Project Report December 8, 2006

Strategic Plan Objectives: Meet the Service's responsibilities for mitigating fisheries.

52 projects found

13210-A-010 - Use of Vegetable Protein Diet to Lower Contaminant Levels in NFH Reared Fish.

Facility	Abernathy Fish Technology Center
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	

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	2

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

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.

The *objective*:

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
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	Leavenworth Hatchery Genetics Management Plan Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Comprehensive Hatchery Management Plan - Spring Creek NFH
Keyword	Fish Technology
Need Number	N-002
Partners	National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center U.S. Geological Survey, Columbia River Research Lab Western Washington Fish and Wildlife Office

Accomplishments

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

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.

The *objective*:

The objective of this study was to determine if contamiants were wide spread in fish feeds used by the USFWS.

The *method*:

Feeds were sampled from Coleman, Spring Creek, Hagerman, Quilcene, Leavenworth, Garrison Dam(R6), Ennis(R6), Jordan

Number of Fishery Management Plan production tasks implemented (PART)	2		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. **Further description:** Nutrition
Number of applied aquatic scientific and technologic tools shared with partners.	5		

13210-A-012 - Quality Control of Fish Feeds Used at Pacific Region National Fish Hatcheries

Facility	Abernathy Fish Technology Center
Expended	$118429
Objective	Develop and share applied aquatic scientific and technologic tools with partners.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Northern California ESU
Plans	Warm Springs Hatchery and Genetic Management Plan (draft) Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Recovery Plan production tasks implemented (PART)	2
Number of applied aquatic scientific and technologic tools shared with partners.	1

Accomplishment Summary

Analyzed 67 samples of commercially produced fish feeds used at Pacific Region National Fish Hatcheries for use in propagating fish for mitigation and restoration of declining, threatened, and endangered species.

Description

The *importance* to the Resource:

Abernathy FTC's Applied Research Program in Nutrition operates a Fish Feed Quality Control (FFQC) Program to monitor the quality of commercial fish feeds used at Region 1 NFHs. The information provided by the Center is critical to both contracting negotiations and to the quality and survivability of fish produced by the Pacific Region's NFHs.

The *problem*:

Commercial fish feeds do not always contain the specified concentrations of protein, fat, ash, moisture and vitamins. Such diets can result in poor growth and health when fed to NFH - reared fish.

The *objective*:

The objective of the FFQC Program is to determine whether commercial feeds fall within approved specifications. An additional objective is to determine the chemical composition and quality (via proximate, rancidity, vitamin and mineral analyses) of commercial feeds. Staff provide feed-related technical assistance to NFHs as well as feed mills.

The *method*:

In FY06, 67 commercially produced feed

		samples were analyzed for proximate composition (protein, lipid, moisture, and ash). Rancidity, vitamin, and mineral level analyses were also done. Industry partners who produce these feeds use analysis results to improve the quality of subsequent batches and/or replace feed already delivered to NFHs. **Further description:** Here are examples of two FFQC issues dealt with at AFTC. In early Spring, increased mortalities were observed in fish fed Skretting Starter feeds at Makah and Quilcene NFH's. Additional testing was done (rancidity, aflatoxins, vitamin) to determine whether the mortalities resulted from a problem with the diets. It was later determined that the problem was related to poor quality soy protein used in the diets. Skretting has since indicated it will no longer use soy protein in its starter feeds. BioOregon announced that its popular moist fish feed called BioDiet Starter would no longer be manufactured as the company was undergoing a merger with Skretting. No other companies are capable of producing a similar high moisture fish feed. BioDiet Starter was particularly popular at Chinook salmon hatcheries as many salmon culturists have observed that this species would accept only a moist feed when the fry begin to feed for the first time. Therefore, AFTC initiated a conference call with representatives of four feed companies to discuss alternative feeds for first-feeding Chinook. Personnel from numerous Region 1 hatcheries participated in the call and had a chance to talk to feed company representatives about alternative feeds.

13210-A-016 - Effects of Beta Glucans on Reducing Stress in Vaccinated Summer Steelhead at Hagerman NFH

Facility	Abernathy Fish Technology Center
Expended	$7650
Objective	Develop and share applied aquatic scientific and technologic tools with partners.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	Hagerman NFH Steelhead HGMP
Keyword	Fish Technology
Need Number	N-002
Partners	

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	1
Number of applied aquatic scientific and technologic tools shared with partners.	1
Number of techniques and culture technology tools developed.	1

Accomplishment Summary

The final report has been reviewed and edited. Communication and coordination with USGS and the USFWS Idaho FRO are continuing to finalize the results section. Additional analysis of the data is being done.

Description

The *importance* to the Resource:

During rearing hatchery fish undergo various stress events, giving the fish a higher probability of contracting disease. Reducing stress in hatchery reared fish is important to keep disease outbreaks low.

The *problem*:

Hagerman NFH vaccinates juvenile steelhead against enteric redmouth and furunculosis, major sources of mortality, after the fish are transferred from indoor tanks to outdoor raceways. Both of these events are stressful to the fish and may cause elevated mortalities.

The *objective*:

Beta-glucans are one of a group of substances which stimulate and thereby enhance the immune response system in fish (thus providing additional protection against disease). Positive results have been achieved by adding beta-glucans to the feed.

The *method*:

Beta-glucans enhanced feed was fed to Hagerman NFH production steelhead for two consecutive years just prior to vaccination. A report is in final preparation. Information gained from this work can be applied across the NFH

		System. **Further description:** Nutrition

13215-A-008 - Mitigate for spring chinook salmon spawning grounds lost to Federal Water Projects

Facility	Carson National Fish Hatchery
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Wind River spring Chinook
Plans	Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) The Service's Native American Policy
Keyword	Restoration
Need Number	N-002
Partners	National Oceanic and Atmospheric Administration, Fisheries ($523217)

Accomplishments

Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of	2

Accomplishment Summary

Release of 1,458,217spring chinook salmon into the Wind River, WA.

Description

The *importance* to the Resource:

Critical to the outstocking of CNFH Spring Chinook salmon, especially in water inhabited by listed species such as Bull Trout.

The *problem*:

Eastern Brook Trout, if found incidental to fish stocked from CNFH, could result in genetic introgression with other certain salmonid species, most notably Bull Trout.

The *objective*:

The exclusion of Eastern Brook Trout from the CNFH water supply is the primary objective. It is necessary to ensure exclusion of Eastern Brook Trout in all of its life phases because of the danger incidental Eastern Brook Trout stocking could pose for listed species in stocked waters.

The *method*:

The current screen mechanism will be replaced with profile bars of such dimension so as to exclude all plife phases of Eastern Brook Trout. Adequate water passage will also be permitted with this new control device.

Further description:

Direct release of 1,458,217 Carson strain spring Chinook salmon smolts to the Wind River, Washington to mitigate for salmon

management concern.		spawning grounds lost to Federal Water Projects on the Columbia River. The primary goal is to provide harvest opportunities lost to Federal Water Projects. Benefits include the provision of tribal and recreational harvest opportunities which pose no threat to listed species and would not exist without this program. Also 500 eyed eggs were transferred to a local school for educational purposes.

13310-A-113 - Mass Marking and Other Mitchell Act Funded Program Coordination and Evaluation Activities

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Eagle Creek NFH Winter Steelhead Hatchery and Genetic Management Plan Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological

Accomplishment Summary

Conducted Mitchell Act funded mass marking of coho, winter steelhead and spring Chinook at four National Fish Hatcheries and coordination and evaluation activities for the Mitchell Act program.

Description

The *importance* to the Resource:

Marking, tagging and evaluation of hatchery stocks is critical to west coast fisheries management and wild stock protection and recovery

The *problem*:

West coast salmon fisheries catch a variety of ESA listed and other stocks of concern as they target abundant hatchery and other productive wild stocks. A coast wide tagging and stock assessment program to monitor and evaluate status of stocks and impacts of fisheries on various stocks of concern is critical to wild stock protection and recovery.

The *objective*:

Each year Columbia River Fisheries Program Office (CRFPO) staff conducts fish marking activities at Mitchell Act funded Service facilities that do not have evaluation and fish marking programs funded by other reimbursable accounts.

The *method*:

CRFPO staff mass marked 480,184 coho; 166,479 winter steelhead; and 2,221,874 spring Chinook at Carson, Eagle Creek and Little White Salmon/ Willard NFHs for selective

	Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	National Oceanic and Atmospheric Administration, Mitchell Act ($378396) Washington Department of Fish and Wildlife

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	5
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	1
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	2
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2

fisheries and brood stock management and marked 121,247 coho for evaluation of a Nez Perce restoration program in the Clearwater River.

Further description:

Because a number of west coast natural stocks listed as threatened or endangered, fisheries managers have had to implement alternative management tools to provide harvest opportunity on surplus hatchery mitigation stocks while providing appropriate protection for stocks listed under the Endangered Species Act. Mass marking of hatchery steelhead, coho and spring Chinook in the Columbia River Basin is one method to accomplish this goal that has broad support of the states and their fishing constituents. Mass marking of hatchery fish also provides the benefit of identifying hatchery versus wild fish at collection points for the purpose of identifying strays and minimizing introgression of hatchery and wild fish. This project is funded by the National Marine Fisheries Service with Mitchell Act funding. This marking project provides significant fisheries and wild fish protection benefits.

13310-A-134 - Lower Snake River Compensation Plan Technical Assistance Activities

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
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) Lower Snake River Compensation Plan
Keyword	Mitigation
Need Number	N-002
Partners	Bonneville Power Administration ($75200) Columbia River Inter Tribal Fish Commission Idaho Department of Fish and Game National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Umatilla Tribe Washington Department of Fish and Wildlife

Accomplishment Summary

Provided technical assistance to the Lower Snake River Compensation Plan (LSRCP) office in the areas of flow management, harvest management, production management, recovery planning, and hatchery reform evaluation. Also provided oversight for Passive Integrated Transponder (PIT) tagging studies through the PIT Tag Steering Committee.

Description

The *importance* to the Resource:

The Lower Snake River Compensation Plan (LSRCP) is a major hatchery program in the Snake River Basin that was designed to mitigate the effects of the four mainstem dams on the lower Sanke River. It is important to maximize production benefits while minimizing negative impacts through hatchery, harvest and hydrosystem action evaluations.

The *problem*:

Hatchery actions ,if not managed under best management practices ,can have deleterious effects on native species. On the other hand, federal agencies have treaty trust and other legal responsibilities to the Columbia River tribes, as will as hatchery mitigation obligations to the general public for Columbia Basin hydrosystem development projects.

The *objective*:

The CRFPO works closely with the LSRCP office in the areas of flow management, harvest management, production management, recovery planning, and hatchery reform evaluation.

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	6
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	2
Number of mitigation post-stocking survival tasks implemented as prescribed in approved plans.	1

The *method*:

CRFPO staff provided flow management technical assessment, support, and coordination as well as harvest management, production management and recovery planning technical assessment assistance, support, and coordination in regional and west coast harvest management, production management, and recovery planning fora that affect LSRCP production.

Further description:

In addition, staff provided coordination and technical expertise in the application of PIT tag technology throughout the basin through participation on the PIT Tag Steering Committee. Providing technical assessment assistance, support, and coordination in these regional fora is critical to our efforts to maximize the mitigation and conservation benefits of the Lower Snake River Compensation Plan program while minimizing any potential negative affects to wild stocks from this hatchery program.

13310-A-171 - Assessment of Spring Creek and Little White Salmon National Fish Hatchery Operation & Maintenance

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Spring Creek NFH Hatchery and Genetic Management Plan Comprehensive Hatchery Management Plan - Spring Creek NFH White Salmon Subbasin Plan 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. 2000 NMFS FCRPS Biological Opinion - December 21, 2000
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	Little White Salmon National Fish Hatchery National Oceanic and Atmospheric Administration, Fisheries Spring Creek National Fish Hatchery

Accomplishment Summary

Hatchery assessment, planning, coordination, biological sampling and reporting to improve hatchery operations that lead to hatchery reform.

Description

The *importance* to the Resource:

Biological and operational monitoring helps improve hatchery operations and production of fall Chinook salmon. Monitoring of age and sex composition, including behavior of returning adults, helps track the performance of the hatchery and provides opportunity to make improvements as necessary. Year-class strength can also be determined.

The *problem*:

Without monitoring of age, size and sex composition of returns, errors in predicting future returns would occur and affect future hatchery and harvest planning for co-managers. Hatchery operations also must be evaluated to determine impacts to native or ESA-listed species.

The *objective*:

Measure the length, sex and age composition of returning adult fall Chinook salmon to Spring Creek and Little White Salmon National Fish Hatchery. Provide information to managers to improve knowledge and predictive ability in future returns. Additionally, assess hatchery operations or changes to operations and impacts to native or listed species.

The *method*:

	U.S. Army Corps of Engineers ($16000) Washington Department of Fish and Wildlife

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
Number of other Recovery Plan tasks implemented for T&E populations	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)	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
Number of techniques and culture technology tools developed.	1
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	1

Fish are examined for sex determination and measured for fork length. Scales are collected from the dorsal area of the fish to be examined by trained staff under magnified power for age determination. Study designs are determined and implemented. A report of the information is composed and distributed to managers and funding sources.

Further description:

In fiscal year 2005, several studies were completed and reports written on the behavior of fall Chinook salmon during changes in adult return ladder operation at Spring Creek and Little White Salmon NFH. Additionally, information on the age, size, and sex composition of returning fall Chinook salmon was determined and applied to determining year-class strength and prediction of the 2006 adult return to both of these National Fish Hatcheries.

14220-A-001 - Maintain genetic integrity and mitigation of B-run Steelhead in the Columbia River Basin

Facility	Dworshak National Fish Hatchery
Expended	$1954672
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	North Fork Clearwater River
Plans	Dworshak NFH Steelhead HGMP
Keyword	Mitigation
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

Produced/released 2.1 million unique stock B-run steelhead smolts into the Clearwater R. within the Columbia R. Basin. Also provided LSRCP hatcheries with 2.6 million eggs.

Description

The *importance* to the Resource:

The hatchery maintains and perpetuates the unique genetic strain of the North Fork Clearwater River “B-Run” summer steelhead population which used to migrate and spawn upstream of Dworshak Dam.

The *problem*:

Dworshak Dam construction in the late 1960's blocked 100% of the steelhead run upstream of the dam. The dam is located on the North Fork of the Clearwater River approximately 2 miles upstream from the confluence of the main-stem of the Clearwater River. The dam blocked hundreds of miles of spawning/rearing habitat for the steelhead.

The *objective*:

The anadromous component of this population was eliminated in the wild due to Dworshak Dam, but is represented by the Dworshak Hatchery stock. Dworshak Hatchery maintains the genetic integrity and diversity of the “B-Run” summer steelhead population through proper broodstock collection, spawning procedures, and fish culture techniques.

The *method*:

Dworshak's spawning protocol is designed to begin in January and spawn fall-returning

		adults separately to insure propagating these early-return adults. Then broodstock collection and spawning of the middle and later returning fish continues into May. A 1:1 male/female spawning ratio is maintained as close as possible throughout the process. **Further description:** Dworshak NFH also supplied the Clearwater Hatchery with 1.0 million eyed eggs of B-run adults and 1.6 million green eggs to Magic Valley Hatchery. These eggs are from late-returning adults. Dworshak also provided 10,000 eyed eggs for Potlatch Pulp and Paper school egg-box program.

14220-A-002 - Replace lost fishery of Spring Chinook Salmon (SCS) in the Clearwater River, ID

Facility	Dworshak National Fish Hatchery
Expended	$446892
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Dworshak NFH Spring Chinook Salmon HGMP
Keyword	Mitigation
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

Dworshak NFH produced 1,007,738 BY04 SCS smolts released in the Clearwater River, ID during April, 2006.

Description

The *importance* to the Resource:

Dworshak hatchery SCS stock in the Clearwater, Snake, and Columbia River systems offset fishing pressure on the natural spawning SCS in the basin. Sources of harvest include commercial, sport, and tribal.

The *problem*:

Loss of anadromous fish in the Snake River basin caused by the four Lower Snake River dam and navigation lock projects in the Lower Snake River.

The *objective*:

In 1982, under the Lower Snake River Compensation Plan, Dworshak expanded its primary role from steelhead production to include SCS production. To offset loss from the dams, Dworshak targets a release of 1.0 - 1.1 million SCS smolts into the Clearwater River for an adult return of 9000-10000 adults to the Snake River Basin.

The *method*:

Dworshak traps, spawns, and rears SCS of Dworshak stock and also spawns Kooskia NFH stock SCS. Incubation of all eggs take place at Dworshak until eye-up, at which time eggs are enumerated. All Dworshak stock eggs are incubated at 40 degrees F. on station while all Kooskia stock eggs are shipped to Kooskia NFH for incubation and final rearing.

14220-A-003 - Collection of steelhead adults for production/mitigation of unique B-run Clearwater River steelhead.

Facility	Dworshak National Fish Hatchery
Expended	$1954672
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	North Fork Clearwater River
Plans	Dworshak NFH Steelhead HGMP
Keyword	Mitigation
Need Number	N-002
Partners	

Accomplishments

Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1

Accomplishment Summary

In FY2006 there were 3,243 adult B-run steelhead collected at Dworshak NFH for spawning purposes. There were 628 excess adults outplanted and 125 excess adults donated to the Nez Perce Tribe for tribal harvest training.

Description

The *importance* to the Resource:

The hatchery maintains and perpetuates the unique genetic strain of the North Fork Clearwater River “B-Run” summer steelhead population which used to migrate and spawn above Dworshak Dam. Collection of broodstock is vital to perpetuating these steelhead.

The *problem*:

Dworshak Dam construction in the late 1960's blocked 100% of the steelhead run upstream of the dam. The dam is located on the North Fork of the Clearwater River approximately 2 miles upstream from the confluence of the main-stem of the Clearwater River. The dam blocked hundreds of miles of spawning/rearing habitat for the steelhead.

The *objective*:

The anadromous component of this population was eliminated in the wild due to Dworshak Dam, but is represented by the Dworshak Hatchery stock. The initial process for Dworshak Hatchery to maintain the genetic integrity and diversity of the “B-Run” summer steelhead population is through proper broodstock collection.

		The *method*: B-run steelhead are collected at Dworshak via fish ladder/trap in the fall, winter, and spring to represent the entire spectrum of the return. Dworshak NFH also collects adults to supply the Clearwater State Hatchery with 1.0 million eyed eggs; 1.6 million green eggs to Magic Valley State Hatchery, and 10,000 eyed eggs for Potlatch school program. **Further description:** In FY2006 there were 596 adults collected to represent the fall return. There were also 635 fall returning fish trapped during coho collection for the Nez Perce Tribe. These additional steelhead were anesthetized with carbon dioxide and transported back to the Clearwater River. The ladder is then reopened in February of 2006 until the final day of spawning in May to collect the entire run spectrum along with any tag recovery information.

14220-A-004 - Collection of spring Chinook salmon adults to replace lost fishery on the Clearwater River, ID

Facility	Dworshak National Fish Hatchery
Expended	$446892
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Dworshak NFH Spring Chinook Salmon HGMP
Keyword	Mitigation
Need Number	N-002
Partners	

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	1

Accomplishment Summary

Dworshak trapped 1,318 BY06 SCS of Dworshak stock. These fish yielded 440 viable females for spawning. There were zzz600 adults outplanted as excess to spawning needs. Dworshak also spawned 252 females of Kooskia stock for Kooskia NFH.

Description

The *importance* to the Resource:

Dworshak hatchery SCS in the Clearwater, Snake, and Columbia River systems offset fishing pressure on the natural spawning SCS in the basin. Sources of harvest include commercial, sport, and tribal. Collection of broodstock is vital to the propagation of SCS at Dworshak.

The *problem*:

Loss of anadromous fish in the Snake River basin caused by the four Lower Snake River dam and navigation lock projects in the Lower Snake River.

The *objective*:

The Lower Snake River Compensation Plan, Dworshak expanded its role from steelhead production to include SCS rearing. To offset loss from the dams, Dworshak targets a collection of 1,200 adult SCS broodstock for a release of 1.0 - 1.1 million SCS smolts into the Clearwater River for an adult return of 9000-10000 adults to the Snake River Basin.

The *method*:

Dworshak operates it's fish ladder from May to Sept for collection of SCS. All Dworshak's eggs

		are incubated on station until the spring of 2007 for stocking into raceways. Also 252 BY06 Chinook females of Kooskia stock were spawned. These eggs will also be initially incubated and enumerated at Dworshak and later shipped to Kooskia. **Further description:** The Dworshak NFH Chinook program activities are legal operation under the Lower Snake River Compensation Plan by the Water Resources Development Act of 1976, Public Law 94-587 - to offset the losses caused by the four lower Snake River dam projects. Dworshak will provide the Nez Perce Tribe with any surplus SCS adults for outplanting.

13280-A-005 - Coho salmon mitigation release at the Eagle Creek National Fish Hatchery.

Facility	Eagle Creek National Fish Hatchery
Expended	$148300
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Lower Columbia River ESU (Threatened)
Plans	Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan U. S. vs OR Columbia River Fishery Management Plan (under renegotiation)
Keyword	Mitigation
Need Number	N-002
Partners	National Marine Fisheries Service Oregon Department of Fish & Wildlife

Accomplishments

Recovery Plan production tasks implemented (PART)	1

Accomplishment Summary

In FY 2006 the Eagle Creek NFH propagated for volitional release into Eagle Creek directly from the hatchery, 508,664 coho salmon smolts to meet mitigation goals in the lower Columbia River Basin.

Description

Further description:

This project entails the production and volitional release of coho salmon smolts from the Eagle Creek National Fish Hatchery. Returning adults from this production provide for commercial and recreational fisheries and brood stock to fulfill mitigation and restoration activities in the Columbia River Basin.

13280-A-021 - Support of coho salmon mitigation in the Yakima River, Columbia River Basin

Facility	Eagle Creek National Fish Hatchery
Expended	$134500
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan Yakima Subbasin Plan U. S. vs OR Columbia River Fishery Management Plan (under renegotiation)
Keyword	Mitigation
Need Number	N-002
Partners	National Marine Fisheries Service Yakama Indian Nation

Accomplishments

Recovery Plan production tasks implemented (PART)	1

Accomplishment Summary

The Eagle Creek National Fish Hatchery provided 457,440 coho salmon yearlings for acclimation in the Yakima River Basin to assist the Yakama Nation in meeting their restoration goal for the Yakima River.

Description

Further description:

This project involves the rearing of coho salmon to pre-smolt yearlings prior to their transfer to acclimation ponds in the Yakima River Basin. A total of 389,440 coho were transferred to acclimation sites on the Natches River, a tributary of the Yakima River. An additional 68,000 coho were transferred to rearing ponds at Prosser, Washington on the lower Yakima River. The adults returning from these releases will provide a future brood stock source to meet the Yakama Nation's fishery management goal in the Yakima River system. These fish are part of the mitigation effort resulting from the construction of dams on the main stem Columbia River.

13220-A-007 - Spring Chinook Salmon Propagation Program

Facility	Entiat National Fish Hatchery
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Entiat River (UCENT) spring chinook salmon.
Plans	Entiat Hatchery Genetics Management Plan 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon
Keyword	Mitigation
Need Number	N-002
Partners	Bureau of Indian Affairs Colville Tribe NOAA Fisheries U.S. Bureau of Reclamation ($300000) Washington Department of Fish and Wildlife Yakama Nation

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	4
Number of post stocking survival tasks met	1

Accomplishment Summary

Reared and released 326,279 brood year (BY) 2004 spring Chinook salmon (SCS) smolts to the Entiat River. Provide Collville Confederated Tribe 51,049 BY 2004 SCS fingerling for release into Okanagon River. Reared approximately 415,000 BY 2005 SCS juveniles. Collected 815 adult SCS. Provided 456 adult SCS to the Bureau of Indian Affairs. Collected and incubated approximately 500,000 BY 2006 SCS eggs from 148 females and fertilized by 149 males.

Description

The *importance* to the Resource:

The importance of the spring Chinook salmon propagation program at Entiat National Fish Hatchery is to maintain and improve salmonid returns to the Entiat River and the Columbia River Basin for harvest by sport and tribal anglers.

The *problem*:

In the 1930's the Grand Coulee Dam was constructed and blocked fish passage to a large amount of anadromous salmonid habitat. To mitigate for the expected fish declines the construction and operation of Entiat National Fish Hatchery was authorized.

The *objective*:

The objective of the propagation program at Entiat National Fish Hatchery is to mitigate for the loss of habitat cause by the construction of Grand Coulee Dam by propagating spring Chinook salmon for harvest by sport and tribal anglers.

The *method*:

as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	7
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 Fishery Management Plans. (PART)	4

The propagation program at Entiat National Fish Hatchery consist of collecting, holding, and spawning of adult spring Chinook salmon, and incubating and rearing the off-spring to meet an annual release target of 400,000 smolts which are directly released from the hatchery into the Entiat River on an annual basis.

Further description:

The Entiat River is a tributary to the Columbia River in Washington State. The Entiat National Fish Hatchery is located on the Entiat River. Fish released must pass eight downstream dams to reach the Pacific Ocean. The Entiat National Fish Hatchery is one of three hatcheries in the Leavenworth National Fish Hatchery Complex. The Complex was authorized by the Grand Coulee Fish Maintenance Project, April 3, 1937, and reauthorized by the Mitchell Act, May 11, 1938. Currently, the Complex is funded through a reimbursable agreement (sub activity-1932) with the Bureau of Reclamation as mitigation for Grand Coulee Dam. Other guiding authorities include by the US v. Oregon and the US Canada Treaty.

14230-A-005 - Ad Marked A-Run Steelhead Smolt Production

Facility	Hagerman National Fish Hatchery
Expended	$633501
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	Lower Snake River Compensation Plan Salmon River A-run Steelhead HGMP (IDFG)
Keyword	Mitigation
Need Number	N-002
Partners	College of Southern Idaho Friends of Northwest Hatcheries Idaho Department of Fish and Game

Accomplishments

Number of Friends Groups	1
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 activities conducted to address priority pathways	1

Accomplishment Summary

Distributed 868,448 Ad marked A-run Brood Year 2005 steelhead smolts into the Salmon River (tributary of the Snake River), in Idaho.

Description

The *importance* to the Resource:

Steelhead produced by Hagerman NFH return as adults and provide economically important fisheries to towns and cities in the lower Snake and Salmon river basins.

The *problem*:

Loss of steelhead runs from the construction and operation of the four Lower Snake River Dams

The *objective*:

Hagerman NFH produces ad marked summer steelhead trout at 4 to 5 fish per pound (8 inches) for contribution to selective marked fisheries and hatchery broodstock programs. The Hagerman NFH operates this project under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) .

The *method*:

Hagerman NFH produces steelhead smolts and releases them in designated waters. The goal is to provide 13,600 adult steelhead above Lower Granite Dam (the uppermost dam).

Further description:

Number of activities conducted to support the management and control of aquatic invasive species	1		
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	1		
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	1		
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1		

14230-A-006 - Rainbow Trout Production

Facility	Hagerman National Fish Hatchery
Expended	$27500
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	A Review of Dworshak National Fish Hatchery Mitigation Record (Miller, 1987)
Keyword	Mitigation
Need Number	N-002
Partners	College of Southern Idaho Friends of Northwest Hatcheries Idaho Department of Fish and Game

Accomplishments

Number of Friends Groups	1
Number of activities conducted to address priority pathways	1
Number of activities conducted to support the management and control of aquatic invasive species	1

Accomplishment Summary

Distributed 151,463 Rainbow Trout at 6 to 10 inches to southern Idaho reservoirs .

Description

The *importance* to the Resource:

Rainbow trout stocked by Hagerman NFH provide numerous sport fishing opportunities to the angling public in southern Idaho. The fish are produced for the Dworshak Dam mitigation program as an in-kind exchange with the Idaho Department of Fish and Game (IDFG).

The *problem*:

Loss of fish habitat due to Dworshak Dam.

The *objective*:

Mitigate fishery losses due to Dworshak Dam.

The *method*:

IDFG stocks rainbow trout , reared on well water to ensure disease free fish, into Dworshak Reservoir, in return, the Hagerman NFH stocks rainbow trout in southern Idaho reservoirs such as C.J. Strike, Little Camas reservoirs and Lake Walcott.

Further description:

14230-A-007 - Un marked A-Run Steelhead Smolt Production

Facility	Hagerman National Fish Hatchery
Expended	$247162
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	Salmon River A-run Steelhead HGMP (IDFG) U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) Lower Snake River Compensation Plan
Keyword	Mitigation
Need Number	N-002
Partners	College of Southern Idaho Friends of Northwest Hatcheries Idaho Department of Fish and Game

Accomplishments

Number of Friends Groups	1
Number of Fishery Management Plan production tasks implemented (PART)	2
number of marking and tagging targets met,	1

Accomplishment Summary

Distributed 333,109 unmarked A-Run Brood Year 2005 steelhead smolts into the Yankee Fork Salmon and Little Salmon Rivers (tributaries of the Snake River), in Idaho.

Description

The *importance* to the Resource:

Hagerman NFH produces unmarked summer steelhead trout at 4 to 5 fish per pound (8 inches) for restoration of depressed stocks in the Snake River Basin and to provide Tribal harvest opportunities.

The *problem*:

Loss of steelhead runs due to the four Lower Snake River Dams.

The *objective*:

Hagerman NFH operates this project under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP). This plan was designed to mitigate for fish and wildlife losses caused by construction of the four dams on the lower Snake River in Washington State.

The *method*:

Hagerman NFH produces steelhead smolts and releases them in designated sites. The goal is to provide 13,600 adult steelhead above Lower Granite Dam (the uppermost dam).

Further description:

as prescribed by Fishery management plans. (PART)	
Number of activities conducted to address priority pathways	1
Number of activities conducted to support the management and control of aquatic invasive species	1
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	1
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

14230-A-008 - Ad Marked B-Run Steelhead Smolt Production

Facility	Hagerman National Fish Hatchery
Expended	$144178
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	Salmon River B-run Steelhead HGMP (IDFG) Lower Snake River Compensation Plan
Keyword	Non-Service Federal Lands
Need Number	N-002
Partners	College of Southern Idaho Friends of Northwest Hatcheries Idaho Department of Fish and Game

Accomplishments

Number of Friends Groups	1
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 activities conducted to address priority pathways	1

Accomplishment Summary

Distributed 192,372 Ad marked B-run Brood Year 2005 steelhead smolts into the East Fork Salmon, and Little Salmon Rivers (tributaries of the Snake River), in Idaho.

Description

The *importance* to the Resource:

Steeled smolts produced by Hagerman NFH return as adults and provide economically important fisheries to towns and cities in the lower Snake and Salmon river basins.

The *problem*:

Loss of steelhead runs due to the four Lower Snake River Dams

The *objective*:

The goal is to provide 13,600 adult steelhead above Lower Granite Dam (the uppermost dam).

The *method*:

Hagerman NFH produces steelhead smolts and releases them in designated sites. Hagerman NFH operates this project under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) This plan was designed to mitigate for fish and wildlife losses caused by construction of four dams on the lower Snake River in Washington State.

Number of activities conducted to support the management and control of aquatic invasive species	1		
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	1		
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	1		
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1		

14226-A-001 - Maintain genetic integrity and mitigation of B-run steelhead in the Columbia River basin.

Facility	Idaho Fish Health Center
Expended	$84000
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	North Fork Clearwater River
Plans	U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) Federal Columbia River Power System 2002 Biological Opinion
Keyword	Fish Health
Need Number	N-002
Partners	Walla Walla District - Army Coprs of Engineers

Accomplishments

Number of population assessments completed	1
Number of surveys conducted for early detection	1
Number of activities conducted to support the management and control of aquatic invasive species	1
Number ANS related of outreach/education activities conducted	4

Accomplishment Summary

Produced/released 2.02 million unique stock B-run steelhead smolts into the Clearwater R. within the Columbia R. basin. Also provided 2 LSRCP hatcheries with 3.4 million eggs.

Description

The *importance* to the Resource:

One of the roles of Dworshak NFH is to perpetuate and maintain the North Fork B-run steelhead of the Clearwater River while maintaining genetic integrity of the run.

The *problem*:

Dworshak Dam construction in the late 1960's blocked 100% of the steelhead run upstream of the dam. The dam is approximately 2 miles upstream from the confluence of the main-stem of the Clearwater River.

The *objective*:

Dworshak's spawning protocol is designed to maintaining the genetics of the entire spectrum of the run. Beginning in February, early-return adults are spawned separately to insure propagating fall-returning adults.

The *method*:

After initial spawning of these early-return adults, spawning of the middle and later returning fish continues into May. Dworshak NFH also supplies the Clearwater Hatchery with 1.5 million eyed eggs of B - run adults and 1.9 million green eggs to Magic Valley Hatchery.

Further description:

Number of applied aquatic scientific and technologic tools shared with partners.	1		These eggs are from late - returning adultsDworshak targets the release of 2.0 - 2.3 million steelhead smolts into the Clearwater River basin for an adult return goal of 30,000 back to the Columbia River and 20,000 back to the Clearwater River. During FY2006 Dworshak released 2.02 million B-run steelhead smolts into the Clearwater River Basin

14226-A-114 - Health Monitoring to Provide Healthy Fish for Use in Lower Snake River Mitigation Programs

Facility	Idaho Fish Health Center
Expended	$131000
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Biological Opinion on Artificial Propagation in the Columbia River Basin. Lower Snake River Compensation Plan Federal Columbia River Power System 2002 Biological Opinion
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	3
Number of activities conducted to support the management and control of aquatic invasive species	1
Number of visitors to service facilities.	43
Number of applied aquatic scientific and technologic tools shared with partners.	1
Number of techniques and culture technology tools developed.	1

Accomplishment Summary

Health monitoring programs assisted national fish hatcheries in the production of healthy fish which are physiologically ready to migrate, and will have the least health impact on wild fish.

Description

The *importance* to the Resource:

Health and physiology monitoring programs assisted national fish hatcheries in the production of healthy steelhead and spring chinook salmon, which are physiologically ready to migrate, and have the least health impact on wild fish.

The *problem*:

The public (and organizational) perception of fish hatcheries is that hatcheries pose a risk to wild and native populations by introducing disease to the wild. The major problem is ignorance of biology but by releasing healthy fish, we are helping difuse this idea.

The *objective*:

The Idaho Fish Health Center staff have responsibility for fish health inspections at two LSRCP hatcheries to insure interstate transport of healthy fish and eggs to prevent transmission to wild fish in surrounding areas.

The *method*:

The Idaho Fish Health Center staff conduct physiological and pathogen monitoring, diagnostic, and prerelease exams at Dworshak and Hagerman National Fish Hatcheries in support of their spring chinook salmon and steelhead production programs, respectively.

		Further description: :

14330-A-013 - Evaluation of a feeding strategy for steelhead for Hagerman NFH

Facility	Idaho Fisheries Resource Office
Expended	$7000
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Salmon River upper mainstem.
Plans	Vision Action Plan and the Hatchery Evaluation Action Plan 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Interjurisdictional
Need Number	N-002
Partners	Hagerman National Fish Hatchery Idaho Fish Health Office

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of techniques and culture technology tools developed.	1

Accomplishment Summary

The final report was reviewed, edited, and finalized for distribution.

Description

The *importance* to the Resource:

Restricting the size at release of hatchery steelhead smolts is important in order to limit interactions with listed wild stocks of steelhead.

The *problem*:

Warm water temperatures at Hagerman NFH make it necessary to control growth of steelhead reared for release in Idaho. If steelhead were allowed to eat as much as they wanted they would be too large at release time.

The *objective*:

The traditional way of controlling growth is to feed reduced rations to the fish throughout their rearing period. The objective of this project is to control growth using an alternate feeding strategy.

The *method*:

We evaluated a method in which the fish are allowed to eat as much at they want for a 2-week period, then not fed at all for the following 2 weeks. The cycle is repeated for 90 days. Fish are fed for the full month before release from the hatchery.

Further description:

Warm water temperatures at Hagerman NFH make it necessary to control growth of steelhead reared for release in Idaho. If steelhead were allowed to eat as much as they

		wanted they would be too large at release time. The traditional way of controlling growth is to feed reduced rations to the fish throughout their rearing period. We evaluated a method in which the fish are allowed to eat as much at they want for a 2-week period, then not fed at all for the following 2 weeks. The cycle is repeated for 90 days. Fish are fed for the full month before release from the hatchery. All the adult returns and CWT's for four years of smolt releases are currently available. Adult CWT data was compiled and analyzed in 2005. Four separate progress reports were combined into a single completion report during FY '05.

14330-A-014 - Spring Chinook Salmon Coded-wire Tag Program for Dworshak NFH Complex

Facility	Idaho Fisheries Resource Office
Expended	$35000
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Lower Snake River Compensation Plan Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Interjurisdictional
Need Number	N-002
Partners	

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	10
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	2
Number of mitigation post-stocking survival tasks implemented as prescribed in approved plans.	1

Accomplishment Summary

The spring Chinook juvenile marking program included over 240,000 CWTs. In excess of 1,000 returning adults were examined for CWTs and other marks.

Description

The *importance* to the Resource:

A comprehensive marking and tagging program is critical to the proper evaluation of a hatchery program and to determine if there are any negative impacts to wild populations. Critical to the tagging program is the maintenance of a database to allow thorough and complete analysis.

The *problem*:

Without a long-term data set a thorough evaluation of the Dworshak NFH spring Chinook salmon mitigation program is not possible. Annual variations complicate analysis and long-term trend data enables separation of annual fluctuations versus true change.

The *objective*:

The objective is to build and maintain extensive coded-wire tag databases for spring Chinook salmon at Dworshak NFH for evaluation purposes.

The *method*:

We schedule the tagging and coordinate with the contractors. We check for coded-wire tag retention before smolts are released. We extract the coded-wire tags from adults that return from the ocean. Data on coded-wire tag releases and returns are submitted to the Pacific States Marine Fisheries Commission for

		inclusion into regional databases.

14330-A-015 - Hatchery Evaluation Activities at the Dworshak Fisheries Complex and Hagerman NFH.

Facility	Idaho Fisheries Resource Office
Expended	$28400
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Vision Action Plan and the Hatchery Evaluation Action Plan
Keyword	Interjurisdictional
Need Number	N-002
Partners	Dworshak National Fish Hatchery Hagerman National Fish Hatchery Idaho Fish Health Office Kooskia National Fish Hatchery

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	1

Accomplishment Summary

We scheduled and conducted 9 Hatchery Evalutaion Team meetings during the year and ensured that hatchery evaluation data was properly collected and used for program development. Summaries of meetings were sent to HET members in a timely fashion. Progress reports and completion reports for evaluation studies were submitted and distributed to team members. We completed a two year evaluation of on-station performance of Clearwater steelhead stock at Hageman NFH.

Description

The *importance* to the Resource:

The Service operates three hatcheries in Idaho that provide valuable sport and Tribal fisheries throughout the Columbia River Basin. These hatchery programs have obligations to meet production goals that are called for by legislation and other legal mandates.

The *problem*:

Hatchery production and mitigation goals are not always consistently met on an annual basis for a variety of reasons. Constraints in production are caused by fish health issues, need for improved fish culture techniques, changes in the environment, or changes in fishery management activies.

The *objective*:

The objective of this activity is to identify constraints in the production programs when they occur and recommend alternative courses of action. Often, this involves designing and conducting evaluation projects intended to

		improve fish culture techniques or production management procedures. **The *method*:** Each hatchery has a Hatchery Evaluation Team, with the Idaho FRO providing leadership. The hatchery staff and the Idaho Fish Health Office make up the rest of the team, insuring that each project office is completely informed about ongoing evaluation projects and production activities.

14330-A-016 - Brood Year Reports for Spring Chinook Salmon at Dworshak NFH

Facility	Idaho Fisheries Resource Office
Expended	$35000
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Vision Action Plan and the Hatchery Evaluation Action Plan Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Interjurisdictional
Need Number	N-002
Partners	Dworshak National Fish Hatchery Hagerman National Fish Hatchery Idaho Fish Health Office Kooskia National Fish Hatchery

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	8

Accomplishment Summary

We significantly expanded our databases used for long-term analysis of hatchery production and success by incorporating a completed brood year report for BY00 and data for BYs 01 through 06.

Description

The *importance* to the Resource:

Brood year reports compile all the pertinent biological and environmental data describing the success of for a particular brood year of spring Chinook salmon at Dworshak NFH. The data contribute to a larger database of production trend information that allows evaluation of production success over a longer period of time.

The *problem*:

The difficulty is in keeping an accuate centrally located file for all the data that is generated by Dworshak NFH, the Idaho Fish Health Office, and the Idaho FRO during the 5-year life cycle of the broodyear.

The *objective*:

This project is intended to assimilate all the information for each specific brood year of spring Chinook salmon into a central file at the Idaho Fishery Resource Office.

The *method*:

The life cycle of one brood year is competed as the adults return to the hatchery each year. The data for that brood year is compiled into a report that summarizes each phase of the life cycle. Data from successive brood years are used for trend analysis to evaluate the overall

		production program.

14330-A-058 - Evaluate spring Chinook salmon releases from Kooskia National Fish Hatchery

Facility	Idaho Fisheries Resource Office
Expended	$32500
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Kooskia National Fish Hatchery HGMP
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	

Accomplishments

Number of techniques and culture technology tools developed.	1

Accomplishment Summary

We purchased and installed a PIT tag detector in the adult collection facility to scan adults returning to the hatchery. Twenty thousand PIT tags were purchased in preparation for tagging BY05 spring chinook salmon at Kooskia NFH in 2007.

Description

The *importance* to the Resource:

Monitoring and evaluation of spring Chinook salmon released from, and returning to, Kooskia NFH is necessary in order to minimize impacts to listed populations of summer steelhead and chinook salmon in the Snake River, and is called for by NMFS 1999 Biological Opinon on Artificial Propogation in the Columbia River Basin.

The *problem*:

The primary difficulty in accessing the performance and behavior of hatchery stocks in relation to wild listed stocks is our inability to distinguish the two in a mixed stock fishery at dams and other collections points during smolt emigration to the ocean and during adult migration back into the river.

The *objective*:

This program will provide real time data on the survival, run timing, straying, and other aspects of specific groups of spring Chinook salmon released from Kooskia NFH as they migrate from the hatchery; as smolts and adults are collected at dams and weirs, as adults are collected in fisheries, and as they return to the hatchery.

		The *method*: We propose to PIT tag 20,000 smolts annually at Kooskia NFH. Outmigrating smolts and returning adults will be scanned at mainstem dams, at weirs, and in various fisheries as both outmigrating smolts and returning adults pass through the system, providing real time data on migration timing, survival, straying, and other aspects of life history.

14330-A-072 - Spring Chinook Management, Coordination, and Harvest

Facility	Idaho Fisheries Resource Office
Expended	$86500
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Mitigation
Need Number	N-002
Partners	Idaho Department of Fish and Game Nez Perce Tribe

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	10
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1

Accomplishment Summary

We completed data collection, analysis, and successfully coordinated with co-managers to maximize sport and tribal Spring Chinook Salmon harvest and still meet minimum broodstock goals at Dworshak NFH.

Description

The *importance* to the Resource:

The native stock of Clearwater River spring Chinook salmon were extirpated. Dworshak NFH is not working with a listed stock or trying to rebuild a natural run, as there are other programs in the basin that are attempting to rebuild runs. Dworshak's program is to replace sport and tribal fish which are important economic and cultural resources.

The *problem*:

The 2006 Dworshak NFH spring Chinook salmon run was predicted to be lower than recent years, but our data still indicated an adult return with enough potential to allow limited sport and tribal fisheries.

The *objective*:

The Dworshak NFH spring Chinook program's primary goal is to replace loss fisheries. The established mitigation goal is 9,135 adults returning above Lower Granite Dam.

The *method*:

Through close coordination, frequent communications with co-managers, and in-season updating of return numbers and harvest results we were able to provide sport and tribal harvests and still meet our broodstock collection needs at Dworshak.

13225-A-036 - Spring Chinook Salmon Propagation

Facility	Leavenworth National Fish Hatchery
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Wenatchee River (UCWEN) spring chinook salmon
Plans	Leavenworth Hatchery Genetics Management Plan 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon
Keyword	Mitigation
Need Number	N-002
Partners	U.S. Bureau of Reclamation ($1200000) Yakama Nation

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	4
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	2
number of marking and tagging targets met,	7

Accomplishment Summary

Reared and released 1,005,005 brood year (BY) 2004 spring Chinook salmon (SCS) smolts to the Icicle Creek. Reared approximately 970,000 BY2005 SCS juveniles. Collected 2,042 adult SCS. Provided 632 adult SCS to the BIA for distribution to local tribes. Provided 27 adult SCS to the Icicle Chapter of Trout Unlimited. Collected and incubated approximately 1.7 million BY 2006 eggs from 537 female SCS adults. Returning adults provided for a sport and tribal fishery on Icicle Creek.

Description

The *importance* to the Resource:

The importance of the spring Chinook salmon propagation program at Leavenworth National Fish Hatchery is to maintain and improve salmonid returns to the Icicle Creek and the Columbia River Basin for harvest by sport and tribal anglers.

The *problem*:

In the 1930's the Grand Coulee Dam was constructed and blocked fish passage to a large amount of anadromous salmonid habitat. To mitigate for the expected fish declines the construction and operation of Leavenworth National Fish Hatchery was authorized.

The *objective*:

The objective of the propagation program at Leavenworth National Fish Hatchery is to mitigate for the loss of habitat cause by the construction of Grand Coulee Dam by propagating spring Chinook salmon for harvest by sport and tribal anglers.

as prescribed by Fishery management plans. (PART)	
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)	5

The *method*:

The propagation program at Leavenworth National Fish Hatchery consist of collecting, holding, and spawning of adult spring Chinook salmon, and incubating and rearing the off-spring to meet an annual release target of 1,625,000 smolts which are directly released from the hatchery into the Icicle Creek on an annual basis.

Further description:

The Leavenworth National Fish Hatchery is a tributary to the Columbia River in Washington State. The Leavenworth National Fish Hatchery is located on the Icicle Creek. The Leavenworth National Fish Hatchery is one of three hatcheries in the Leavenworth National Fish Hatchery Complex. The Complex was authorized by the Grand Coulee Fish Maintenance Project, April 3, 1937, and reauthorized by the Mitchell Act, May 11, 1938. Currently, the Complex is funded through a reimbursable agreement (sub activity-1932) with the Bureau of Reclamation as mitigation for Grand Coulee Dam. Other guiding authorities include by the US v. Oregon and the US Canada Treaty.

13230-A-100 - Rear and release fall chinook on tribal lands to restore locally adapted stocks.

Facility	Little White Salmon National Fish Hatchery
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	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 Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan
Keyword	Restoration
Need Number	N-002
Partners	U.S. Army Corps of Engineers Yakama Indian Nation

Accomplishments

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

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.

The *objective*:

Produce healthy, high quality smolts for transfer and release at upriver acclimation sites.

The *method*:

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.

Further description:

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

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

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.

13230-A-101 - Rear and release spring chinook on tribal lands to support a cooperative restoration effort.

Facility	Little White Salmon National Fish Hatchery
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

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

Produce healthy, high quality smolts for transfer and release at acclimation sites located on the Umatilla River.

The *method*:

Receive eyed eggs, taken from a locally adapted stock of fish returning to the Umatilla River, to produce 210,000 sping chinook at the Little White Salmon NFH for transfer and acclimation at sites operated by the Confederated Tribes of the Umatilla Indian Reservation.

Further description:

	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 oligations.

Facility	Little White Salmon National Fish Hatchery
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

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

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.

The *method*:

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.

Further description:

	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
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	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 Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan
Keyword	Mitigation
Need Number	N-002
Partners	National Oceanic and Atmospheric Administration, Mitchell Act U.S. Army Corps of Engineers Washington

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

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.

The *method*:

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.

	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
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	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
Keyword	Restoration
Need Number	N-002
Partners	Confederated Tribes of the Umatilla Indian Reservation National Oceanic and Atmospheric Administration, Mitchell Act

Accomplishments

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

Produce healthy, high quality smolts for transfer and release into the Walla Walla River.

The *method*:

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.

Further description:

A total of 250,004 spring chinook salmon were reared at the Little White Salmon/Willard National Fish Hatchery Complex and released

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 adminstered 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.

13231-A-006 - Fish Health Inspections and Certifications

Facility	Lower Columbia River Fish Health Center
Expended	$338629
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	White Salmon River fall run (tule) Chinook
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan Spring Creek NFH Hatchery and Genetic Management Plan Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan Little White NFH Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Warm Springs Hatchery and Genetic Management Plan (draft) Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan

Accomplishment Summary

Twenty-eight stocks of salmon and other fish used to fulfill mitigation and restoration plans in the Columbia River Basin were monitored for health, inspected for disease, and certified as fit and healthy for release.

Description

The *importance* to the Resource:

The fish at 6 National Fish Hatcheries and Abernathy Fish Technical Ctr. are regularly examined throughout their life cycle to ensure that healthy fish, meeting the requirements of National, State, and Tribal Fish Health Policies, are produced and released in the lower Columbia River Basin.

The *problem*:

Disease outbreaks reduce viability and survival of hatchery fish. The fish from these hatcheries are critical to help overcome the impaired habitat and obstruction from dams, and to allow harvest in the Columbia River Basin and ocean fisheries; unhealthy fish do not survive.

The *objective*:

Regular exams at each hatchery provides information necessary to manipulate the environmental/cultural conditions to maintain healthy fish and to avoid losses due to disease. We also provide technical and certification/diagnostic services to tribal, federal,state, and private biologists to improve health and conserve fish resources in the NW.

The *method*:

The Lower Columbia River Fish Health Ctr. uses veterinary technology to monitor health

	Eagle Creek NFH Winter Steelhead Hatchery and Genetic Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	National Oceanic and Atmospheric Administration, Fisheries

Accomplishments

Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	6
Number of other Recovery Plan tasks implemented for T&E populations	9
Number of Fishery Management Plan production tasks implemented (PART)	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1
Number of applied aquatic scientific and technologic tools shared with partners.	1
Number of techniques and culture technology tools developed.	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

and prevent disease in 5 salmon species, lamprey, steelhead and sturgeon. In FY2006, we conducted 220 exams on over 7000 fish at the hatcheries to monitor, inspect and certify the health of 16,500 adult fish and over 35 million juveniles.

Further description:

The fish at 6 National Fish Hatcheries and Abernathy Fish Technical Ctr. are regularly examined throughout their life cycle to ensure that healthy fish, meeting the requirements of National, State, and Tribal Fish Health Policies, are produced and released. The fish from these hatcheries are critical to help overcome the impaired habitat and obstruction from dams, and to allow harvest in the Columbia River Basin and ocean fisheries; unhealthy fish do not survive. The Lower Columbia River Fish Health Ctr. uses veterinary technology to monitor health and prevent disease in 5 salmon species, lamprey, steelhead and sturgeon. Regular exams at each hatchery provides information necessary to manipulate the environmental/cultural conditions to maintain healthy fish and to avoid losses due to disease. In FY2006, we conducted 220 exams on over 7000 fish at the hatcheries to monitor, inspect and certify the health of 16,500 adult fish and over 35 million juveniles. We also provided technical assistance for tribal, federal, and state biologists and certification/diagnostic services to private aquaculture facilities, all to conserve aquatic resources through improved fish health. Mitchell Act funding from NOAA helps support this work.

13231-A-008 - Fish Health Certification for Mitigation of Salmon for John Day Dam

Facility	Lower Columbia River Fish Health Center
Expended	$15538
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	White Salmon River fall run (tule) Chinook
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Spring Creek NFH Hatchery and Genetic Management Plan 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Comprehensive Hatchery Management Plan - Spring Creek NFH
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Army Corps of

Accomplishment Summary

The tule fall Chinook salmon, numbering over 15 million, were monitored for Enteric Redmouth disease using DNA technology to track disease progression during the stressful necessity of mass-marking. All fish were certified healthy for release to the Columbia River.

Description

The *importance* to the Resource:

The Spring Creek Hatchery provides over 15 million salmon for ocean and river fisheries to mitigate for the John Day Dam which interferes with upriver salmon migration. Besides providing commercial, tribal and recreational fisheries, this tule fall Chinook stock is genetically pure, reared for 100 yrs by the hatchery near their site of origin.

The *problem*:

John Day Dam interferes with upriver salmon migration so optimizing the health of fish released from the Spring Creek National Fish Hatchery helps ensure that fish can deal with the dam(n) obstacles.

The *objective*:

The Lower Columbia River Fish Health Ctr. ensures that the fish released for mitigation are healthy so that their survival to adulthood is optimized.

The *method*:

Modern clinical lab procedures were used to check the fish prior to release, following the Fish Health Policies established by the U.S. Fish & Wildlife Service, the states and tribes.

	Engineers

Accomplishments

Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	5
Number of Fishery Management Plan production tasks implemented (PART)	1
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
Number of techniques and culture technology tools developed.	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	3

State-of-the-art DNA technology was used to track fish health during the stresses of the legally mandated mass marking.

Further description:

The Spring Creek National Fish Hatchery annually provides over 15 million salmon for ocean and river fisheries to mitigate for the John Day Dam which interferes with upriver salmon migration. Besides providing commercial, tribal, and recreational fisheries, the tule fall Chinook is novel in that it is a genetically pure salmon stock produced by a hatchery at the site from which the fish originated. In FY06, the Lower Columbia River Fish Health Ctr. ensured that the 15,000,000 fish released for mitigation were healthy so that their survival to adulthood would be optimized. For the second year, 100% of the fish were mass-marked, necessitating intensive handling, a problem because water is 90% reused and ERM disease is present. The FHC sampled 360 juvenile fish before, during and after mass marking to ascertain its effects on disease progression. This project is funded by reimbursable money from the Corps of Engineers.

13231-A-022 - Ecological Interactions between Hatchery and Wild Fish in the Wind River, WA

Facility	Lower Columbia River Fish Health Center
Expended	$24083
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Wind River summer run steelhead
Plans	Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan National Wild Fish Health Survey 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Comprehensive Hatchery Management Plan - Carson NFH
Keyword	Recovery
Need Number	N-002
Partners	U. S. Forest Service U.S. Geological Survey,

Accomplishment Summary

The interaction, habitat use, and disease status of hatchery salmon and wild steelhead in the Wind River has been done. No fish health problems have been found thus far. According to PIT tag data, the young hatchery salmon that reared naturally in the river in 2005-6 survived and migrated to Bonneville Dam. This year's crop of salmon have a poor survival rate, likely due to the big spring rains and river flush-outs. This information is available for management decisions.

Description

The *importance* to the Resource:

Valuable tribal, sport and commercial fishing is provided by Chinook salmon from Carson National Fish Hatchery on the Wind River in the Columbia River Basin. However, these fish are not native to the river and may interfere with the native-borne steelhead which are a threatened population. Results from this work apply to other NW basins.

The *problem*:

Concerns have been raised whether current salmon management practices (leaving some hatchery salmon in the river to spawn outside the hatchery) are limiting the recovery of steelhead. This may have disease and competition implications that could be easily avoided.

The *objective*:

Determine if the Carson salmon fry that rear naturally in the Wind River are a source of competition and/or disease for the native steelhead, the original inhabitants of the Wind River in WA.

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

Accomplishments

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

The *method*:

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

Further description:

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

13231-A-027 - Hatchery Review Team Participation by Lower Columbia River Fish Health Ctr

Facility	Lower Columbia River Fish Health Center
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	Confederated Tribes of The Warm Springs National Oceanic and Atmospheric Administration, Fisheries Oregon Department of Fish and Wildlife U. S. Forest Service Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Not all hatcheries are effectively achieving the best results needed.

The *objective*:

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.

The *method*:

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.

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

14110-A-504 - Fall Chinook salmon harvest mitigation

Facility	Lower Snake River Compensation Plan Office
Expended	$1025841
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Snake River Fall Chinook Salmon
Plans	Lower Snake River Compensation Plan
Keyword	Mitigation
Need Number	N-002
Partners	Bonneville Power Administration Confederated Tribes of the Umatilla Indian Reservation Idaho Department of Fish and Game Idaho Power Company National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife United States Army Corps of Engineers Washington Department of Fish and Wildlife

Accomplishment Summary

Approximatly 3.2 million juvenile fall Chinook salmon were released from the Lyons Ferry Fish Complex in 2006. Fish were marked/tagged for LSRCP evaluations, and in accordance with the U.S. versus Oregon Settlement agreement. Approximatly 16,188 adult fall Chinook returned to the Snake River basin in 2005 of which about 8,351 were attributed to the Lyons Ferry Fish complex. The LSRCP annual adult return goal back to the project area for fall chinook is 18,300.

Description

The *importance* to the Resource:

Prior to completion of four hydroelectric dams on the lower Snake River, an average of 32,700 fall Chinook salmon returned to spawn in the basin annually. The progeny of these fish help support commercial, recreation and tribal fisheries in S.E. Alaska, British Columbia, along the Oregon and Washington coasts, and in the Columbia River Basin.

The *problem*:

The U.S. Army COE Coordination Act Report (June 1975) estimated that constructing and operating the 4 dams would reduce the annual spawning escapement in the Snake River by about 18,300 adults, which would lead to a reduction of about 73,200 fish from the coast-wide harvest.

The *objective*:

To mitigate for the lost harvest of Fall Chinook Salmon caused by the existence and operation of the lower four Snake River Dams as required by the Fish and Wildlife Coordination Act.

Accomplishments

Number of visitors to service facilities.	600
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	6
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	2
Number of mitigation post-stocking survival tasks implemented as prescribed in approved plans.	2

The *method*:

The Lyons Ferry Fish Hatchery and off-site acclimation ponds were constructed by the U.S. Army Corps of Engineers to hatch, rear and release fall Chinook salmon back into the Snake River basin. Returning fish surplus to broodstock would be available for harvest.

Further description:

The LSRCP program is directly funded as a Power Related Cost by the Bonneville Power Administration. The Lyons Ferry Hatchery, the associated Monitoring and Evaluation Program, and the Fish health Program are operated by the Washington Department of Fish and Wildlife under a cooperative agreement with the FWS.

14110-A-510 - Steelhead harvest mitigation

Facility	Lower Snake River Compensation Plan Office
Expended	$7462822
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	Lower Snake River Compensation Plan
Keyword	Mitigation
Need Number	N-002
Partners	Bonneville Power Administration Confederated Tribes of the Umatilla Indian Reservation Idaho Department of Fish and Game National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Pacific States Marine Fisheries Commission Shoshone-Bannock Tribe United States Army Corps of Engineers Washington Department of Fish and Wildlife

Accomplishment Summary

Approximately 4.2 million juvenile steelhead were released in 2006 from five LSRCP hatcheries (Magic Valley, Clearwater, Irrigon, Wallowa, and Lyons Ferry). Fish were marked for LSRCP evaluaitions, and in accordance with the U.S. vs Oregon Settlement Agreement. Approximately 156,000 adult steelhead returned to the Snake River basin, above Lower Granite Dam, in 2005, of which nearly 72,000 were originated from the LSRCP. The LSRCP annual adult return goal for steelhead is 55,100.

Description

The *importance* to the Resource:

Prior to completion of four hydroelectric dams on the lower Snake River, an average of 114,800 steelhead returned to spawn in basin annually. The progeny of these fish helped support commercial, recreational and tribal fisheries in the mainstem Columbia River and Snake River basin.

The *problem*:

The U.S. Army COE Coordination Act Report (June 1975) estimated that constructing and operating the 4 dams would reduce the annual steelhead spawning escapement in the Snake River by about 59,700, which would lead to a significant reduction of steelhead for harvest.

The *objective*:

To mitigate for the lost harvest of steelhead caused by the construction and operation of the four lower Snake River dams as required by the Fish and Wildlife Coordination Act.

Accomplishments

Number of visitors to service facilities.	4250
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	6
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	2
Number of mitigation marking & tagging tasks implemented as prescribed in approved plans.	1

The *method*:

Five fish hatcheries (Lyons Ferry, Wallowa, Clearwater, Magic Valley and Irrigon) and off-site acclimation ponds, were constructed by the U.S. Army Corps of Engineers to hatch, rear and release steelhead into the basin. Returning adults, surplus to broodstock needs, would be available for harvest.

Further description:

The LSRCP program is directly funded as a Power Related Cost by the Bonneville Power Administration. The Lyons Ferry Fish hatchery is operated by the Washington Department of Fish and Wildlife. The Irrigon and Wallowa hatcheries are operated by the Oregon Department of Fish and Wildlife. The Magic Valley and Clearwater fish hatcheries are operated by the Idaho Department of Fish and Game. Each agency listed above also participates in an integrated hatchery evaluation program and operates an ongoing fish health program.

14110-A-511 - Spring/Summer Chinook salmon harvest mitigation.

Facility	Lower Snake River Compensation Plan Office
Expended	$8641973
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Snake River Spring/Summer Chinook ESU
Plans	Lower Snake River Compensation Plan
Keyword	Mitigation
Need Number	N-002
Partners	Bonneville Power Administration Confederated Tribes of the Umatilla Indian Reservation Idaho Department of Fish and Game National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Pacific States Marine Fisheries Commission Shoshone-Bannock Tribe United States Army Corps of Engineers Washington Department of Fish and Wildlife

Accomplishment Summary

Approximately 6.2 million juvenile spring/summer chinook were released in 2006 from five LSRCP hatcheries (McCall, Sawtooth, Clearwater, Lyons Ferry, and Lookingglass). Portions of the production was marked for LSRCP evaluations, and portions were marked for U.S. vs Oregon Agreements. Approximately 35,100 adult spring/summer chinook returned to the Snake River basin, above Lower Granite Dam in 2005. Nearly 18,500 were due to LSRCP efforts. The LSRCP annual adult return goal is 58,700.

Description

The *importance* to the Resource:

Prior to completion of four hydroelectric dams on the lower Snake River, an average of 122,700 Spring/Summer Chinook Salmon returned to spawn in the basin annually. The progeny of these fish helped support commercial, recreational and tribal fisheries in the mainstem Columbia River and Snake River basin.

The *problem*:

The US Army COE Corrdination Act Report (June 1975) estimated that constructing and operating the four dams would reduced the annual spawning escapement in the Snake River basin by about 63,500 adults, which would lead to a significant reduction of spring/summer chinook for harvest.

The *objective*:

To mitigate for the lost harvest of Spring/Summer Chinook Salmon caused by the construction and operation of the four lower Snake River dams as required by the Fish and

Accomplishments

Number of visitors to service facilities.	20600
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	7
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	2
Number of mitigation post-stocking survival tasks implemented as prescribed in approved plans.	2

Wildlife Coordination Act.

The *method*:

Six fish hatcheries (Lyons Ferry, Tucannon, Lookingglass, Clearwater, Sawtooth and McCall) and off-site acclimation ponds were constucted by the U.S. Army Corps of Engineers to hatch, rear and release Spring/Summer Chinook Salmon into the Snake River Basin. Returning fish, surplus to broodstock needs, would be available for harvest.

Further description:

The LSRCP program is directly funded as a Power Related Cost by the Bonneville Power Administration. The Lyons Ferry and Tucannon Fish hatcheries are operated by the Washington Department of Fish and Wildlife. The Lookingglass hatchery is operated by the Oregon Department of Fish and Wildlife. The McCall and Sawtooth Fish Hatcheries are operated by the Idaho Department of Fish and Game. Each agency listed above also participates in an integrated hatchery evaluation program and operates an ongoing fish health program.

14110-A-512 - Resident recreational fishery harvest mitigation

Facility	Lower Snake River Compensation Plan Office
Expended	$387663
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Not specified
Plans	Lower Snake River Compensation Plan
Keyword	Mitigation
Need Number	N-002
Partners	Bonneville Power Administration Idaho Department of Fish and Game United States Army Corps of Engineers Washington Department of Fish and Wildlife

Accomplishments

Number of visitors to service facilities.	600
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	2
Number of mitigation production tasks implemented as prescribed in approved plans. (PART)	1

Accomplishment Summary

Approximately 86,000 pounds of resident rainbow trout (nearly 400,000), were released in 2006 from the Lyons Ferry Hatchery Complex, which includes the Tucannon hatchery. The annual LSRCP release goal for resident rainbow trout is 86,000 pounds.

Description

The *importance* to the Resource:

Smallmouth bass, channel catfish, sturgeon and whitefish were the primary resident fish species sought by anglers fishing the free-flowing lower Snake River prior to construction of the four hydroelectric dams. This fishery provided substantial social, recreational and economic benefits to the region.

The *problem*:

Construction of the dams created large reservoirs that are more favorable to other species, and of course eliminated the stream-type fishery. The U.S. Army COE Coordination Act Report (June 1975) estimated that this transition reduced recreational fishing effort by the equivalent of 67,500 angler days.

The *objective*:

To compensate for the lost fishery and decline in fishing effort by creating new put-and-take rainbow trout fisheries in southwestern Washington and northern Idaho.

The *method*:

Components of the Lyons Ferry Hatchery Complex, including the Tucannon Hatchery, were constructed to accomodate rearing 86,000 pounds of resident rainbow trout to

		mitigate for lost angling opportunities on the Snake River due to construction of the Lower Snake River Dams. **Further description:** The LSRCP program is directly funded as a Power Related Cost by the Bonneville Power Administration. The Lyons Ferry Hatchery Complex is operated by the Washington Department of Fish and Wildlife.

13330-A-105 - Evaluation and management of hatchery mitigation programs at Leavenworth NFH Complex.

Facility	Mid-columbia River Fisheries Resource Office
Expended	$549712
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Methow River (UCMET) spring chinook salmon.
Plans	Leavenworth Hatchery Genetics Management Plan Entiat Hatchery Genetics Management Plan Winthrop National Fish Hatchery Genetics Management Plan
Keyword	Management
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	4
Number of Fishery Management Plan production tasks implemented (PART)	4
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,	3

Accomplishment Summary

Sampled the return of over 4,700 spring Chinook salmon to three federal hatcheries. Staff participated on the FWS Hatchery Review Team (Warm Springs NFH completed). Worked with state and tribal managers to collect and rear ESA-listed salmonids. Developed draft Comprehensive Hatchery Management Plans for all 3 hatchery facilities. Continued to provide ESA compliance support for the hatchery complex. Deployed temperature recorders throughout areas of Icicle Creek influenced by LNFH operations.

Description

The *importance* to the Resource:

Effective hatchery practices produce fish for harvest, or for supplementation of wild populations, while minimizing deleterious effects on wild fish populations. Effective hatchery practices therefore are a critical component of salmon recovery in the Pacific Northwest.

The *problem*:

The US Bureau of Reclamation funds the hatchery evaluation programs associated with the Leavenworth National Fish Hatchery (LNFH) Complex (reimbursable; sub activity 1932 04BR). These programs are intended as partial mitigation for fish losses associated with Grand Coulee Dam.

The *objective*:

The Mid-Columbia River Fishery Resource Office (MCRFRO) evaluates the effectiveness of these programs and coordinates management of these stocks with other

as prescribed by Fishery management plans. (PART)	
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

federal, state and tribal fish managers. The MCRFRO also provdes ESA and NEPA compliance for the hatchery complex.

The *method*:

FY2006 activities include documenting returns to complex facilities, genetic tissue collection of all fish strains, assessment of production strategies and return rates, harvest estimates, determining impacts of hatchery production to natural stocks (including impacts to ESA listed species), fish marking, and coordination with co-managers.

Further description:

The US Bureau of Reclamation funds the hatchery evaluation programs associated with the Leavenworth National Fish Hatchery (LNFH) Complex. These programs are intended as partial mitigation for fish losses associated with Grand Coulee Dam. The Mid-Columbia River Fishery Resource Office (MCRFRO) evaluates the effectiveness of these programs and coordinates management of these stocks with other federal, state and tribal fish managers. MCRFRO's FY 2006 activities include providing ESA-compliance for the hatchery complex, documenting returns to each of the three facilities, genetic tissue collection of all fish strains, assessment of production strategies and their ability to return fish, harvest estimates, hatchery/wild fish disease assessments, maintenance of water temperature data loggers, determining impacts of hatchery production to natural stocks (including impacts to ESA-listed species), fish marking for study and management needs, and coordination with local and regional management entities and plans. We are also near completion of Comprehensive Hatchery Management Plans for all facilities. We completed Section 7 consultation for the operations and maintenance of Leavenworth

		NFH.

13255-A-003 - Study to evaluate release of unfed fry utilizing otolith marking technique.

Facility	Spring Creek National Fish Hatchery
Expended	$300
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	Spring Creek NFH Hatchery and Genetic Management Plan Comprehensive Hatchery Management Plan - Spring Creek NFH 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Fish Technology
Need Number	N-002
Partners	U.S. Army Corps of Engineers

Accomplishments

Recovery Plan production tasks implemented (PART)	1

Accomplishment Summary

Collected 2000 otoliths from 3 year and 4 year old returning adult fall Chinook during the 2005 spawning season.. Received results from 2000 otoliths collected from FY2004 return year.

Description

The *importance* to the Resource:

Unfed fry releases may contribute to achieving escapement goals for the hatchery. During years of low ocean productivity the hatchery may not always achieve it's escapement goal of 7,000 adults. Releasing large numbers of unfed fry in addition to smolts may contribute to returning adults numbers.

The *problem*:

Historically, Spring Creek National Fish Hatchery would release large numbers of unfed fry or presmolt juveniles. This practice was discontinued during years of low adult return numbers when surplus eggs were not available. The return rate of unfed fry was never fully evaluated to determine the contribution of that action.

The *objective*:

Three different yearclasses of unfed fry will be marked and recaptured as returning adults to determine survival rate and contribution to escapement goals.

The *method*:

One million unfed fry will be marked, beginning in 1999 using the technique of otolithography, (thermal marking of otoliths) As returning adults, otliths will be taken and read to determine return and survival rates.

		Further description: The release of unfed fry had been a component of the production program at Spring Creek NFH since 1901, but was discontinued in 1970. Adult return rates began to diminish after termination of the unfed fry program. A study was initiated in 1999 to evaluate the contribution of unfed fry to adult returns to the facility. Unfed fry releases occurred in 1999, 2001 and 2002 as 3 million fry each year were otolith-marked by water temperature manipulation and released unfed. In 2005, otoliths were collected from 1000 3-year old adults and 1000 4-year old adults. Results from broodyear returns from unfed fry to date is 0.021% compared to 0.631% for normal smolt returns for the same year classes. Information from this study will be used for future management decisions when adjusting or modifying production targets and to development techniques for tagging unfed fry . The COE had provided funding for this study up through 2005. Additional funding is needed to evaluate samples collected in 2005 and complete the study.

13255-A-005 - Broodyear 2005 - Fish Production.

Facility	Spring Creek National Fish Hatchery
Expended	$836849
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	White Salmon River fall run (tule) Chinook
Plans	Spring Creek NFH Hatchery and Genetic Management Plan Comprehensive Hatchery Management Plan - Spring Creek NFH 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Mitigation
Need Number	N-002
Partners	National Marine Fisheries Service U.S. Army Corps of Engineers

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
Recovery Plan production tasks implemented (PART)	2

Accomplishment Summary

Collected 17.56 million eggs from 6,167 adult broodstock selected from a total adult return of 34, 291. Released 15.1 million tule fall Chinook salmon smolts. Returning adults contribute to tribal, sport and commercial fisheries in the Columbia River and Ocean.

Description

The *importance* to the Resource:

The tule stock of fall Chinook that the hatchery has propagated for over 100 years originated from the White Salmon River just East of the hatchery. This stock is an index stock for the US/Canada Salmon Treaty and is a major contributor to the commercial and sports ocean fishery as well as sport and tribal fishery.in the Columbia River

The *problem*:

Hydroelectric projects on the Columbia River have inundated much of the spawning habitat for this stock. There is little natural reproduction of this tule stock above Bonneville Dam. Hatchery propagation of this stock is essential to maintain this population and to provide harvest benefits.

The *objective*:

The hatchery program mitigates for lack of natural reproduction by propagating and releasing sufficient numbers, 15 million, to provide escapement back to the hatchery and harvest benefits.The hatchery has propagated this tule stock of fall Chinook for over 100 years using the White Salmon River population as the founding stock.

The *method*:

Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	3
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

Sufficient number of returning broodstock, 7,000 adults are necessary to meet our mitigation goal of 15.1 million smolt release. The hatchery has been monitoring 21 quality indicators for the last 15 years to improve survival and adult return rates.

Further description:

Spring Creek NFH has raised the Tule fall Chinook stock for more than one hundred years which has helped maintain the genetic integrity of this an indigenous population. The hatchery mitigates for loss of spawning habitat due to Federal water projects on the Columbia River. The stock is an index stock for the US/Canada Salmon Treaty and is a major component for the commercial and sports ocean fishery as well as a major contributor to the in-rive tribal and sport fishery. More than 34,250 tule fall Chinook returned to the hatchery last year. The adult return consisted of 20,545 females, 12,478 males and 1,268 jacks. A representative sample of adults collected through out the spawning run, 6,167 fish, were used to meet our production goal of 17.5 million eggs . The remaining fish were surplussed through the Federal Prison System. Spring Creek NFH released more than 15 million tule fall Chinook Salmon smolts this spring. Three distinct groups beginning in March and ending in May were released directly into the Columbia River and coordinated with water releases from dams to assist with downstream migration.

13255-A-012 - Ladder Pulsing Project

Facility	Spring Creek National Fish Hatchery
Expended	$500
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	White Salmon River fall run (tule) Chinook
Plans	Spring Creek NFH Hatchery and Genetic Management Plan Comprehensive Hatchery Management Plan - Spring Creek NFH
Keyword	Mitigation
Need Number	N-002
Partners	U.S. Army Corps of Engineers

Accomplishments

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

Accomplishment Summary

Determine effects of ladder pulsing on brood stock collection and straying of tule fall Chinook.

Description

The *importance* to the Resource:

The tule stock of fall Chinook contributes to sport commercial and tribal fisheries both in river and ocean. Collection of sufficient broodstock fish from the entire run is essential to maintain the genetic integrity of this native stock.

The *problem*:

Adult fish returns to the hatchery have far exceeded escapement needs producing large surplus of fish. Handling and disposal of surplus fish is man power intensive and costly. Limiting the number of adults that enter the facility by closing the ladder would allow the hatchery to better manage surplus fish

The *objective*:

Determine if behavior changes of tule fall Chinook salmon during intermittent ladder closure increases straying. Ensure ladder closures do not compromise the ability of the hatchery to collect a representation portion of the run for broodstock. Leaving more fish in the river could contribute to harvest, nutrient enrichment and natural spawning.

The *method*:

To assess straying during ladder closures, 180 fish were collected from the ladder and marked. All fish received a Peterson disc tag and were released back into the Columbia

		River upstream from the ladder entrance. Tag recoveries were made from fish returning to the hatchery or from carcass surveys on the White Salmon River. **Further description:** Spring Creek NFH staff worked collaboratively with the Columbia River Fisheries Program Office to evaluate fish ladder management during the 2005 tule fall Chinook salmon run. Ladder operation at the hatchery began August 29th and ended on October 1st, 2005. The ladder was closed for two separate time periods for a total of 96 hours. To assess straying of Spring Creek tule fall Chinook salmon during ladder closure, 180 fish were collected from the ladder and marked. All fish received a Peterson disc tag and were released back into the Columbia River upstream from the ladder entrance. Of the 180 tagged fish, 122 tags were recovered. The major, over 95%, of the recovered tags were from fish that returned to the hatchery while less than 1% were recovered from the White Salmon River, 3 miles upstream from the hatchery. Preliminary results suggest that ladder pulsing does not cause Spring Creek NFH tule fall Chinook to stray into other tributaries and the hatchery can effectively collect a representative sample of the run. This study was completed in 2005 with final report scheduled for completion in 2006.

13255-A-014 - Mass Marking

Facility	Spring Creek National Fish Hatchery
Expended	$1000
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	White Salmon River fall run (tule) Chinook
Plans	Comprehensive Hatchery Management Plan - Spring Creek NFH Spring Creek NFH Hatchery and Genetic Management Plan 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Mitigation
Need Number	N-002
Partners	National Marine Fisheries Service U.S. Army Corps of Engineers

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
Number of post stocking survival tasks met as prescribed by Fishery Management Plans,	1

Accomplishment Summary

Mass marked more than 15 million tule fall Chinook Salmon

Description

The *importance* to the Resource:

Mass marking distinguishes hatchery from wild or naturally produced fish, providing the opportunity for selective fisheries which would protect listed populations. Also complying with a congressional mandate to mass mark all federally funded hatchery fish that are produced primarily for the purpose of harvest,

The *problem*:

Not all fall Chinook released from Spring Creek NFH were mark so we have not been able to distinguish hatchery from wild or naturally produced fish.. Mass marking of all hatchery fall Chinook Salmon will provide the ability to distinguish hatchery from wild Chinook during broodstock collection and provide management options.

The *objective*:

Mass marked all 15.1 million tule fall Chinook salmon released from Spring Creek NFH this year by removing the adipose fin. A representative number also received a coded wire tag to evaluate hatchery success.

The *method*:

Using state of the art mass marking trailers and conventional hand tagging trailers mark all 15 million fall Chinook salmon between January and May for each year prior to scheduled releases..

for hatchery propagated depleted species (PART)	
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

Further description:

The hatchery assisted the Lower Columbia Fishery Resource Office in mass marking 15.1 million tule fall Chinook salmon this year. This is of the largest tagging efforts that the FWS has undertaken at any one facility. More than 15 million fall Chinook were adipose fin clipped and 900,000 also received a coded wire tag. As many as five marking trailers running double shifts were necessary to complete the marking process within a short window of mid January to early April prior to release. The overall marking program was very successful with essentially little to no additional mortally observed over previous years when only 450,000 were marked.

13232-A-001 - Rear and mark native coho salmon to support tribal restoration efforts.

Facility	Willard National Fish Hatchery
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	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 Coho Salmon Hatchery and Genetic Management Plan Wenatchee Subbasin Plan
Keyword	Restoration
Need Number	N-002
Partners	Bonneville Power Administration National Oceanic and Atmospheric Administration, Mitchell Act Yakama Indian Nation

Accomplishment Summary

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

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

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.

The *method*:

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.

Further description:

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)			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).
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
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	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon U. S. vs OR Columbia River Fishery Management Plan (under renegotiation) 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

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

Produce healthy, high quality smolts for transfer and release at acclimation sites located on the Umatilla River.

The *method*:

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.

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
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	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	Confederated Tribes of the Umatilla Indian Reservation National Oceanic and Atmospheric Administration, Mitchell Act

Accomplishment Summary

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.

Description

The *importance* to the Resource:

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.

The *problem*:

Habitat degredation 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.

The *objective*:

Produce healthy, high quality smolts for transfer and release into the Walla Walla River.

The *method*:

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

Further description:

A total of 250,000 spring Chinook salmon are being reared at Willard NFH for future release

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.

13265-A-003 - Production and Distribution of Spring Chinook Salmon

Facility	Winthrop National Fish Hatchery
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Methow River (UCMET) spring chinook salmon.
Plans	Winthrop National Fish Hatchery Genetics Management Plan 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon
Keyword	Mitigation
Need Number	N-002
Partners	U.S. Bureau of Reclamation ($500000) Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	9
number of marking and tagging targets met, as prescribed by Fishery management plans.	4

Accomplishment Summary

Reared and released 484,000 yearling Spring Chinook Salmon into the Methow River (tributary to the Columbia River). Incubated to the fry stage and released 16,000 Spring Chinook salmon fry into the Methow River. Produced 784,000 Spring Chinook Salmon eggs from 499 returning adult salmon for use in Spring Chinook Salmon production and distribution at Winthrop NFH.

Description

The *importance* to the Resource:

The spring chinook program at Winthrop NFH was initiated as mitigation for construction of Grand Coulee Dam, however recently shifted to a recovery effort for the survival of spring chinook salmon in the upper Columbia Basin. Spring chinook in the upper Columbia Basin were listed by the National Marine Fisheries Service as "endangered" in 1999.

The *problem*:

Indigenous spring chinook salmon numbers have been on a gradual downward trend since the construction of several hydroelectric projects on the upper Columbia River. Reasons for decline include the construction and operation of mainstem Columbia River hydropower projects, habitat degradation, harvest management and hatchery practices.

The *objective*:

The objective is to assist in rebuilding the naturally spawning spring chinook salmon populations in the Methow River, tributary to the Columbia River. In addition, the program is designed to provide sport and tribal harvest opportunities during years when escapement

(PART)	
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 Fishery Management Plans. (PART)	7

goals are exceeded.

The *method*:

Local spring chinook salmon collected from the Methow River (upper Columbia River ESU) are used as broodstock. The Winthrop NFH provides refugia, incubation, rearing, marking, acclimation, and release of spring chinook salmon to the Methow River system.

Further description:

The Winthrop National Fish Hatchery is located near the Methow River in North Central Washington State. Returning adults must pass nine dams to reach the Winthrop hatchery. Salmon are reared and released as mitigation for construction of Grand Coulee Dam. The Winthrop National Fish Hatchery raises Salmon in accordance with the Columbia River Fisheries Management Plan. Benefits of the Winthrop stocking program include maintaining returns of Spring Chinook Salmon to the upper Columbia, and Methow Rivers. The Winthrop National Fish Hatchery is one of three hatcheries n the Leavenworth National Fish Hatchery Complex. The Complex was authorized by the Grand Coulee Fish Maintenance Project, April 3, 1937, and reauthorized by the Mitchell Act, May 11, 1938. Currently, the Complex is funded through a reimbursable agreement (sub activity 1932) with the Bureau of Reclamation as mitigation for Grand Coulee Dam, and is authorized by the US v. Oregon decision, and the US Canada Treaty.

13265-A-004 - Rearing and release of Summer Steelhead for recovery and restoration of species

Facility	Winthrop National Fish Hatchery
Expended	$0
Objective	Meet the Service's responsibilities for mitigating fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Methow River (UCMET-s) population, part of the Upper-Columbia River steelhead ESU.
Plans	Winthrop Hatchery Genetics Management Plan (Steelhead) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon
Keyword	Mitigation
Need Number	N-002
Partners	U.S. Bureau of Reclamation ($90000) Washington Department of Fish and Wildlife

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	5
number of marking and tagging targets met, as prescribed by Fishery management plans.	3

Accomplishment Summary

Reared and released 103,000 yearling Summer Steelhead into the Methow River (tributary to the Columbia River).

Description

The *importance* to the Resource:

The steelhead program at Winthrop National Fish Hatchery is part of the recovery effort for the survival of summer steelhead in the upper reaches of the Columbia River. Steelhead in the upper Columbia were listed by the National Marine Fisheries Service as "endangered" in 1997 and reduced to "threatened" status in 2005.

The *problem*:

Indigenous summer steelhead numbers have been on a gradual downward trend since the construction of several hydroelectric projects on the upper Columbia River. Reasons for decline include the construction and operation of mainstem Columbia River hydropower projects, habitat degradation, release locations, and hatchery practices.

The *objective*:

The objective is to assist the Washington Department of Fish and Wildlife in rebuilding the naturally spawning summer steelhead populations in the Methow River, tributary to the Columbia River. In addition, the program is designed to provide sport and tribal harvest opportunities during years when escapement goals are exceeded.

The *method*:

(PART)	
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)	7

Wells Stock (Upper Columbia ESU) summer steelhead are transferred to Winthrop NFH as eyed eggs in February of each year. The Winthrop NFH provides incubation, rearing, marking, acclimation, and release of yearling steelhead to the Methow River system.

Further description:

A total of 103,000 yearling Summer Steelhead were reared at the Winthrop National Fish Hatchery, and released into the Columbia River Basin. The steelhead are tagged and marked to evaluate the success of recovery efforts. The Winthrop National Fish Hatchery raises steelhead in accordance with the Columbia River Fisheries Management Plan, and National Marine Fisheries Service guidelines. The Winthrop National Fish Hatchery is one of three hatcheries in the Leavenworth National Fish Hatchery Complex. The Complex was authorized by the Grand Coulee Fish Maintenance Project, April 3, 1937, and reauthorized by the Mitchell Act, May 11,1938. Currently, the Complex is funded through a reimbursable agreement (sub activity 1932) with the Bureau of Reclamation as mitigation for Grand Coulee Dam, and is authorized by the US v. Oregon decision, and the US Canada Treaty.