Company (\$58512) Mary M. Knight School

Accomplishments

Upland acres restored	4.0
Number of instream miles enhanced	0.2
Number of acres re-opened to fish passage	71
Number of miles re-opened to fish passage	1.6

Accomplishment Summary

Replace an undersized fish-blocking culvert with a fish-passable culvert, remove a fish-blocking culvert and associated railroad crossing fill and abandon one mile of railroad grade. The project is on an unnamed tributary to the East Fork Satsop River on private timber land. The project will re-open 1.6 stream miles and 71 wetland acres of spawning and rearing habitat to coho salmon and steelhead and cutthroat trout.

Description

The importance to the Resource:

Bingham Creek and tributaries are major salmon spawning streams within the Chehalis Basin. The surrounding geology provides ample gravels for highly productive spawning beds.

The problem:

Two culverts, one under a road and another under a railroad crossing, currently block fish access to upstream habitat.

The objective:

Remove the fish blockages and provide full fish access to 1.6 stream miles and 71 wetland acres of upstream habitat. The overall objective is increased salmonid usage and production from this tributary.

The method:

The road culvert will be removed and replaced with an adequately sized fish passable culvert that meets Washington Department of Fish and Wildlife criteria. The railroad culvert and associated fill will be removed and the stream

Fish passage barriers removed or bypassed	2	will be restored to its natural setting. One mile of adjacent railroad grade will also be abandoned.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	3	

13320-A-035 - [Chehalis Fisheries Restoration Program -Schafer Grade Fish Passage](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$18246
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)
Primary Benefited Population	SW Washington Coast ESU
Plans	Chehalis River Basin Fishery Resources Study and Restoration Act of 1990 (P.L. 101-452) Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan
Keyword	Fish Passage
Need Number	N-002
Partners	Conservation District, Mason Green Diamond Resource Company (\$54738) Mary M. Knight School

Accomplishments

Number of instream miles enhanced	0.1
Number of acres re-opened to fish passage	8
Number of miles re-opened to fish passage	1.4
Fish passage barriers removed or	2

Accomplishment Summary

Replace two undersized fish-blocking culverts with fish-passable bridges. The project is on Schafer Creek, which is a tributary to the West Fork Satsop River on private timber land. The project will re-open 1.4 stream miles and 8 wetland acres of spawning and rearing habitat to coho salmon and cutthroat trout.

Description

The importance to the Resource:

The West Fork Satsop River is a high energy, steep system. Tributaries to the West Fork provide vital spawning and rearing habitat for several salmonid species.

The problem:

Two culverts currently block fish access to upstream habitat.

The objective:

Remove the fish blockages and provide full fish access to 1.4 stream miles and 8 wetland acres of upstream habitat. The overall objective is increased salmonid usage and production from this tributary.

The method:

The two culverts will be removed and replaced with two adequately sized bridges.

bypassed		
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2	

13320-A-037 - [Chehalis Fisheries Restoration Program - Confederated Tribes of the Chehalis Riparian Restoration](#)

Facility	Western Washington Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Remove invasive blackberry and scotch broom and plant 5,600 native trees over 10 acres or 3.4 miles within the riparian zones of the Chehalis and Black Rivers and Willamette Creek. The species that will benefit from increased shading and future wood are coho, spring Chinook, fall Chinook and chum salmon; steelhead, and coastal cutthroat trout.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Chehalis Basin is the second largest in Washington. It has unlisted stocks of Chinook, coho and chum salmon and cutthroat and steelhead trout. The lower Chehalis Basin is designated foraging, migration, and overwintering habitat for bull trout. These resources are important for sport and commercial, tribal, and interjurisdictional fisheries.</p> <p>The problem:</p> <p>Numerous habitat degradations have caused a decline in Chehalis Basin salmonid populations. This has diminished the fisheries opportunities and economic benefits for all users and the rural communities that depend on them.</p> <p>The objective:</p> <p>Re-establish a native riparian plant community along 3.4 miles of the Chehalis and Black Rivers and Willamette Creek.</p> <p>The method:</p> <p>Invasive blackberry and scotch broom will be</p>
Expended	\$33493	
Objective	Recognize and promote the Service's distinct obligations toward Tribes within the Fisheries Program.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Washington Coast ESU	
Plans	<p>Chehalis River Basin Fishery Resources Study and Restoration Act of 1990 (P.L. 101-452)</p> <p>Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan</p> <p>Chehalis Basin Watershed Management Plan</p> <p>Chehalis Fisheries Restoration Program - Confederated Tribes of the Chehalis Riparian Restoration - FY2006</p>	
Keyword	Tribal	
Need Number	N-002	
Partners	Confederated Tribes of the Chehalis Reservation	
Accomplishments		

Number of riparian miles restored	3.4	removed and 5,600 native trees and shrubs will be planted.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	4	
Number of activities conducted to support the management and control of aquatic invasive species	1	

13320-A-038 - [Chehalis Fisheries Restoration Program - Chehalis Basin Education Consortium](#)

Facility	Western Washington Fisheries Resource Office	<p>Accomplishment Summary</p> <p>Five counties, 14 school districts, and over 800 schoolchildren participate in this partnership which fosters stewardship of the Chehalis Basin through environmental education by linking Washington's learning standards to community and environmental issues that are part of the watershed. Schoolchildren, teachers, and community volunteers will install 12,500 feet of riparian fencing to exclude livestock and plant riparian trees and shrubs along 3 miles of stream.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>The Chehalis Basin is the second largest in Washington. It has unlisted stocks of Chinook, coho and chum salmon and cutthroat and steelhead trout. These resources are important for sport and commercial, tribal, and interjurisdictional fisheries. The lower Chehalis Basin is designated foraging, migration, and overwintering habitat for bull trout.</p> <p>The problem:</p> <p>Numerous habitat degradations have caused a decline in Chehalis Basin salmonid populations. Past agricultural practices have degraded riparian vegetation within the riparian zone of the project area. This has diminished the fisheries opportunities and economic benefits for all users and the rural communities that depend on them.</p> <p>The objective:</p> <p>Increase environmental awareness to schoolchildren within the Chehalis Basin. Re-establish a native riparian plant community along 3 miles of the Chehalis River streams to</p>
Expended	\$37561	
Objective	Provide support to States, Tribes, and other partners to identify and meet shared or complementary recreational fishing and aquatic education and outreach objectives.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	SW Washington Coast ESU	
Plans	<p>Chehalis River Basin Fishery Resources Study and Restoration Act of 1990 (P.L. 101-452)</p> <p>Chehalis Basin Salmon Habitat Restoration and Preservation Work Plan</p> <p>Chehalis Basin Watershed Management Plan</p>	
Keyword	Outreach	
Need Number	N-002	
Partners	<p>Chehalis Basin Education Consortium</p> <p>Chehalis Basin Fisheries Task Force</p> <p>Chehalis River Basin Land Trust</p> <p>Chehalis River Council Educational Service District 113 (\$10000)</p> <p>Grays Harbor College</p> <p>Washington Department</p>	

of Ecology
Washington Department
of Fish and Wildlife
Weyerhaeuser
Company

reduce stream temperatures and provide large wood in the future.

The method:

Provide environmental education training to 30 teachers in school districts throughout the Chehalis Basin. These teachers will integrate environmental education as part of the curriculum for 800 schoolchildren. Install livestock exclusion fencing along 12,500 feet of stream and plant native vegetation along 3 miles of riparian habitat.

Accomplishments

Number of riparian miles restored	3.0
Number of other Fishery Management Plan tasks implemented for populations of management concern.	5
Number of aquatic outreach and education activities.	4

13320-A-041 - [National Fish Passage Program - Wival Road Culvert](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$32200
Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)
Primary Benefited Population	Puget Sound/Strait of Georgia ESU
Plans	Shared Strategy for Puget Sound and Recovery Plan, Draft
Keyword	Fish Passage
Need Number	N-002
Partners	County of Mason (\$98000)

Accomplishments

Number of instream miles enhanced	0.1
Number of miles re-opened to fish passage	0.9
Fish passage barriers removed or bypassed	1
Number of other Recovery Plan tasks implemented for T&E populations	1

Accomplishment Summary

One fish-blocking culvert will be replaced with a 10-foot-diameter culvert reopening 0.9 mile of stream to coho salmon and steelhead and cutthroat trout. Streambed gravel and cobbles will be placed in the culvert to meet fish passage needs.

Description

The importance to the Resource:

The project is located on a spawning and rearing tributary to Gosnell Creek, which flows into southern Puget Sound. Proposed steelhead and species-of-concern cutthroat trout and coho salmon now have unimpeded access to this stream.

The problem:

An undersized fish blocking culvert was blocking upstream access to salmonid migration.

The objective:

Provide full access to migrating salmon. The overall objective is increased salmonid usage and production from this tributary.

The method:

One fish-blocking culvert will be replaced with a 10-foot-diameter culvert that meets Washington Department of Fish and Wildlife criteria. Streambed gravel and cobbles will be placed in the culvert to meet fish passage needs.

13320-A-042 - [National Fish Passage Program - Glover Creek Culvert](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$32200
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Bull trout (Salvelinus confluentus)
Primary Benefited Population	Coastal-Puget Sound DPS - Puget Sound Recovery Unit /Snohomish-Skykomish Core Area
Plans	Shared Strategy for Puget Sound and Recovery Plan, Draft Draft Recovery Plan for the Coastal-Puget Sound Distinct Population Segment of Bull Trout, Volume I, Puget Sound Management Unit.
Keyword	Fish Passage
Need Number	N-002
Partners	Conservation District, Snohomish (\$25200)

Accomplishments

Number of instream miles enhanced	0.2
Number of riparian miles restored	0.8
Number of acres re-opened to fish passage	21
Number of miles re-opened to fish passage	1.2

Accomplishment Summary

Two undersized fish-blocking culverts will be removed and fish-passable culverts will be installed reopening 1.2 miles and 21 acres of stream and wetland habitat to coho salmon, bull and cutthroat trout. Large woody debris will be placed instream and a 35-foot riparian buffer will be planted along 0.8 miles of creek.

Description

The importance to the Resource:

Glover Creek is a tributary to the Pilchuck River and the Snohomish River. Glover Creek provides spawning and rearing habitat to coho salmon and cutthroat trout and foraging habitat for bull trout.

The problem:

Two undersized culverts blocked fish access to 1.2 miles of stream and 21 acres of wetland habitat. Past agricultural practices degraded the riparian zone and stream channel.

The objective:

Provide full fish access to the upstream habitat and restore the riparian zone and stream channel in the project area. The overall objective is increased salmonid usage and production from this tributary.

The method:

Two undersized fish blocking culverts were removed and a fish passable culvert and a concrete slab bridge were installed at the two locations. Both structures were designed according to Washington Department of Fish and Wildlife fish passage criteria. Wood was placed in the stream channel and trees and

Fish passage barriers removed or bypassed	2	shrubs were planted in the riparian zone.
Number of other Recovery Plan tasks implemented for T&E populations	2	

13320-A-043 - [National Fish Passage Program - Willapa Stream Fish Passage](#)

Facility	Western Washington Fisheries Resource Office
Expended	\$40250
Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)
Primary Benefited Population	SW Washington Coast ESU
Plans	U.S. Fish and Wildlife Service Refuge Manual
Keyword	Fish Passage
Need Number	N-002
Partners	Campbell Group FishAmerica Friends of the Willapa National Wildlife Refuge The Nature Conservancy Weyerhaeuser Company Willapa Bay Regional Fisheries Enhancement Group (\$95000)

Accomplishments

Number of instream miles restored	0.8
Number of miles re-opened to fish passage	3.7
Fish passage barriers removed or bypassed	1
Number of other Fishery Management Plan	1

Accomplishment Summary

Replace an undersized fish-blocking culvert with a fish-passable bridge. The culvert is on a tributary to Willapa Bay, immediately upstream of the Willapa National Wildlife Refuge boundary. The stream channel will be re-routed to the historical channel. The project will re-open 3.7 miles of stream for fish use and restore 0.75 mile of instream habitat, benefiting coho and chum salmon and coastal cutthroat trout.

Description

The importance to the Resource:

The project is on a direct tributary to Willapa Bay. The tributary provides spawning and rearing habitat to coho and chum salmon and cutthroat trout.

The problem:

An undersized culvert blocked fish access to 3.7 miles of stream habitat. The stream channel had been channelized and diverted to a crossing downstream of its historic channel.

The objective:

Provide full fish access to the upstream habitat and reroute the stream to its historic, natural channel. The overall objective is increased salmonid usage and production from this tributary.

The method:

An undersized fish blocking culvert was removed and a fish-passable bridge was installed. The bridge was designed according to Washington Department of Fish and Wildlife fish passage criteria. The stream was rerouted

tasks implemented for populations of
management concern.

to its historic natural channel.

13232-A-001 - [Rear and mark native coho salmon to support tribal restoration efforts.](#)

Facility	Willard National Fish Hatchery	<p>Accomplishment Summary</p> <p>Reared and marked native coho salmon for release into natural habitat of the Wenatchee River watershed to help restore this stock to historic levels and evaluate the success of this restoration effort</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Transfer and release of fish at Wenatchee River Basin acclimation sites assists with tribal restoration efforts and supports reaffirmation of tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have resulted in the extirpation of coho salmon returning to the Wenatchee River Basin, WA.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for transfer and release at acclimation sites located within the Wenatchee River Basin to assist with tribal restoration and reintroduction efforts.</p> <p>The method:</p> <p>Receive eyed eggs, taken from a locally adapted stock of coho returning to the Wenatchee River, to produce 650,000 coho at Willard NFH for transfer and acclimation at sites identified by the Yakama Indian Nation.</p> <p>Further description:</p>
Expended	\$181577	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Coho salmon or silver salmon (Oncorhynchus kisutch)	
Primary Benefited Population	Wenatchee River Coho	
Plans	<p>U. S. vs OR Columbia River Fishery Management Plan (under renegotiation)</p> <p>2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon</p> <p>Comprehensive Hatchery Management Plan-Little White NFH Complex</p> <p>Little White NFH Coho Salmon Hatchery and Genetic Management Plan</p> <p>Wenatchee Subbasin Plan</p>	
Keyword	Restoration	
Need Number	N-002	
Partners	<p>Bonneville Power Administration</p> <p>National Oceanic and Atmospheric Administration, Mitchell Act</p> <p>Yakama Indian Nation</p>	

Accomplishments

Recovery Plan production tasks implemented (PART)	1
Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3
Number of other Fishery Management Plan tasks implemented for populations of management concern.	3
Number of visitors to service facilities.	500
Number of aquatic outreach and education activities.	3
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

A total of 590,000 coho salmon, derived from a native, locally adapted stock returning to and spawned on the Wenatchee River, WA, were reared at the Little White Salmon/Willard National Fish Hatchery Complex and transferred to the Wenatchee River watershed for release by biologists from the Yakama Indian Nation. Through a MOU, 60% of this project is supported by the Yakama Nation using Bonneville Power Administration funds (subactivity 1937-1060 and 1937-1102) and the remaining 40% is provided by NOAA-Fisheries Mitchell Act funding (subactivity 1932-0005). This is a cooperative effort by the U.S. Fish & Wildlife Service and the Yakama Indian Nation to assist with the reintroduction of coho salmon and development of locally adapted, naturally spawning populations of fish in the Wenatchee River watershed.

13232-A-003 - [Rear spring chinook for future transfer to Leavenworth National Fish Hatchery.](#)

Facility	Willard National Fish Hatchery
Expended	\$0
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)
Primary Benefited Population	Not specified
Plans	U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) Comprehensive Hatchery Management Plan- Little White NFH Complex Leavenworth Hatchery Genetics Management Plan
Keyword	Mitigation
Need Number	N-002
Partners	U.S. Bureau of Reclamation (\$1077)

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met,	2

Accomplishment Summary

Rear Leavenworth stock spring chinook for transfer back to Leavenworth NFH to continue spring chinook production and releases into Icicle Creek during major intake and pipeline construction work at the Leavenworth facility.

Description

The importance to the Resource:

To assure adequate numbers of adult spring Chinook return to Leavenworth NFH in the future and to provide future harvest opportunities for the Yakama Nation.

The problem:

Major intake and pipeline construction temporarily restricted the amount of rearing space available at Leavenworth NFH.

The objective:

To maintain Leavenworth NFH smolt releases at U.S. v Oregon-identified levels.

The method:

Temporarily use available rearing space at Willard NFH to rear 250,000 Leavenworth spring Chinook full-term for transfer and release back to Leavenworth NFH.

Further description:

This project involved the transfer of 250,000 Leavenworth stock juvenile spring chinook to Willard National Fish Hatchery to accomplish the full-term rearing of these fish to the yearling smolt stage. Major intake and pipeline construction work reduced the amount of rearing space at Leavenworth NFH. While pre-

as prescribed by Fishery management plans. (PART)		<p>smolt releases into Icicle Creek were considered to circumvent the lack of available rearing space during construction, the Yakama Nation requested the full-term rearing of these fish at an off-site facility for eventual transfer back to Leavenworth NFH and subsequent release into Icicle Creek. Leavenworth juvenile spring chinook were received at Willard NFH during March 2005, received an adipose fin clip and coded wire tag during June 2005, and were transferred back to Leavenworth NFH during late fall 2005. This is a cooperative effort by the U.S. Fish & Wildlife Service and the Yakama Indian Nation to ultimately assure future broodstock collection and a continued tribal fishery on Icicle Creek. Funding is provided by the Bureau of Reclamation through Leavenworth NFH (subactivity 1932-01BR).</p>
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1	

13232-A-004 - [Rear and release spring Chinook on Tribal lands to support a cooperative restoration effort.](#)

Facility	Willard National Fish Hatchery	<p>Accomplishment Summary</p> <p>Initiated the rearing of native, locally adapted spring Chinook salmon for future release into the Umatilla River, OR in cooperation with the State and Tribe to develop self-sustaining, naturally spawning stocks.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Transfer and release of fish at upriver (Columbia River) acclimation sites assists with mitigation efforts and supports reaffirmation of tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have reduced the survival and production of spring chinook salmon returning to the Umatilla River, Oregon.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for transfer and release at acclimation sites located on the Umatilla River.</p> <p>The method:</p> <p>Receive eyed eggs, taken from a locally adapted stock of fish returning to the Umatilla River, to produce 210,000 spring chinook at the Little White Salmon NFH for transfer and acclimation at sites operated by the Confederated Tribes of the Umatilla Indian Reservation.</p>
Expended	\$73581	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Umatilla River Spring Chinook	
Plans	<p>2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon</p> <p>U. S. vs OR Columbia River Fishery Management Plan (under renegotiation)</p> <p>Comprehensive Hatchery Management Plan- Little White NFH Complex</p> <p>Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan</p>	
Keyword	Restoration	
Need Number	N-002	
Partners	<p>Bonneville Power Administration</p> <p>Confederated Tribes of the Umatilla Indian Reservation</p> <p>Oregon Department of Fish and Wildlife</p>	

Accomplishments

Recovery Plan production tasks implemented (PART)	1
Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

Further description:

A total of 220,000 spring chinook salmon, derived from a native, locally adapted stock returning to and spawned on the Umatilla River, OR, are currently being reared at Willard National Fish Hatchery for future transfer to acclimation ponds operated by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). This project is funded by the Bonneville Power Administration (subactivity 1937-1045 and 1101) and is a cooperative effort between the CTUIR, the Oregon Department of Fish and Wildlife (ODFW), and the Service. The ODFW is responsible for the monitoring and evaluation program necessary to determine the success of this restoration effort. Fish returning to the Umatilla River are collected at Three mile Dam. A small percentage of fish are collected and spawned. The remaining fish are then trucked and released upstream and allowed to spawn naturally to continue development of locally adapted, self sustaining and naturally spawning populations.

13232-A-005 - [Rear and release spring Chinook on Tribal lands to restore locally adapted stocks.](#)

Facility	Willard National Fish Hatchery	<p>Accomplishment Summary</p> <p>Initiated the rearing of spring Chinook salmon for future transfer and release into the Walla Walla River in cooperation with the Tribe to develop self-sustaining, naturally spawning stocks in this watershed.</p> <p>Description</p> <p>The importance to the Resource:</p> <p>Transfer and release of fish at upriver (Columbia River) acclimation sites assists with mitigation efforts and supports reaffirmation of tribal Treaty-granted fishing rights in usual and accustomed places.</p> <p>The problem:</p> <p>Habitat degradation and construction and operation of large hydrosystem dams on the Columbia River have reduced the survival and production of spring chinook salmon returning to the Walla Walla River, Oregon.</p> <p>The objective:</p> <p>Produce healthy, high quality smolts for transfer and release into the Walla Walla River.</p> <p>The method:</p> <p>Receive an adequate number of eggs from Little White Salmon NFH for rearing at Willard NFH to achieve a production goal of 250,000 pre-smolt spring Chinook for transfer and release into the Walla Walla River, OR</p> <p>Further description:</p> <p>A total of 250,000 spring Chinook salmon are being reared at Willard NFH for future release</p>
Expended	\$20000	
Objective	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
Primary Benefited Species	Chinook salmon or king salmon (Oncorhynchus tshawytscha)	
Primary Benefited Population	Walla Walla River Spring Chinook	
Plans	<p>U. S. vs OR Columbia River Fishery Management Plan (under renegotiation)</p> <p>2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon</p> <p>Comprehensive Hatchery Management Plan- Little White NFH Complex</p> <p>Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan</p>	
Keyword	Restoration	
Need Number	N-002	
Partners	<p>Confederated Tribes of the Umatilla Indian Reservation</p> <p>National Oceanic and Atmospheric Administration, Mitchell Act</p>	

Accomplishments

Recovery Plan production tasks implemented (PART)	1
Number of Fishery Management Plan production tasks implemented (PART)	2
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	3
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

in the Walla Walla River, WA watershed to support a cooperative restoration effort with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). This project is funded by the Mitchell Act administered by NOAA-Fisheries (subactivity 1932-0005) and is a cooperative effort between the CTUIR and the Service. This production commitment was transferred initially to Little White Salmon NFH, and most recently to Willard NFH following the finding of eastern brook trout in Carson NFH raceways. This non-native species entered the Carson NFH water intake and mixed with fish destined for transfer to the Walla Walla River. The presence of bull trout in the Walla Walla River heightened the Service's concern for the potential introduction of a non-native species to this watershed. As a result, the Little White Salmon/Willard NFH Complex assumed this production responsibility until adequate screening can be installed at Carson NFH to preclude the collection of eastern brook trout. Future returning adult fish will be allowed to spawn naturally to continue development of locally adapted, self sustaining and naturally spawning populations.