Project Report December 8, 2006

Strategic Plan Objectives: Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.

66 projects found

13210-A-005 - Participation in Washington State Hatchery Reform Group: A Model for Cooperative Hatchery Reform

Facility	Abernathy Fish Technology Center
Expended	$43097
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	Puget Sound ESU/Dosewallips River Independent Population
Plans	Puget Sound and Coastal Washington Hatchery Reform Project
Keyword	Fish Technology
Need Number	N-002
Partners	Long Live the Kings ($1200) Washington Department of Fish and Wildlife ($5000)

Accomplishment Summary

Computer models have been developed and continue to be refined to implement long-range goals for hatcheries, habitat, and harvest. A manuscript describing the hatchery reform process was published in a peer-reviewed journal. Several technical workshops with co-managers were conducted. Progress report has been submitted to Congress.

Description

The *importance* to the Resource:

Hatcheries are one of several tools available for recovering wild salmon and supporting sustainable fisheries. They represent the most effective tool for achieving established goals for salmon populations. Hatchery reform means designing and operating hatchery programs in concert with the needs of wild salmon and steelhead populations.

The *problem*:

Hatchery operations began in the Pacific Northwest more than 100 years ago, with the primary purpose of producing fish for harvest. Recent findings have made it clear that hatchery operations contribute to the decline of wild salmon populations, requiring us to fundamentally change the way we think about hatcheries.

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	3
Number of training session to support Tribal fish & wildlife conservation.	10
Number of applied aquatic scientific and technologic tools shared with partners.	2
Number of techniques and culture technology tools developed.	2

The *objective*:

To conduct a systematic, science-driven approach to rethinking how to use hatcheries to achieve two goals: help recover wild salmon and steelhead populations; and provide sustainable fisheries.

The *method*:

The Hatchery Scientific Review Group (HSRG), between 2000 and 2006, reviewed all salmon and steelhead state, federal, and tribal hatchery programs in western Washington for their compliance with scientific principles, fishery and conservation goals.

Further description:

Hatchery Reform

13210-A-071 - Genetic Stock Identification of Adult Spring/Summer Chinook Salmon at Lower Granite Dam

Facility	Abernathy Fish Technology Center
Expended	$40000
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	Snake River Spring/Summer Chinook ESU
Plans	Lower Snake River Compensation Plan 2000 NMFS FCRPS Biological Opinion - December 21, 2000 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Genetics
Need Number	N-002
Partners	Columbia River Inter Tribal Fish Commission ($60000) Idaho Fish and Game ($30000) Lower Snake River Compensation Plan ($2000) National Oceanic and Atmospheric Administration, Northwest Fisheries Science

Accomplishment Summary

A joint project was initiated to determine the feasibility of using genetic mixture analysis to estimate natural and hatchery contribution to the Snake River aggregate escapement at Lower Granite Dam (LGD) in Idaho. 1000 fish were genotyped at 13 microsatellite loci. A power analysis will be conducted in FY07 to determine the resolution of the mixture analysis and to determine if 1000 fish is sufficient to represent the total composition of hatchery and natural populations.

Description

The *importance* to the Resource:

Population level abundance is an essential component for monitoring the effects of harvest, habitat restoration programs, or recovery programs. We tested the ability to use genetic markers to estimate Chinook salmon population proportions precisely and accurately from mixed-stock samples collected at Lower Granite Dam on the Snake River, ID.

The *problem*:

Currently managers rely on coded wire tag program (CWT) and redd counts to estimate population abundance of endangered Chinook salmon populations in the Snake River. These methods have serious limitations for monitoring wild stocks and within river harvest rates.

The *objective*:

Develop genetic based methods to assign mixtures of fish back to their geographic origins in the Snake River.

The *method*:

	Center ($60000)

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	1
Number of mitigation tasks implemented as prescribed in approved plans. (PART)	1

Genetic mixture analysis was used to estimate natural and hatchery contribution to the Snake River aggregate escapement at LGD. Scales taken from stratified-random sample of Chinook at LGD (n=1000) will were genotyped at 13 microsatellite loci. Fish were also aged to determine the population composition and age structure of the aggregate run.

13310-A-101 - U.S./Canada Marking and Technical Assistance Activities

Facility	Columbia River Fisheries Program Office
Expended	$110000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Treaty of 1999 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon Spring Creek NFH Hatchery and Genetic Management Plan Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Interjurisdictional
Need Number	N-002

Accomplishment Summary

Index tagged 637,307 Chinook at Spring Creek and Leavenworth NFHs.

Description

The *importance* to the Resource:

The Pacific Salmon Commission is responsible for US-Canada west coast salmon stock status assessment, harvest sharing allocation, and fishery planning. Representative marking of index 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 healthy abundant hatchery and other productive wild stocks. A coast wide stock assessment program to monitor and evaluate the status of stocks and impacts of fisheries on various stocks of concern is critical to wild stock protection and recovery.

The *objective*:

The FWS, in conjunction with other state, tribal and federal management agencies, annually coded wire tags a representative group of index hatchery stocks that are used in the coast wide Pacific Salmon Commission fisheries and stock assessment program.

The *method*:

The Columbia River Fisheries Program Office staff annually index tags approximately 450,000 Spring Creek tule fall Chinook and 200,000 Leavenworth spring Chinook and recovers tags from hatchery returns of these

Partners	Alaska Department of Fish and Game Columbia River Inter Tribal Fish Commission Confederated Tribes of The Warm Springs National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Umatilla Tribe Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed 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.	4

stocks to track exploitation rates of key indicator stocks for international west coast Chinook salmon fisheries.

Further description:

A total of 450,738 tule fall Chinook and 186,569 spring Chinook were tagged at Spring Creek NFH and Leavenworth NFH, respectively, in FY 2006. Monitoring exploitation rates of the indicator stocks allows the Chinook Technical Committee of the Pacific Salmon Commission to estimate impacts on stocks of concern and track fishery impacts relative to past fishery management actions and policies and current allocation objectives. Fishery impact analysis, which is enabled by the indicator stock tagging program, is critical to protection and recovery of depressed and ESA listed west coast Chinook stocks and ensuring that west coast fisheries stay within their prescribed limitations.

13310-A-102 - Columbia River/West Coast Policy Level Harvest Management Activities

Facility	Columbia River Fisheries Program Office
Expended	$30000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon Pacific Salmon Treaty of 1999 Pacific Salmon Plan (1999), and various amendments Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Interjurisdictional
Need Number	N-002

Accomplishment Summary

Assisted in the development of Columbia River and west coast salmon and steelhead fisheries that met Endangered Species Act (ESA) biological opinion jeopardy standards.

Description

The *importance* to the Resource:

The Pacific Fishery Management Council manages salmon fisheries in federal waters off the coasts of WA, OR and CA. The states of WA, OR and ID and Columbia River treaty tribes manage Columbia River fisheries under their individual and joint management jurisdiction, all of which fall under the US v. Oregon treaty Indian fishing rights court case.

The *problem*:

State, tribal, and federal fishery management agencies often have differing perspectives on management approaches and even the appropriate level of restriction to protect stocks of concern. These interjurisdictional management issues must be worked out in policy level forums that provide opportunity for all concerns to be addressed.

The *objective*:

The FWS, in cooperation and coordination with the other west coast fishery management agencies participated in regional management forums to address interjurisdictional fisheries issues.

The *method*:

The Columbia River Fisheries Program Office provided policy level representation for Columbia River and PFMC management

Partners	California Department of Fish and Game Columbia River Inter Tribal Fish Commission Confederated Tribes of The Warm Springs National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Umatilla Tribe Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishments

Number of population assessments completed	17
Number of other Recovery Plan tasks implemented for T&E populations	5
Number of Fishery Management Plan production tasks implemented (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	18

forums that develop harvest management options that meet the needs of critical salmon and steelhead species, the treaty rights of native Americans, and provide the greatest benefit to other users, consistent with applicable law.

Further description:

With the Endangered Species Act (ESA) listing of many west coast salmon and steelhead populations, it has become increasingly difficult to design fisheries that achieve all of the goals while meeting ESA constraints. Protection and recovery of the fisheries resource continues to be the top priority of the Service in its participation in these harvest management fora at both the technical and policy level.

13310-A-103 - Support the Pacific States Marine Fisheries Commission's Regional Mark Processing Center

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Treaty of 1999 Columbia River Basin Fish and Wildlife Program (NPPC 2000) Pacific Salmon Plan (1999), and various amendments
Keyword	Interjurisdictional
Need Number	N-002
Partners	Idaho Department of Fish and Game National Marine Fisheries Service Oregon Department of Fish and Wildlife Pacific States Marine Fisheries Commission ($250000)

Accomplishment Summary

The Service provided financial support for the Pacific States Marine Fisheries Commission's Regional Mark Processing Center to help maintain the west coast salmon and steelhead tagging and recovery database.

Description

The *importance* to the Resource:

A coast wide coded wire tag stock and fisheries database is critical to the management of west coast ocean fisheries for the protection of ESA listed stocks and setting appropriate regulations to harvest other abundant stocks.

The *problem*:

A centralized database is much more efficient and cost effective than individual state and federal regional databases. However, the centralized database requires financial support by the relevant management agencies to help fund its annual operation and maintenance.

The *objective*:

The objective is to partner with the other west coast fishery management agencies and contribute a fair share of the centralized database annual maintenance costs.

The *method*:

The Service was directed by Congress to undertake activities in 1990 to support the Pacific Salmon Treaty. Funding is provided to support and maintenance of the Pacific States Marine Fisheries Commission's Regional Mark Processing Center (Center).

	Washington Department of Fish and Wildlife

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	4

Further description:

The Center has served state, federal, tribal, and non-governmental fisheries entities of the entire Pacific Coast for many years by processing and exchanging coded-wire tag (CWT) release, recovery, and associated catch/sample information. The Center serves as the single U.S. database to exchange CWT information with Canada in Pacific Salmon Commission (PSC) format on a regular basis. This is the primary information needed by the Pacific Salmon Commission to assess harvest impacts and stock status, the two primary responsibilities of the PSC. The following agencies provide additional financial support to the Center: NOAA-Fisheries, Idaho Department of Fish and Game, Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife.

13310-A-107 - Columbia River Fish Management Plan and Annual Management Agreement Negotiations

Facility	Columbia River Fisheries Program Office
Expended	$20000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
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
Keyword	Interjurisdictional
Need Number	N-002
Partners	Columbia River Inter Tribal Fish Commission Confederated Tribes of The Warm Springs Idaho Department of Fish and Game National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Shoshone-Bannock Tribe

Accomplishment Summary

Provided technical assistance on development of the Federal plan for utilizing hatchery production and fishery management strategies to conserve and rebuild depleted salmon and steelhead stocks.

Description

The *importance* to the Resource:

The states of WA, OR and ID and Columbia River treaty tribes manage Columbia River fisheries and hatchery production under their individual and joint management jurisdiction, all of which fall under the US v. Oregon treaty fishing rights court case, with oversight by NMFS and FWS relative to ESA compliance and their hatchery production obligations.

The *problem*:

State, tribal, and federal fishery management agencies often have differing perspectives on fishery and production management approaches and appropriate levels of restriction to protect stocks of concern. These interjurisdictional management issues must be worked out in policy level forums that provide opportunity for all concerns to be addressed

The *objective*:

The objective was to make a good faith effort to continue ongoing discussions towards renegotiation of a new long term fishery management plan.

The *method*:

The FWS, in cooperation and coordination with the other Columbia River states and tribes

	Umatilla Tribe Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishments

Number of population assessments completed	17
Number of Fishery Management Plan production tasks implemented (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1

participated in a number of local and regional technical and policy meetings in an effort to further the discussions on outstanding harvest and production issues relative to reaching agreement on a new long term fishery management plan for the Columbia River.

Further description:

The federal fisheries agencies believe the status of many natural stocks in the Columbia River Basin requires the refocus of existing artificial production policies and programs, and in some cases developing new programs, to achieve conservation and rebuilding of the natural stocks while meeting ongoing mitigation responsibilities. This process requires deliberate planning on a sub-basin basis and species-by-species level; one that explicitly weighs various risks and benefits of alternative artificial production and corresponding fishery management strategies to achieve our primary conservation objectives. The federal, tribal, and state parties to the Columbia River Fish Management Plan are engaged in negotiations which will guide artificial production policies and programs for the Columbia River Basin. All existing federal, state, and tribal artificial production programs are being reviewed and are subject to reform to meet Endangered Species Act (ESA) constraints. In addition, fisheries impacts are being reviewed to determine their contribution to listed stock recovery. Columbia River Fisheries Office staff have taken the lead for the Service in the technical assessment activities of these negotiations.

13310-A-110 - Columbia Basin Mainstem Fish Passage Coordination Activities

Facility	Columbia River Fisheries Program Office
Expended	$85000
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) 2000 NMFS FCRPS Biological Opinion - December 21, 2000 2006 Fish Passage Implementation Plan (In accordance with the Court Order) 2006 Fish Passage Plan - Corps of Engineers Projects 2006 Water Management Plan Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Fish Passage
Need Number	N-002
Partners	Bonneville Power Administration

Accomplishment Summary

Represented the Fish and Wildlife Service on fish passage issues in the Columbia River Basin by participating in numerous regional interagency forums that address the recovery of listed fish species. Our technical expertise helps ensure adequate passage for both listed and un-listed stocks.

Description

The *importance* to the Resource:

The Columbia River Fisheries Program Office (CRFPO) serves as the focal point for FWS activities related to fish passage issues in the Columbia/Snake River Basin. The CRFPO coordinates fish passage issues and FWS responses to issues that affect Service operations or responsibilities through several regional forums in the Columbia/Snake Basin.

The *problem*:

In season, real time management decisions are the norm through regional Columbia Basin interagency forums that include the Fish Passage Advisory Committee, Implementation Team, Technical Management Team, System Configuration Team, Water Quality Team, Fish Passage Operation and Maintenance Committee, and Study Review Work Group.

The *objective*:

Thw FWS, in conjunction with other state, tribal, and federal agencies must coordinate the needs, under law, of various listed and non-listed fish populations as the operation of the Federal Columbia River Power System impacts those populations

The *method*:

	Columbia River Inter Tribal Fish Commission Fish Passage Center Idaho Department of Fish and Game National Marine Fisheries Service Oregon Department of Fish and Wildlife U.S. Army Corps of Engineers U.S. Bureau of Reclamation Washington Department of Fish and Wildlife	Staff represent the FWS and their responsibilities and obligations at several muti-agency regional management fora to discuss data, coordinate, and reach consensus decisions, if possible, that affect daily and seasonal main-stem Federal Columbia River Power System operations as it impacts various ESA listed, and non-listed, fish populations. **Further description:** CRFPO input helps determine operations that allow for multiple uses as well as maintenance of significant trust resources. This includes: coordination of flow releases from Libby Dam for endangered Kootenai River white sturgeon spawning, with rearing flows for threatened bull trout, with flows for listed salmon and steelhead; scheduling releases of fish from Service hatcheries with requests for increased flows and spill at mainstem dams; coordinating flow releases for mainstem spawning fall chinook and chum.

Accomplishments

Number of population assessments completed	72
Number of other Recovery Plan tasks implemented for T&E populations	14
Number of other Fishery Management Plan tasks implemented for populations of management concern.	6
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

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-115 - Stock Assessment Marking for John Day Dam Mitigation Production

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Little White NFH Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Monitoring and Assessment

Accomplishment Summary

Marked 429,634 upriver bright fall chinook at Little White Salmon NFH as part of the assessment program for John Day Dam Mitigation.

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*:

Two groups of 200,000 coded- wire tags (CWTs), one for on-station release and one for a Yakima River release group, are applied for the purpose of hatchery evaluation, estimating survival and contribution rates, stock assessment, and brood stock management.

The *method*:

For FY 2006, 429,634 upriver bright fall Chinook were adipose fin clipped and tagged with coded-wire tags at Little White Salmon for this stock assessment program. In addition, comprehensive bio-sampling of all returning adults was conducted.

Need Number	N-002
Partners	U.S. Army Corps of Engineers ($104104)

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
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	2
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

Further description:

Each year Little White Salmon NFH rears 3,700,000 upriver bright fall Chinook as partial mitigation for the construction of John Day Dam. A total of 2,000,000 upriver bright fall Chinook are released on-station and the remaining 1,700,000 upriver bright fall Chinook are transferred to the Yakima River for release. The Corps of Engineers funds the rearing and marking program for John Day Dam mitigation production.

13310-A-118 - StreamNet Activities

Facility	Columbia River Fisheries Program Office
Expended	$13092
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	Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Interjurisdictional
Need Number	N-002
Partners	Bonneville Power Administration Columbia River Inter Tribal Fish Commission Idaho Department of Fish and Game Oregon Department of Fish and Wildlife Pacific States Marine Fisheries Commission Washington Department of Fish and Wildlife

Accomplishments

Accomplishment Summary

Provided Service hatchery facility, fish return and age composition information to the StreamNet database, and participated in StreamNet Steering and Technical Committee meetings. The data is used by managers to monitor populations.

Description

The *importance* to the Resource:

StreamNet was established to meet the data needs of the Northwest Power Planning Council's Fish and Wildlife Program and related activities that complement the Program.

The *problem*:

A multitude of agencies collect data on Columbia River basin fish and wildlife. Lack of coordination and a common database is ineffective and inefficient.

The *objective*:

StreamNet provides decision makers and fish and wildlife managers with essential baseline data to aid in their efforts to protect and restore the region's fish and wildlife resources.

The *method*:

Columbia River Fisheries Program Office provided Service hatchery facility, fish return and age composition information to the StreamNet database, and participated in StreamNet Steering and Technical Committee meetings.

Further description:

StreamNet is a cooperative venture of the

Number of other Recovery Plan tasks implemented for T&E populations	1		region's fish and wildlife agencies and tribes. The StreamNet project receives funding from the Bonneville Power Administration and is authorized under the Fish and Wildlife Program of the Northwest Power and Conservation Council. StreamNet 's mission is: To create, maintain, and enhance high quality, regionally consistent data on fish and related aquatic resources that are directly applicable to regional policy, planning, management, and research; and to provide data and information services in an efficient and timely manner and in a format that meets the needs of users.
Number of applied aquatic scientific and technologic tools shared with partners.	1		
Number of techniques and culture technology tools developed.	1		

13310-A-121 - Marking for Nez Perce Tribal Restoration Programs

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Provide technical assistance to Tribes.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Tribal
Need Number	N-002
Partners	Nez Perce Tribe ($11973)

Accomplishment Summary

Tagged a total of 60,625 coho for Nez Perce tribal restoration programs in the Snake River Basin.

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*:

The Nez Perce Tribe currently does not have the staff, marking equipment, and expertise to conduct all of their necessary fish marking programs. The FWS works in partnership with the Tribe to complete selected marking projects for the Tribe's fishery restoration projects.

The *objective*:

In FY 2006, Columbia River Fisheries Program Office staff again assisted the Nez Perce Tribe by conducting a coho marking program for tribal restoration efforts in the Snake River Basin.

The *method*:

A total of 60,625 coho were tagged with coded wire tags (CWTs) at Eagle Creek NFH. These fish were subsequently transported to the Clearwater River for release as part of the Nez Perce Tribe's coho restoration program.

Further description:

Typically all fish tagged with CWTs are marked

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	2
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.	2
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1

with an adipose clip to ""flag"" the presence of a CWT for monitoring purposes. None of these fish were marked with an adipose clip at the request of the Nez Perce Tribe and with concurrence from the National Marine Fisheries Service. Sampling of returning fish will need to be conducted with electronic detectors to evaluate the tribal restoration program. The Nez Perce Tribe provided funding for this project which is designed to restore coho to the Clearwater River system where the natural coho population went extinct in the 1980s and 1990s.

13310-A-122 - Marking for Yakama Nation Mid-Columbia Coho Tribal Restoration Program

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Provide technical assistance to Tribes.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Tribal
Need Number	N-002
Partners	Bonneville Power Administration ($246668)

Accomplishment Summary

Tagged 1,628,894 hatchery coho for Yakama Indian Nation mid-Columbia coho tribal restoration 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*:

The Yakama Indian Nation currently does not have the staff, marking equipment, and expertise to conduct all of their necessary fish marking programs. The FWS works in partnership with the Tribe to complete selected marking projects for the Tribe's fishery restoration projects.

The *objective*:

In FY 2006, Columbia River Fisheries Program Office staff again assisted the Yakama Indian Nation by conducting coho marking programs for tribal restoration efforts in the mid-Columbia River region.

The *method*:

At the request of the Yakama Indian Nation, the Service coded-wire tagged 270,349 coho at Winthrop NFH, 673,545 coho at Willard NFH and 685,000 coho at Cascade state hatchery for release into the Methow and Wenatchee sub-basins in spring of 2007 as part of the tribal coho restoration effort in mid-Columbia River tributaries.

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
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	2
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.	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	3

Further description:

The Yakama Indian Nation requested that the tagged fish not be adipose fin clipped so they would not be targeted in non-tribal selective sport fisheries. The Yakama Indian Nation is conducting the assessments of these tagging and release programs. Funding for these programs was provided for by the Bonneville Power Administration. This marking program assists the Yakama Tribe in the evaluation of their coho restoration program.

13310-A-136 - Columbia River Basin Production Coordination, Hatchery Assessment, Planning, and ESA Compliance

Facility	Columbia River Fisheries Program Office
Expended	$90741
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
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) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	Abernathy Fish Technology Center Big White Salmon River Watershed Council Bonneville Power Administration Columbia River Basin Tribes Idaho Department of

Accomplishment Summary

Conserve fishery resources, meet tribal trust responsibilities, and provide sport and commercial fishing opportunities through hatchery planning, coordination and evaluation, to assist with hatchery reform.

Description

The *importance* to the Resource:

National Fish Hatcheries conserve fishery resources, meet tribal trust responsibilities, and provide sport and commercial fishing opportunities.

The *problem*:

Hatchery production, planning and evaluation needs to be a coordinated between fisheries management, research, and production both within the Service and with co-managers & partners.

The *objective*:

Columbia River Fisheries Program Office staff conducts production planning, marking, monitoring, and post-stocking evaluations.

The *method*:

CRFPO staff served in regional production planning and coordination fora. For example, to keep track and coordinate hatchery programs, our office maintains the Columbia River information System and contributes to Pacific States Marine Fisheries Commission databases and participates on Production Advisory Committees and Hatchery Evaluation Teams.

	Fish and Game National Oceanic and Atmospheric Administration, Fisheries Oregon Department of Fish and Wildlife Pacific States Marine Fisheries Commission U.S. Army Corps of Engineers U.S. Bureau of Reclamation Washington Department of Fish and Wildlife

Accomplishments

Number of population assessments completed	19
Number of other Recovery Plan tasks implemented for T&E populations	4
Number of Fishery Management Plan production tasks implemented (PART)	2

Further description:

We also develop Comprehensive Hatchery and Genetic Management Plans and Section 7 Biological Assessments for ESA compliance. We develop collaborative projects to investigate diet, release, and rearing density to improve hatchery performance, as well as develop in-stream studies using traps, radio telemetry, and snorkeling to investigate behavior, wild and hatchery interactions and habitat use.

13310-A-148 - Bonneville Power Administration Funded Marking Program for Annual Stock Assessment

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Carson NFH Spring Chinook Salmon Hatchery and Genetic Management Plan Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan Eagle Creek NFH Coho 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 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia

Accomplishment Summary

Tagged a total of 175,281 spring Chinook and coho for monitoring and evaluation purposes.

Description

The *importance* to the Resource:

Marking and tagging 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*:

The Bonneville Power Administration (BPA) and the Northwest Power and Conservation Council recognized the need to have annual evaluations of production facilities throughout the Columbia River Basin and BPA has supplied funding to meet this annual need for programs that are not marked under other funding sources.

The *method*:

CRFPO staff tagged 175,281 spring Chinook and coho at Service facilities that had no ongoing evaluation program. Fish are marked to evaluate hatchery performance, survival, and contribution to fisheries. Results are reported in an annual stock assessment report

	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	Bonneville Power Administration ($84099)

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	3
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.	1

and are used to recommend improvements in hatchery practices and fisheries management.

Further description:

In addition, the Service provides the monitoring and evaluation assessments of these annual tagging programs.

13310-A-150 - Ecological Interactions between Hatchery and Wild Fish - Deschutes River, Oregon

Facility	Columbia River Fisheries Program Office
Expended	$246155
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	Warm Springs Hatchery and Genetic Management Plan (draft) Comprehensive Hatchery Management Plan-Warm Springs NFH 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	Abernathy Fish Technology Center Confederated Tribes of The Warm Springs Lower Columbia River Fish Health Center National Oceanic and Atmospheric Administration, Fisheries

Accomplishment Summary

We have established cooperative and inter-agency agreements & gathered information to be used in management decisions at National Fish Hatcheries to minimize the risk to wild and listed fish that lead to hatchery reform.

Description

The *importance* to the Resource:

Minimize impact of hatchery fish on wild and ESA listed fish, assist with recovery while providing sport and tribal harvest opportunity.

The *problem*:

Fish released from a hatchery interact with wild fish in the stream, however the impact of these interactions on wild fish populations is not known. Modifying hatchery rearing and release practices may reduce the impacts that hatchery fish have on wild, listed populations while still providing fish for harvest in Tribal and sport fisheries.

The *objective*:

This project will monitor and evaluate the behavior, distribution, and survival of hatchery fish in both the hatchery and stream environment. Potential impacts to wild fish populations will be monitored and alternative hatchery rearing and release practices will be investigated.

The *method*:

A variety of methods, including mark-recapture, growth monitoring, genetic parentage analyses, and underwater observations (snorkeling and video-monitoring) was used to

	Oregon Department of Fish and Wildlife U.S. Geological Survey Warm Springs National Fish Hatchery

Accomplishments

Number of population assessments completed	4
Number of other Recovery Plan tasks implemented for T&E populations	8
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

monitor interactions between hatchery and wild fish populations.

Further description:

We have established cooperative agreements with Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) and U.S. Geological Survey (USGS) and worked closely with our Fish Health Center, Abernathy FTC, Warm Springs National Fish Hatchery (WSNFH), and Oregon Department of Fish and Wildlife in developing and implementing plans to investigate ecological interactions between hatchery spring Chinook salmon from WSNFH and native fishes in the Deschutes and Columbia rivers. The CRFPO obtained permission to work on CTWSRO streams and worked closely with tribal personnel in developing snorkeling and underwater video-monitoring techniques to estimate behavioral interaction between juvenile salmon and listed steelhead and bull trout. Genetic samples were collected from hatchery and wild fish in order to compare the distribution, behavior, and reproductive success of wild and outplanted hatchery fish. We have developed plans to use PIT-tag technology to monitor releases of juvenile salmon. Information gathered from these projects will be used in management decisions at National Fish Hatcheries to minimize the risk to wild and listed fish.

13310-A-156 - US-Canada, Pacific Salmon Treaty, Technical Assistance

Facility	Columbia River Fisheries Program Office
Expended	$44855
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Treaty of 1999 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	30
Number of other Recovery Plan tasks	3

Accomplishment Summary

Assisted in the technical analysis of fishery exploitation rates on indicator stocks and estimation of current year salmon stock abundance for the Pacific Salmon Commission.

Description

The *importance* to the Resource:

The Pacific Salmon Commission is responsible for salmon harvest sharing between the US and Canada in the development of fishery regimes that provide opportunity for important coastal fisheries while providing an appropriate level of protection for ESA listed and other stocks of concern..

The *problem*:

The Commission relies on a collaborative effort of the relevant state, federal and tribal fishery management entities to provide technical assistance, management expertise and policy direction within the Commission process.

The *objective*:

The Chinook Technical Committee (CTC) conducts the annual fishery exploitation rate analysis on indicator stocks to track harvest impacts on stocks of concern relative to US-Canada harvest sharing agreements and calculates the Treaty allowed "Aggregate Abundance Based Management" catch given information on the current abundance of key stocks.

The *method*:

CRFPO Staff conducted the 2005 exploitation rate analysis based on code wire tag

implemented for T&E populations			recoveries for Lyon's Ferry/Snake River, Spring Creek Hatchery, Hanford Wild, Upriver Brights, Bonneville Hatchery, Cowlitz Falls, Stayton Pond, Lewis River Wild, and Wells Summer Stock groups. CRFPO staff also calibrated the Chinook model for the same stocks. **Further description:** The CTC fishery impact analysis is critical to protection and recovery of depressed and listed west coast stocks.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	7		

13310-A-157 - Magnuson-Stevens Sustainable Fisheries Management Act, Technical Assistance

Facility	Columbia River Fisheries Program Office
Expended	$20000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Plan (1999), and various amendments 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	16

Accomplishment Summary

Assisted in the technical analysis of proposed salmon fishery regulatory options being considered by the Pacific Fishery Management Council and the development and compilation of west coast salmon stock abundance information that is used to make annual ocean fisheries management decisions.

Description

The *importance* to the Resource:

The Pacific Fishery Management Council (PFMC) is responsible for developing and recommending salmon fishing regulations for federal waters off the coasts of Washington, Oregon, and California to the Secretary of Commerce for promulgation.

The *problem*:

The PFMC relies on a collaborative effort of a number of scientific, technical, and fishery advisory committees with representation from the relevant state, federal, tribal, and fishery users (depending on the charge of the committee) to provide technical assistance, impact analysis and management advice within the PFMC process.

The *objective*:

The Columbia River Fisheries Program Office provided staff representation at the technical level for the Salmon Technical Team and the Model Evaluation Workgroup of the Pacific Fishery Management Council.

The *method*:

The Salmon Technical Team reviewed the past year's ocean fisheries and analyzed the current

Number of other Recovery Plan tasks implemented for T&E populations	5		year's proposed regulatory options using computer models. The analysis takes into account the escapement needs of critical species, the treaty rights of native Americans consistency with applicable law, especially ESA, and the needs of the fishery users. **Further description:** Protection and recovery of the fisheries resource continues to be the first priority of the Service in its participation in the PFMC forum at the technical level.
Number of other Fishery Management Plan tasks implemented for populations of management concern.	6		

13310-A-164 - Warm Springs NFH Marking to Support Fisheries and Broodstock Management, Stock Assessment, and ESA

Facility	Columbia River Fisheries Program Office
Expended	$96022
Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Warm Springs Hatchery and Genetic Management Plan (draft) 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 2000 NMFS FCRPS Biological Opinion - December 21, 2000 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Columbia River Basin Fish and Wildlife Program (NPPC 2000) Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Monitoring and Assessment
Need	N-002

Accomplishment Summary

In FY '06 624,344 spring Chinook salmon were marked at Warm Springs NFH to support fisheries management, brood stock management, stock assessment, address ESA concerns, and hatchery reform issues.

Description

The *importance* to the Resource:

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

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*:

This marking project is designed to provide information for hatchery evaluation, harvest management, stock assessment, and brood stock management of wild and hatchery fish as required by co-managers in the Deschutes and Columbia Rivers.

The *method*:

This marking project provided funds to the Columbia River Fisheries Program Office to mark 100% of the Warm Springs NFH spring Chinook production with an adipose fin clip

Number	
Partners	Confederated Tribes of The Warm Springs National Oceanic and Atmospheric Administration, Fisheries Oregon Department of Fish and Wildlife Warm Springs National Fish Hatchery

Accomplishments

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

plus coded-wire tag. This marking program at Warm Springs NFH is a pivotal management tool in the management of wild and hatchery fish in the Deschutes River basin.

Further description:

The Warm Springs Tribe coordinates with the Service on this project, however, the Service has the lead for the monitoring and assessment of the tagging and release program at the Warm Springs NFH. The 100% adipose and coded-wire tagging program provides the management framework for an automated wild stock fish passage system at the hatchery weir, the ability for intensive hatchery program study evaluations, selective fishery opportunity, and the ability to meet specific brood stock management objectives.

13310-A-181 - Technical Assistance For Selective Harvest Development

Facility	Columbia River Fisheries Program Office
Expended	$57025
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Plan (1999), and various amendments 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Columbia River Basin Fish and Wildlife Program (NPPC 2000) Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) 2000 NMFS FCRPS Biological Opinion - December 21, 2000
Keyword	Monitoring and Assessment
Need	N-002

Accomplishment Summary

Provided technical assistance in the effort to upgrade the fishery assessment models used in the PSC and PFMC forums to evaluate the impact of selective fisheries on ESA listed wild stocks.

Description

The *importance* to the Resource:

Developing methods and the fishery management and evaluation tools to selectively harvest abundant hatchery fish while providing appropriate protection for ESA listed and other stocks of concern is a common goal of many west coast fishery managers .

The *problem*:

Current management and impact analysis of west coast salmon fisheries rely on a coastwide CWT tagging and sampling program that was not designed to accommodate mark selective fisheries. As a result, the management database is being degraded by the expanding implementation of selective fisheries.

The *objective*:

CRFPO staff participate in various conservation planning arenas that review selective harvest methods and work on developing new management and fishery impact analysis models. These new tools are designed to work in concert with current management tools to minimize database degradation and maximize information for stock specific management needs.

The *method*:

Number	
Partners	

Accomplishments

Number of population assessments completed	17
Number of other Recovery Plan tasks implemented for T&E populations	8
Number of other Fishery Management Plan tasks implemented for populations of management concern.	8

CRFPO staff have been participating in WDFW's study evaluating the use of tangle (small mesh) nets in the lower Columbia River and the computer code (FRAM) used to model selective fisheries in Puget Sound. PSC area efforts included enhancing a pilot coho selective fisheries computer model for Chinook salmon in ocean fisheries.

Further description:

13310-A-188 - U.S. v. Oregon Technical Assistance

Facility	Columbia River Fisheries Program Office
Expended	$23000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Columbia River Basin Fish and Wildlife Program (NPPC 2000) Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	Columbia River Inter Tribal Fish Commission Confederated Tribes of The Warm Springs Idaho Department of

Accomplishment Summary

Assisted in the technical analysis of proposed fishery regulatory options, stock status assessments, and necessary escapements being considered under the 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon.

Description

The *importance* to the Resource:

The U.S. v Oregon forum is responsible for developing harvest sharing and production management agreements between the states and the tribes under federal oversight to address ESA listed stock issues.

The *problem*:

State, tribal, and federal fishery management agencies often have differing perspectives on management approaches and even the appropriate level of restriction to protect stocks of concern. These interjurisdictional management issues must be worked out in technical and policy level forums that provide opportunity for all concerns to be addressed.

The *objective*:

CRFPO staff, in cooperation and coordination with the other state, tribal, and federal fishery management agencies, participated in U.S. v. Oregon technical fishery and production management forums, primarily the Technical Advisory Committee, to address interjurisdictional fisheries issues.

The *method*:

CRFPO staff provided technical level

	Fish and Game National Marine Fisheries Service Nez Perce Tribe Oregon Department of Fish and Wildlife Umatilla Tribe Washington Department of Fish and Wildlife Yakama Indian Nation

Accomplishments

Number of population assessments completed	17
Number of other Recovery Plan tasks implemented for T&E populations	5
Number of other Fishery Management Plan tasks implemented for populations of management concern.	7

representation and assistance for Columbia River management forums that develop harvest management options that meet the needs of critical salmon and steelhead species, the treaty rights of native Americans, and provide the greatest benefit to other users, consistent with applicable law.

Further description:

CRFPO staff provide technical assistance to U.S. v Oregon process by participating in the Technical Advisory Committee (TAC). Some of the tasks of the TAC include preparation of preseason forecast of salmon and steelhead run sizes to the Columbia River, inseason updates on run projects, review of in-river harvest models and projects, preparation of the "Fact Sheet" for the Columbia River Compact , run reconstruction for listed stocks, and preparation of Biological Assessments for listed stocks. Most of the ad-hoc tasks are data analysis requested by the U.S. v Oregon Policy Committee as they negotiate harvest sharing and hatchery production agreements between the states and the tribes. Some of the ad-hoc assignments during the last fiscal year include analysis of PIT tags of spring and summer Chinook, development of a new preseason forecast method for listed Snake River stocks, development of new methods to use PIT tag recoveries for inseason run size update, run reconstruction of fall Chinook at Lower Granite Dam and confidence intervals for those estimates.

13310-A-193 - Coho Marking for Yakama Indian Nation Yakima River Tribal Restoration Program

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Provide technical assistance to Tribes.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Tribal
Need Number	N-002
Partners	Bonneville Power Administration ($66733)

Accomplishment Summary

Tagged hatchery coho for the Yakama Indian Nation Tribal Coho Restoration Program in the Yakima River.

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*:

The Yakama Indian Nation currently does not have the staff, marking equipment, and expertise to conduct all of their necessary fish marking programs. The FWS works in partnership with the Tribe to complete selected marking projects for the Tribe's fishery restoration projects.

The *objective*:

In FY 2006, Columbia River Fisheries Program Office staff again assisted the Yakama Indian Nation by conducting coho marking programs for tribal restoration efforts in the Yakima River.

The *method*:

At the request of the Yakama Indian Nation, the Service coded-wire tagged 119,581 coho at Prosser Hatchery and adipose clipped 464,411 coho at Eagle Creek NFH for release into the Yakima River in spring of 2007 as part of the tribal coho restoration effort in the Yakima River.

Further description:

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	1
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	2
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.	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2

As part of a Bonneville Power Administration funded research program to study the effects of coho re-introductions into the Yakima River Basin, the Yakama Indian Nation is conducting the evaluations of its coho release programs. The Service is assisting with these evaluation efforts by conducting the marking programs for the Tribe.

13310-A-194 - Marking Program for Umatilla River Tribal Spring Chinook Restoration Program

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Provide technical assistance to Tribes.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	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 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)
Keyword	Tribal
Need Number	N-002

Accomplishment Summary

Marked and/or tagged 229,470 spring chinook for the Umatilla Tribe.

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*:

The Umatilla Tribe currently does not have the staff, marking equipment, and expertise to conduct all of their necessary fish marking programs. The FWS works in partnership with the Tribe to complete selected marking projects for the Tribe's fishery restoration projects.

The *objective*:

In FY 2006, Columbia River Fisheries Program Office staff again assisted the Umatilla Tribe by conducting spring Chinook marking programs for tribal restoration efforts in the Umatilla River.

The *method*:

In FY 2006, the Service marked 40,063 spring Chinook with an adipose, left ventral clip and coded-wire-tag. In addition, 189,407 spring Chinook were adipose fin clipped for the Umatilla Tribal restoration program.

Further description:

In 1997 the U.S. Fish and Wildlife Service began rearing and marking spring Chinook at

Partners	Bonneville Power Administration ($18458)

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	2
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1
Number of other Recovery Plan tasks implemented for T&E populations	2
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 technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2

Little White Salmon NFH for the Confederated Tribes of the Umatilla Indian Reservation as part of a cooperative tribal restoration program for the Umatilla River. Fish from the Little White Salmon NFH are a critical component of the Umatilla River Basin monitoring and evaluation effort that is conducted by the Tribe and funded by the Bonneville Power Administration. The Umatilla Tribe is conducting the monitoring and assessment aspects of the tagging and release program. The cooperative marking program conducted by the Service provides assistance to the Umatilla Tribe for their Umatilla River restoration program.

13310-A-197 - Ecological Interactions between Hatchery and Wild Fish in Eagle Creek, Oregon

Facility	Columbia River Fisheries Program Office
Expended	$169220
Objective	Develop and share applied aquatic scientific and technologic tools with partners.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	Clackamas River winter run steelhead
Plans	1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Eagle Creek NFH Coho Salmon Hatchery and Genetic Management Plan Eagle Creek NFH Winter Steelhead Hatchery and Genetic Management Plan 2000 NMFS FCRPS Biological Opinion - December 21, 2000
Keyword	Fish Technology
Need Number	N-002
Partners	Abernathy Fish Technology Center Bureau of Land Management Eagle Creek National Fish Hatchery Lower Columbia River Fish Health Center National Oceanic and Atmospheric Administration,

Accomplishment Summary

Study design and work plans have been developed with Eagle Creek NFH, Abernathy FTC, and the LCR Fish Health Center. In-stream assessments on wild fish populations and hatchery studies have been initiated for hatchery reform.

Description

The *importance* to the Resource:

Information gathered from these projects will be used in management decisions at National Fish Hatcheries to minimize the risk to wild and listed fish and lead to hatchery reform.

The *problem*:

Hatchery fish can have negative impact to wild and ESA listed fish. Hatcheries built to mitigate loss of fisheries from habitat destruction and dams are now taking on a role to help conserve populations.

The *objective*:

CRFPO staff worked closely with our Fish Health Center, Abernathy FTC, Eagle Creek National Fish Hatchery (ECNFH), NOAA Fisheries, and Oregon Department of Fish and Wildlife in developing and implementing plans to investigate ecological interactions between hatchery salmon and steelhead from ECNFH and native fishes in Eagle Creek, Oregon.

The *method*:

Developing in-stream evaluations and monitoring techniques to estimate distribution, abundance, run timing, and behavioral interaction between hatchery and wild fish. Adult salmon and steelhead were affixed with

	Fisheries Oregon Department of Fish and Wildlife Portland General Electric U. S. Forest Service

Accomplishments

Number of population assessments completed	6
Number of other Recovery Plan tasks implemented for T&E populations	5
Number of applied science and technology tasks implemented as prescribed by Recovery Plans. (PART)	2

radio-tags and genetic samples collected in order to compare the distribution, behavior, and their reproductive success.

Further description:

Hatchery fish have been marked and coded-wire tagged, multiple rearing densities of hatchery steelhead are being evaluated, and we have monitored releases of these juvenile salmon using radio telemetry.

13310-A-204 - Conduct Mass Marking to Implement Congressionally Mandated Directive for Federal Hatcheries

Facility	Columbia River Fisheries Program Office
Expended	$1273060
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Spring Creek NFH Hatchery and Genetic Management Plan Little White NFH Upriver Bright Fall Chinook Salmon Hatchery and Genetics Management Plan 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Columbia River Basin Fish and Wildlife Program (NPPC 2000) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) FY 2003 Omnibus Bill and H.R. 2361--Department of the Interior, Environment, and Related Agencies

Accomplishment Summary

Conducted mass marking of fall Chinook at Spring Creek and Little White Salmon NFHs and Priest Rapids SH to implement Congressional directive to mass mark all hatchery production at federally funded and/or operated facilities that is produced for harvest.

Description

The *importance* to the Resource:

Marking and tagging of hatchery stocks is critical to west coast fisheries management and wild stock protection and recovery. Congress provided funding in FY 06 that was earmarked to implement its directive to mass mark all federally funded hatchery fish that are raised and released for harvest purposes.

The *problem*:

Many wild stocks are depressed and listed under ESA while other hatchery stocks are abundant and available for harvest. Management strategies that promote the selective harvest of hatchery fish rely on an easily identifiable external mark. Mass marking of hatchery fish intended for harvest with an adipose clip helps enable selective fisheries.

The *objective*:

Mass marking provides the mechanism to enable opportunity for selective fisheries while providing protection for listed and depressed stocks. Mass marking of hatchery fish also greatly assists in the ability for biologists to identify and separate hatchery from wild fish throughout their life history and better track the status of wild stocks.

	Appropriations Act, 2006 (Reported in House)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	

Accomplishments

Number of marking and tagging targets met, as prescribed by Recovery plans	3
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	2
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

The *method*:

In FY '06, the Columbia River Fisheries Program Office adipose clipped 14,472,202 and coded wire tagged 451,795 tule fall Chinook at Spring Creek NFH, adipose clipped 1,353,999 and coded wire tagged 219,698 bright fall Chinook at Little White Salmon NFH and adipose clipped 1,700,353 bright fall Chinook at Priest Rapids SH under this program.

Further description:

Production targeted for restoration and recovery purposes is exempt from the mass marking requirement.

13310-A-212 - Mid-Columbia River Summer Chinook Escapement Goal Study

Facility	Columbia River Fisheries Program Office
Expended	$0
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Treaty of 1999 Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	National Marine Fisheries Service ($7643)

Accomplishments

Number of population assessments completed	3
Number of other Fishery Management Plan tasks implemented for populations of management concern.	4

Accomplishment Summary

Work continued on reviewing available information and developing an appropriate naturally spawning escapement goal for summer Chinook in the mid-Columbia River region.

Description

The *importance* to the Resource:

The 1999 amended Pacific Salmon Treaty established an abundance-based approach for management of Chinook in certain ocean fisheries. An important tool used by the Chinook Technical Committee (CTC) to monitor the impact of Pacific Salmon Treaty fisheries on natural stocks of concern is stock specific escapement goals.

The *problem*:

The Pacific Salmon Commission originally deferred to the relevant management agencies to identify appropriate escapement levels for natural stocks of concern to the Commission with the expectation that these goals would be reviewed and updated as necessary.

The *objective*:

The 1999 Pacific Salmon Treaty directs the CTC to evaluate and review escapement objectives that fishery management agencies have set for Chinook stocks of interest to the Pacific Salmon Commission for consistency with maximum sustained yield or other agreed to biologically-based objectives.

The *method*:

In FY '05, the National Marine Fisheries Service (NMFS) contracted with the Service to

		review available information and work with the relevant Columbia River managers to develop an appropriate mid-Columbia River summer Chinook natural spawning escapement goal using adult to smolt recruitment rates. Work continued on this project in FY '06. **Further description:** Funding for this project is from the Pacific Salmon Commission through the NMFS.

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.

14330-A-002 - Salmon Supplementation Studies in Idaho Rivers (ISS)

Facility	Idaho Fisheries Resource Office
Expended	$97000
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	South Fork Clearwater River
Plans	Supplementation Studies in Idaho Rivers (ISS) (Bowles and Leitzinger 1991)
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	Bonneville Power Administration Idaho Department of Fish and Game Nez Perce Tribe Shoshone-Bannock Tribe

Accomplishments

Number of population assessments completed	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2
Number of consultations conducted to support Tribal fish & wildlife conservation.	1

Accomplishment Summary

We continued to collect and PIT-tag naturally produced smolts in Clear Creek. We snorkel surveyed Clear and Pete King creeks, and estimated parr abundance. Escapement and natural spawning were documented on Clear and Pete King creeks. Adult Chinook salmon continued to be passed above the KNFH weir to meet natural production recruitment goals for Clear Creek. With help from our cooperators, the BY03 Cooperative Report was completed.

Description

The *importance* to the Resource:

This project develops recommendations on how to restore or rebuild naturally spawning populations of spring/summer Chinook in Idaho.

The *problem*:

Spring/summer Chinook populations in Idaho have been in decline due to mortality associated with the lower Snake River and Columbia River dams and reservoirs.

The *objective*:

The objective of this project is to assess the use of hatchery Chinook to restore or augment naturally spawning spring/summer Chinook populations in Idaho. Also, this project will evaluate the effects of supplementation on the survival and fitness of existing natural populations.

The *method*:

Streams will be supplemented with hatchery origin spring/summer Chinook for 1 to 2

Number of applied aquatic scientific and technologic tools shared with partners.	1		generations. Experimental treatments will include supplementation with a particular life stage and/or a particular brood source. Population responses (i.e. parr abundance, emigration, survival, and adult escapement) will be measured.

14330-A-006 - Comparative survival study of hatchery PIT tagged Chinook

Facility	Idaho Fisheries Resource Office
Expended	$5758
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Clearwater River Lower Mainstem Tributaries
Plans	2000 NMFS FCRPS Biological Opinion - December 21, 2000 Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Fish Passage
Need Number	N-002
Partners	Bonneville Power Administration Fish Passage Center Idaho Department of Fish and Game

Accomplishments

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

Accomplishment Summary

We released 52,895 PIT-tagged spring Chinook salmon on March 27 and 29, 2006 into the North Fork Clearwater River. The average juvenile detection at Lower Granite Dam was 16.1%. The average migration time was 32.3 days. We collected 30 PIT-tagged adult spring Chinook salmon in the Dworshak NFH ladder. The ocean age class composition of the returning adults was 1 I-salt, 24 II-ocean and 5 III-ocean.

Description

The *importance* to the Resource:

Large numbers of wild and hatchery fish are transported from Snake and Columbia river dams annually. The impacts of the transportation program are not fully known or evaluated. There is both direct and delayed mortality associated with transportation and a full evaluation of these impacts are critical to salmon recovery throughout the basin.

The *problem*:

The problem is obtaining definitive data that completely evaluates fish transportation from Snake and Columbia river dams. A large scale study that encompasses many hatcheries in the basin is difficult to fund and conduct in order to develop the long-term data set needed to truly answer the question.

The *objective*:

The objectives are to develop a long-term index of transport and in-river survival rates for Snake River wild and hatchery spring Chinook salmon, to develop a long-term index of survival rates from release to return, and to compare overall survival rates for upriver and

		downriver spring/summer Chinook hatchery and wild populations. **The *method*:** Thee CSS program PIT tags large numbers of spring and summer Chinook at most major hatcheries in the basin and estimates survival rates over different life stages and transported versus non-transported fish in this multi-year study.

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-019 - Reducing stress effects on immunized summer steelhead at Hagerman National Fish Hatchery

Facility	Idaho Fisheries Resource Office
Expended	$4250
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional 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
Keyword	Fish Health
Need Number	N-002
Partners	Abernathy Fish Technology Center

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of applied aquatic scientific and technologic tools shared with partners.	1

Accomplishment Summary

We coordinated with the Abernathy Fish Technology Center to prepare and analyze data for the completion of the final report.

Description

The *importance* to the Resource:

Successful application of this technique would result in reducing mortality and lessing the possibilities for disease outbreaks.

The *problem*:

Steelhead undergo an increased level of handling stress during vaccination and marking, which can lead to higher susceptibilty to infection and disease. The immunization is necessary because of outbreaks of Furunculosis during transfer of juveniles from the nursery to the raceways.

The *objective*:

The objective is to stimulate the non-specific immune response system in summer steelhead at Hagerman NFH prior to vaccination and marking events in order to increase the fishes resistance to disease susceptibility brought about by stessful handling.

The *method*:

Beta Glucan are used as a dietary supplement prior to vaccination procedures. Beta Glucans are known to stimulate the non-specific immune response system in fish. By administering glucans prior to a stress event, such as vaccinations or marking, the immune response system may be enhanced and mortality and disease reduced.

14330-A-026 - Improving Kooskia NFH Evaluation and Long Term Monitoring of Listed Species.

Facility	Idaho Fisheries Resource Office
Expended	$20000
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	South Fork Clearwater River
Plans	Kooskia NFH Weir Reconstruction - Biological Opinion 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.
Keyword	Monitoring and Assessment
Need Number	N-002
Partners	

Accomplishments

Number of population assessments completed	1
Number of other Recovery Plan tasks implemented for T&E populations	5

Accomplishment Summary

We collected information on listed bull trout and summer steelhead during the summer as spring chinook salmon broodstock were collected at the weir. All individuals of listed species were placed above the weir after data collection. We also collected information on the numbers and timing of downstream migrating steelhead smolts with the rotary screw trap. Snorkel surveys were conducted in the upper reaches of Clear Creek to collect data on numbers and distribution of bull trout.

Description

The *importance* to the Resource:

Monitoring and evaluating weir operations at Kooskia NFH is important to insure that listed bull trout and wild steelhead are not impeded or harmed during seasonal migrations into and out of Clear Creek.

The *problem*:

Clear Creek is completely blocked by a mechanical weir to facilitate the collection of spring chinook salmon for broodstock. However, weir operations have a high potential for the prevention of, or the delay in, migration of bull trout and wild summer steelhead into and out of Clear Creek during spawning or smolt out migration.

The *objective*:

Modifications in the weir design and operations have been made in order to reduce the potential impingment of listed fish migrating downstream and the delay of fish migrating up stream. The objective is to continue monitoring the effectiveness of the modifications and to improve operations whenever possible.

		The *method*: Data on the numbers and distribution of bull trout and summer steelhead in Clear Creek will be compiled seasonally by snorkeling and trapping upstream of the hatchery. These data will be used in comparison with the numbers and migration timing of these species as they are collected during weir operations to determine operations effectiveness.

14330-A-032 - Fisheries Restoration and Irrigation Mitigation Act (FRIMA)

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

Accomplishments

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

Accomplishment Summary

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

Description

The *importance* to the Resource:

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

The *problem*:

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

The *objective*:

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

The *method*:

		Projects are identified and proposals are submitted for review and ranking by state, local, tribal, and federal representatives to insure that the requirements of the act are met and the greatest benefit projects are funded.

14330-A-050 - Determine proportion of hatchery steelhead to ESA-listed stocks in the Snake River basin.

Facility	Idaho Fisheries Resource Office
Expended	$26000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	North Fork Clearwater River
Plans	2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon
Keyword	Interjurisdictional
Need Number	N-002
Partners	Idaho Department of Fish and Game Nez Perce Tribe

Accomplishments

Number of population assessments completed	1
Number of Fishery Management Plan production tasks implemented (PART)	3
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1

Accomplishment Summary

A total of 2698 scale samples have been collected from return years 2002- 2006. Of those, 428 have been cleaned, 290 have been scanned, and 147 have been read and measured. Twelve scale features were analyzed for hatchery origin indicators, and a model was developed using 6 of these. This model had good accuracy, but poor repeatability. A new model is being developed that will focus on only 1 or 2 features. The new model will address many limitations of the previous model.

Description

The *importance* to the Resource:

Since the early 1980s all hatchery steelhead in the Columbia basin have had their adipose fin clipped to identify them as hatchery fish suitable for sport harvest. Beginning in 2000, unclipped, unmarked hatchery steelhead have been released in the Snake River basin as part of an agreement between the tribes, states, and federal agencies.

The *problem*:

Returning adults are counted as wild or hatchery based upon presence or absence of the adipose fin. Unclipped hatchery fish are counted as wild, thereby inflating wild adult counts. Without adjustment, recovery cannot be accurately measured. There are no quantifiable methods to determine between hatchery and wild steelhead.

The *objective*:

There is a compelling need to account for the proportion of unclipped hatchery fish in wild

		adult steelhead returns in the Snake River basin. **The *method*:** Scales were collected from returning adult steelhead at Lower Granite Dam. We are using scale pattern analysis to develop a quantifiable model distinguishing between hatchery and wild steelhead in run years 2002-2006. Data will be applied to future return years and used to monitor recovery of listed wild steelhead in the Snake River basin.

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-059 - Evaluate factors limiting migration success and spawning distribution of adult Pacific Lamprey

Facility	Idaho Fisheries Resource Office
Expended	$48715
Objective	Maintain diverse, self-sustaining fish and other aquatic resource populations.
Primary Benefited Species	Pacific lamprey (*Lampetra tridentata*)
Primary Benefited Population	Columbia River Pacific Lamprey
Plans	Draft Clearwater Subbasin Management Plan
Keyword	Native Species
Need Number	N-002
Partners	U.S. Army Corps of Engineers, Walla Walla District ($46500) University of Idaho ($50000)

Accomplishments

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

Accomplishment Summary

Work began the end of June. Lamprey collected at Little Goose and Lower Monumental dams are outfitted with radio transmitters and transported to release sites upstream from Lower Granite Dam. To date we have tagged 20 adult lamprey out of a target of 50. Collection and tagging will continue until migration ends in late September. Stationary receiver sites in the Snake and Clearwater rivers and mobile units will be used to track fish through the winter and spawning period, spring of 2007.

Description

The *importance* to the Resource:

Pacific lamprey are the least understood anadromous fish in the Columbia and Snake river basins, and their populations in the Snake River have declined significantly. Those Pacific lamprey returning to Idaho are the farthest migrating populations in the range of Pacific lamprey.

The *problem*:

Factors affecting the adult and juvenile migrations are thought to be critical in limiting current reproductive potential of these upstream populations. Basic understanding of spawning distributions and habitat preferences are also lacking.

The *objective*:

Use radiotelemetry to monitor migration, identify spawning distributions and classify habitat and stream conditions preferred by spawning adult lamprey. All information will be geo-referenced and placed in GIS databases

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

14330-A-071 - Development of the Annual Operating Plan for production programs in the Clearwater Basin.

Facility	Idaho Fisheries Resource Office
Expended	$45000
Objective	Develop and improve long-term partnerships with States, Tribes, other Federal agencies, non-governmental organizations, and other Service Programs to develop collaborative conservation strategies for aquatic resources.
Primary Benefited Species	Rainbow trout (*Oncorhynchus mykiss*)
Primary Benefited Population	North Fork Clearwater River
Plans	Columbia River Basin Fish and Wildlife Program (NPPC 2000)
Keyword	Management
Need Number	N-002
Partners	Idaho Department of Fish and Game ($10000) Nez Perce Tribe ($10000) U.S. Army Corps of Engineers, Walla Walla District ($2000)

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	4

Accomplishment Summary

We led the preparation and completion of the 2006 Annual Operating Plan for all Service, State, and Tribal fish production programs in the Clearwater River Basin.

Description

The *importance* to the Resource:

An Annual Operating Plan (AOP) process that all parties participate in contributes greatly to improved communication and coordination, which helps improve fisheries management in the Clearwater Basin. When all parties are well informed of each others programs less disputes arise and more on-the-ground benefits for the resource occur.

The *problem*:

In recent years there has been more interconnections between programs which has created conflicts and duplication of effort between the co-managers in the Clearwater basin. This emphasizes the need for increased communication, coordination, and a better understanding of each other programs.

The *objective*:

The objective is to prepare a single AOP for fish production programs in the Clearwater River basin. Thereby improving coordination and communication between co-managers and providing each party with the same information, in the same format, to help minimize misunderstandings and conflicts.

The *method*:

We will facilitate the annual development of a

Number of consultations conducted to support Tribal fish & wildlife conservation.	1		single AOP for the Clearwater River basin, providing information on all fish production activities occurring in within the upcoming calendar year. This includes all Federal, State, and Tribal programs operating in the Clearwater Basin.

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-009 - Umatilla Tribal Salmon Supplementation: Fish Health Monitoring and Certification

Facility	Lower Columbia River Fish Health Center
Expended	$12135
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Umatilla River Spring Chinook
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) 1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin. Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan A Research Plan for the Fishery Resources of the Wind River Indian Reservation 2000 NMFS FCRPS Biological Opinion - December 21, 2000
Keyword	Fish Health
Need Number	N-002

Accomplishment Summary

Certified health of 395,000 salmon destined for the supplementation and restoration programs in the Umatilla Basin for the Confederated Tribes of the Umatilla Indian Reservation.

Description

The *importance* to the Resource:

Water management issues and over-harvesting decimated populations of salmon in the Umatilla Basin of Eastern Oregon. The Confederated Tribes of Umatilla undertook a supplementation program to reestablish the salmon runs by using stocks from the Columbia River National Fish Hatcheries.

The *problem*:

Because this program involves inter-basin transfers of fish, health officials of Washington, Oregon and US Fish & Wildlife Service require that all fish be certified in order to establish healthy, viable stocks able to survive and return to the Umatilla Basin.

The *objective*:

By originally using fish from the Lower Columbia River Hatcheries and mitigating for irrigation, the Umatilla Tribe re-established a run of salmon to the desert. Lacking space to rear all returnees, additional supplementation was achieved by rearing eggs from the successful Umatilla R. returns at the Little White Salmon NFH.

The *method*:

The Umatilla stock of spring Chinook are reared at the Little White Salmon NFH. Fish

Partners	Bonneville Power Administration Confederated Tribes of the Umatilla Indian Reservation Oregon Department of Fish and Wildlife

Accomplishments

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)	1
Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	2
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2

health personnel regularly examine the fish using clinical and veterinary technology. Healthy juvenile salmon are returned to the Umatilla Basin for acclimation prior to their outmigration to the ocean.

Further description:

Water management issues and over-harvesting decimated populations of salmon in the Umatilla Basin of Eastern Oregon. The Confederated Tribes of Umatilla undertook a supplementation program to reestablish the salmon runs by using stocks from the Columbia River National Fish Hatcheries. In addition, another important fish of the Umatilla tribe's heritage, Pacific lamprey, are also being restored to the basin. Because this program involves inter-basin transfers of fish, health officials of Washington, Oregon and US Fish & Wildlife Service require that all fish be certified in order to establish healthy, viable stocks able to survive and return to the Umatilla Basin. In FY2006, the Lower Columbia River Fish Health Ctr. regularly examined the health of fish destined for the Umatilla Supplementation Program through the use of clinical and veterinary technology. This information was shared with the Oregon Dept. Fish & Wildlife Pathology Unit and Umatilla Tribe personnel. In addition, the Fish Health Ctr. talks yearly with tribal and state agency personnel to provide input on the Umatilla Hatchery and Basin Annual Operation Plan. The Umatilla program uses fish reared at the Little White Salmon National Hatchery. Funded by BPA.

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

13231-A-028 - White River Spring Chinook Salmon: Fish Health Care for Endangered Species Recovery Project

Facility	Lower Columbia River Fish Health Center
Expended	$7619
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Wenatchee River (UCWEN) spring chinook salmon
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy 2000 NMFS FCRPS Biological Opinion - December 21, 2000 Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper) Wenatchee Subbasin Plan
Keyword	Fish Health
Need Number	N-002
Partners	Grant County Public Utility District Washington Department of Fish and Wildlife

Accomplishment Summary

The 2005 progeny of the endangered White River spring Chinook salmon are successfully rearing in their first year at the Little White Salmon NFH. Fish health, as measured by bi-weekly exams and special tests, show that this stock of salmon is doing well, with only minor incidence of bacterial kidney disease. A MOU with the Grant Co. Public Utility District for the care of these fish was achieved.

Description

The *importance* to the Resource:

The White River spring Chinook salmon are listed as endangered. A scant 14 pairs of spawning adults were noted in past years in this upper Columbia Basin river.

The *problem*:

Deteriorating habitat, warm water conditions and dams have contributed to the near demise of this population.

The *objective*:

Recover the salmon through the use of a captive broodstock program and rear fish for restoration back into the White River in the upper Wenatchee Basin.

The *method*:

Bacterial kidney disease severely limits the viability of this stock in captivity. The Lower Columbia River Fish Health Ctr. is monitoring the stock at the Little White Salmon National Fish Hatchery and providing fish health care in attempts to produce viable smolts that can survive in the White River after their release

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	1
Number of Fishery Management Plan production tasks implemented (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

from the hatchery.

13295-A-002 - Inspect, monitor and treat juvenile salmon and steelhead at Makah NFH

Facility	Olympia Fish Health Center
Expended	$30800
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Makah NFH Cooperative Agreement U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	3

Accomplishment Summary

Prevent excess loss and increase survival of approximately 3,000,000 chinook, coho, and steelhead juvenile fish. All groups were inspected, monitored, and treated to prevent the spread of disease.

Description

The *importance* to the Resource:

Pathogens can cause disease and losses of fish critical to Makah NFH goals if not detected and held in check. Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations.

The *problem*:

Pathogens and disease can cause significant losses in hatcheries.

The *objective*:

Prevent and reduce pathogens and disease losses at Makah NFH.

The *method*:

Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. Treatments and fish cultural modifications will be recommended to minimize losses.

Further description:

Inspections are also required to transfer fish to other locations. 605 juveniles were tested to determine presence and monitor pathogens in fish populations at Makah NFH. Treatments

		and recommended environmental modifications have reduced losses that would have occurred from these pathogens and diseases.

13295-A-003 - Disease testing of adult salmon and steelhead at Quinault NFH

Facility	Olympia Fish Health Center
Expended	$31500
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Quinault NFH Cooperative Agreement U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishment Summary

To prevent the introduction and spread of diseases at Quinault NFH, 959 adult salmon and steelhead were sampled and tested for pathogens.

Description

The *importance* to the Resource:

Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Pathogens cause disease and losses of fish if not detected and held in check.

The *problem*:

Pathogens and disease levels in adults can have an impact on resultant eggs and progeny. Anadromous adults are exposed to pathogens while they are in the wild.

The *objective*:

Detect critical pathogens in spawning adults and provide risk management information to managers to minimize impacts to hatchery programs.

The *method*:

831 adult fish were scientifically tested to determine the presence and magnitude of pathogens to determine the threat of disease. Risk assessments then determine facility and production measures needed to prevent catastrophic losses.

Further description:

Adult inspections are also required if eggs are to be transferred to other locations.

13295-A-004 - Disease testing, monitoring, and treatment of juvenile salmon and steelhead at Quinault NFH

Facility	Olympia Fish Health Center
Expended	$32000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Quinault NFH Cooperative Agreement
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishment Summary

Prevent loss and increase survival of approximately 2,500,000 Chinook, coho, chum and steelhead juvenile fish by inspecting, monitoring, and treating to prevent the spread of disease.

Description

The *importance* to the Resource:

Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Quinault NFH rears fish to meet those goals.

The *problem*:

Pathogens and disease can cause catastrophic losses to hatchery populations if not prevented or held in check. Pathogen exposure can come from adults or free roaming fish in the hatchery water supply.

The *objective*:

Prevent and reduce the prevalence and magnitude of pathogens and disease in juveniles at Quinault NFH.

The *method*:

Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. Treatments and recommended environmental modifications have reduced losses that would have occurred from these pathogens and diseases.

Further description:

		742 juveniles were tested to determine presence and levels of pathogens in fish populations at Quinault NFH. Inspections are also required for any transfers from this station to other locations.

13295-A-005 - Fish Health Inspections of returning adult salmon at Quilcene NFH

Facility	Olympia Fish Health Center
Expended	$25000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishment Summary

Adult salmon are tested to determine diseases that may be present that will threaten the success of fish production at Quilcene NFH.

Description

The *importance* to the Resource:

Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Quilcene NFH produces fish to meet Service goals. Inspections are critical to determine disease risk to the resource.

The *problem*:

Pathogens cause disease and losses of fish if not detected and held in check. Anadromous adults are exposed to pathogens in the wild.

The *objective*:

Prevent and reduce pathogen and disease risk to Quilcene NFH

The *method*:

Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. 245 adult salmon were tested to determine the presence and numbers of pathogens and threat of disease.

Further description:

Fish Health Inspections are necessary to monitor and control viruses, bacteria and parasites that may enter hatcheries through returns of salmon adults. Inspections of adults are necessary before transfers of eggs can be made to other locations.

13295-A-006 - Disease testing, monitoring, and treatment of juvenile salmon at Quilcene NFH

Facility	Olympia Fish Health Center
Expended	$28300
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	

Accomplishment Summary

Juvenile salmon are monitored, tested and treated to prevent losses of over 400,000 production fish in support of management and restoration plans for Hood Canal interjurisdictional fisheries.

Description

The *importance* to the Resource:

Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Fish production at Quilcene NFH supports interjurisdictional fisheries in Canadian fisheries, Puget Sound and Hood Canal. Disease monitoring and control are essential to prevent significant losses to the resource.

The *problem*:

Diseases can reduce survival and cause losses to production of salmon. Exposure to pathogens can come from surface water or other vectors.

The *objective*:

Prevent and reduce the prevalence and magnitude of pathogens and disease at Quilcene NFH.

The *method*:

Scientifically based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. 173 juveniles were tested to determine levels of pathogens in fish populations at Quilcene NFH. Treatments and cultural modifications were recommended to reduce losses from disease.

		Further description: Juvenile inspections are also necessary before transfers or releases may be done.

13295-A-007 - Investigational New Animal Drug (INAD) coordination and monitoring

Facility	Olympia Fish Health Center
Expended	$22000
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	
Keyword	INAD
Need Number	N-002
Partners	University of Idaho

Accomplishment Summary

New investigational drug (INAD) permits and reporting requirements are coordinated and completed for Region 1 hatcheries.

Description

The *importance* to the Resource:

All hatchery production may be threatened by diseases that do not have effective control measures. New drugs that are effective, must be used by permits that have legal requirements for reporting to the Food and Drug Administration (FDA).

The *problem*:

Effective drugs are not legally approved for certain diseases in fish that are essential to meet Service goals.

The *objective*:

For Region 1, this project coordinates information and permitting with the Aquatic Animal Drug Approval Program (AADAP) and the FDA as required by law.

The *method*:

This project provides guidance to hatcheries and other fish health professionals on types and amounts of drugs to be used, testing of effectiveness and requirements for reporting and documentation.

Further description:

New drugs that are effective, must be used by permits that have legal requirements for reporting to the Food and Drug Administration (FDA). This process will support efforts in new

		approvals of drugs that will prevent disease losses and increase survival of hatchery production for Service fisheries goals. 18 INADs were monitored/ coordinated and reports were submitted to the Aquatic Animal Drug Approval Program office.

13295-A-009 - Disease testing of adult spring Chinook salmon at Winthrop NFH

Facility	Olympia Fish Health Center
Expended	$30000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Methow River (UCMET) spring chinook salmon.
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Winthrop National Fish Hatchery Genetics Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Bureau of Reclamation

Accomplishment Summary

Adult salmon were tested for pathogens to prevent disease and losses to production at Winthrop NFH

Description

The *importance* to the Resource:

Restoration and supplementation of Pacific salmon is essential to meet Service goals and obligations. Pathogens cause disease and losses of fish if not detected and controlled.

The *problem*:

Disease can cause significant losses to Winthrop NFH production and certain diseases can be transmitted from adults to progeny.

The *objective*:

Prevent and control pathogens and disease impacts to fish at Winthrop NFH

The *method*:

Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. 260 adult salmon were tested to determine the numbers of pathogens and threat of disease.

Further description:

Adult inspections are also necessary for any transfers of eggs.

13295-A-010 - Disease testing, monitoring and treatment of juvenile salmon and steelhead at Winthrop NFH

Facility	Olympia Fish Health Center
Expended	$51000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Methow River (UCMET) spring chinook salmon.
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Winthrop Hatchery Genetics Management Plan (Steelhead) Winthrop National Fish Hatchery Genetics Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Bureau of Reclamation

Accomplishment Summary

Juvenile salmon and steelhead are monitored, tested and treated to prevent losses of production of fish in support of management and restoration plans for the Columbia River Basin.

Description

The *importance* to the Resource:

Fish production at Winthrop NFH supports recovery of listed Chinook and steelhead plus coho for mitigation and restoration of interjurisdictional fisheries in the Columbia River, Washington and Oregon.

The *problem*:

Diseases can reduce survival and cause losses to production of salmon.

The *objective*:

Prevent and reduce pathogen and disease in juveniles at Winthrop NFH.

The *method*:

Scientifically based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. 330 juveniles were tested for pathogens to determine disease status and proper treatments when necessary.

Further description:

Juvenile inspections are also necessary before release or transfer of fish.

13295-A-011 - Disease testing of adult spring Chinook salmon at Entiat NFH

Facility	Olympia Fish Health Center
Expended	$25000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Entiat Hatchery Genetics Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Bureau of Reclamation

Accomplishment Summary

Adult salmon were tested to prevent disease and losses to production at Entiat NFH

Description

The *importance* to the Resource:

Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Adult salmon inspections are necessary to monitor and control viruses, bacteria and parasites that may enter hatcheries through returns of salmon adults.

The *problem*:

Pathogens cause disease and losses of fish if not detected and held in check.

The *objective*:

Prevent and control pathogens and disease at Entiat NFH.

The *method*:

Scientifically based testing is performed to find any diseases that would be a threat to the population or would cause losses in production. 209 adult Spring Chinook salmon were tested to determine the numbers of pathogens and threat of disease.

Further description:

Adult pathogen inspections are required if eggs are moved from the facility.

13295-A-012 - Disease monitoring, testing and treatment of juvenile salmon at Entiat NFH

Facility	Olympia Fish Health Center
Expended	$30000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Entiat Hatchery Genetics Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Bureau of Reclamation

Accomplishment Summary

Juvenile salmon are monitored, tested and treated to prevent losses of production of fish in support of management and restoration plans for the Columbia River Basin.

Description

The *importance* to the Resource:

Fish production at Entiat NFH supports mitigation and restoration of interjurisdictional fisheries in the Columbia River, Washington and Oregon.

The *problem*:

Diseases can reduce survival and cause losses to production of salmon.

The *objective*:

Prevent and control pathogens and disease losses in juveniles at Entiat NFH

The *method*:

Scientifically based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. 247 juveniles were tested for pathogens to determine disease status and proper treatments when necessary.

Further description:

Juvenile pathogen inspection are necessary if fish are moved or released from the facility.

13295-A-013 - Disease testing of adult Chinook salmon at Leavenworth NFH

Facility	Olympia Fish Health Center
Expended	$48000
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Leavenworth Hatchery Genetics Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Bureau of Reclamation

Accomplishment Summary

Adult salmon were tested to prevent disease and losses to production at Leavenworth NFH.

Description

The *importance* to the Resource:

Disease can cause serious reduction in survival of fish intended for mitigation projects to restore lost salmon fishery opportunities to the public and Native Americans

The *problem*:

Hatcheries built to mitigate for habitat and fishing loss due to construction of Grand Coulee Dam can potentially amplyfiy disease if proper monitoring and elimination of pathogens and disease does not occur.

The *objective*:

Monitor and reduce the prevalence of pathogens and disease in hatchery populations

The *method*:

Test fish for pathogens, segregate or eliminate high risk eggs from production lots.

Further description:

Adult salmon inspections are necessary to monitor and control viruses, bacteria and parasites that may enter hatcheries through returns of salmon adults. Restoration and supplementation of Pacific salmon are essential to meet Service goals and obligations. Pathogens cause disease and losses of fish if not detected and held in check. Scientifically based testing is performed to find any diseases that would be a threat to the

		population or would cause losses in production. 600 adult salmon were tested to determine the numbers of pathogens and threat of disease.

13295-A-014 - Disease monitoring, testing and treatment of juvenile salmon at Leavenworth NFH

Facility	Olympia Fish Health Center
Expended	$44519
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy Leavenworth Hatchery Genetics Management Plan
Keyword	Fish Health
Need Number	N-002
Partners	U.S. Bureau of Reclamation

Accomplishment Summary

Juvenile salmon are monitored, tested and treated to prevent losses of production of fish in support of management and restoration plans for the Columbia River Basin.

Description

The *importance* to the Resource:

Disease can cause serious reduction in survival of juvenile fish at mitigation hatcheries intended to restore lost salmon fishery opportunities to the public and Native Americans

The *problem*:

Pathogens and disease can cause significant loss of fish being reared at federal hatcheries.

The *objective*:

Reduce and prevent the prevalence of pathogens and the loss of fish due to disease.

The *method*:

Monitor juveniles for pathogens and disease during the rearing period. Recommend treatments to prevent and control diseases if they appear and present undue risk to the resource.

Further description:

Fish production at Leavenworth NFH supports recovery of listed Chinook for mitigation and restoration of interjurisdictional fisheries in the Columbia River, Washington and Oregon. Diseases can reduce survival and cause losses to production of salmon. Scientifically

		based monitoring and testing can detect diseases and fish can be treated to prevent death and increase survival of populations. Over 200 representative juveniles were tested for pathogens to determine disease status and proper treatments when necessary.

13295-A-017 - Disease monitoring of adult coho for the Yakama Nation

Facility	Olympia Fish Health Center
Expended	$54001
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	Bonneville Power Administration Yakama Indian Nation

Accomplishment Summary

Adult coho salmon were scientifically tested to monitor and prevent the spread of diseases and losses to the Yakama coho enhancement project

Description

The *importance* to the Resource:

The Yakama Indian Nation is trying to re-introduce extinct coho to the mid-Columia River.

The *problem*:

Returning adult coho may have critical pathogens that will impact the survival of progeny. Eggs from the adults spawned are destined to other facilities and areas for further hatching and rearing. Eggs can't be moved to these facilities without proper testing and clearance to avoid undue pathogen transfers.

The *objective*:

Reduce the risk of transfer of critical pathogens to eggs and subsequent progeny at other facilites.

The *method*:

Test representative adults to determine the prevalence and magnitude of critical fish pathogens.

Further description:

797 adult coho salmon were sampled and tested for pathogens to assist the Yakama Nation and prevent the spread of diseases in the Columbia River Basin. Test information was uses to determine the risk of transfer of

		eggs from these adults to various rearing sites within the basin. Information was essential to obtain Co-manager and State permits and cooperation for restoration and enhancement projects by the Tribe.

13295-A-018 - Monitoring and Control of Diseases for Yakama Nation Juvenile Coho Salmon

Facility	Olympia Fish Health Center
Expended	$36858
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	U.S. Fish and Wildlife Service National Aquatic Animal Health Policy
Keyword	Fish Health
Need Number	N-002
Partners	Bonneville Power Administration Yakama Indian Nation

Accomplishments

Number of technical assistance requests fulfilled to support Tribal fish and wildlife conservation	1

Accomplishment Summary

Juvenile coho were monitored and tested to prevent disease and losses during rearing for the Yakama Nation

Description

The *importance* to the Resource:

Restoration of mid-Columbia coho will add to fishery opportunities to Native Americans and the general public.

The *problem*:

Coho juveniles are reared at various hatcheries (Leavenworth NFH and Winthrop NFH) and are subject to transfers from other hatcheries outside of the Leavenworth Complex. Preventing the spread and amplification of pathogens and disease is critical to the survival and ultimate success of the project.

The *objective*:

Prevent and reduce the impact of pathogens and disease on fish reared at the various hatcheries within the Leavenworth National Fish Hatchery Complex.

The *method*:

Monitor and test representative juveniles for the presence and magnitude of critical pathogens and disease. Recommend treatments and prevent the transfer of high risk fish within the basin.

Further description:

Juvenile coho salmon are reared at the Leavenworth NFH complex for the Yakama Nation's project to restore coho to the upper

		Columbia River basin. Fish health monitoring and testing of 244 fish sampled during the rearing period provided pathogen and disease information used for necessary risk assessment or treatments prior to transfers or releases of this population.

13295-A-020 - Pacific Northwest Fish Health Protection Committee

Facility	Olympia Fish Health Center
Expended	$10000
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	
Keyword	Outreach
Need Number	N-002
Partners	Alaska Department of Fish and Game California Department of Fish and Game Columbia River Intertribal Fish Commission Department of Fisheries and Oceans, Canada Idaho Department of Fish and Game Montana Department of Fish Wildlife and Parks Northwest Indian Fisheries Commission Oregon Department of Fish and Wildlife Washington Department of Fish and Wildlife

Accomplishment Summary

2 meetings were coordinated and held with representatives of 6 western States, 2 Tribal organizations, National Marine Fisheries Service, Department of Fisheries and Oceans, Canada and 1 Aquaculture Association on Fish Disease Issues

Description

The *importance* to the Resource:

Coordination and resolution of fish health issues between agencies and stakeholders of the Pacific Northwest is critical to solving long term problems with disease in this region.

The *problem*:

Various State, Tribal, Federal and Canadian agencies and entities have jurisdition over the regulation and control of fish and diseases in the Northwest. Since anadromous fish populations respect no political boundaries, it is critical to coordinate efforts to solve mutual probles with fish diseases in this region.

The *objective*:

Resolve technical and policy issues regarding the prevention and control of important fish diseases in the Pacific Northwest.

The *method*:

Provide a forum and infrastructure to exchange information and ecourage agencies and entities that rear fish in the Pacific Northwest to adopt measures to prevent and minimize the impact of disease on fish resources of the Pacific Northwest.

		Further description: The U.S. Fish and Wildlife Service sponsors and attends this multi-agency committee to serve as a forum to discuss and resolve fish health issues that affect conservation agencies, tribes, and commercial fish producers in the Pacific Northwest. The Olympia Fish Health Center is charged with organizational and administrative support for the Pacific Northwest Fish Health Protection Committee through a signed MOU.

13245-A-002 - Transfer coho eyed eggs and fish for Port Gamble tribal net pens.

Facility	Quilcene National Fish Hatchery
Expended	$53000
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Puget Sound/Strait of Georgia ESU
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) Puget Sound Salmon Management Plan Pacific Region Fisheries Outreach Action Plan
Keyword	Tribal
Need Number	N-002
Partners	Port Gamble S'Klallam tribe ($1500) Washington Department of Fish and Wildlife ($240000)

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	2
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	2
Number of other Fishery Management Plan	3

Accomplishment Summary

Transferred 450,100 coho salmon eyed eggs to George Adams Washington State Hatchery (November 2006) with final destination of Port Gamble S'Klallam bay tribal net pens. Also transferred 108,000 coho fingerlings (4,046 pounds) directly to the Port Gamble S'Klallam bay tribal net pens on February 8, 2006. These transfers increased terminal recreational, commercial and tribal fishing opportunities.

Description

The *importance* to the Resource:

This program provides hatchery fish for increased fishing opportunities and relieves fishing pressure on wild fish stocks

The *problem*:

Provide fishing opportunity for treaty / non-treaty; recreational, and commercial fishermen .
If these hatchery fish were not there for fishermen, the fishing pressure on wild stocks would be increased.

The *objective*:

Increase fishing opportunity for the treaty / non-treaty; recreational, and commercial fishermen. The fish return to the Port Gamble Bay for the Port Gamble S'Klallam tribal fishermen and other fishermen.

The *method*:

Quilcene NFH will collect, fertilize, and incubate eggs from returning adult coho salmon. Then transferred as eyed eggs to George Adams State hatchery to be hatched and reared until final transfer to tribal net pens

tasks implemented for populations of management concern.		before release. This year Quilcene NFH also transferred 108,000 coho fingerling to the Port Gamble S'Klallam tribal net pens. **Further description:** The fish will be raised in the Port Gamble S'Klallam tribal net pens for several months prior to release. The returning adult salmon are then targeted by tribal/non tribal,recreational andcommercial fishermen in the terminal fishing area. All adults used in spawning are inspected by US Fish and Wildlife Service fish pathologist prior to any egg transfers. The fish raised at Quilcene National Fish Hatchery are routinely inspected by a US Fish and Wildlife Service fish pathologist.

13245-A-004 - Big Quilcene River on station release of coho salmon smolts

Facility	Quilcene National Fish Hatchery
Expended	$275284
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Puget Sound/Strait of Georgia ESU
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) Puget Sound Salmon Management Plan Pacific Region Fisheries Outreach Action Plan
Keyword	Tribal
Need Number	N-002
Partners	Jamestown S'Klallam tribe Lower Elwha S'Klallam tribe Point No Point Treaty Tribes Port Gamble S'Klallam tribe Skokomish Tribe Suquamish tribe Washington Department of Fish and Wildlife

Accomplishments

Accomplishment Summary

Released 488,080 coho salmon smolts (21,912 pounds) into the Big Quilcene river. The returning adult fish will provide increased fishing opportunity for tribal/ non-tribal; recreational and commercial fishermen.

Description

The *importance* to the Resource:

If these hatchery fish were not there for fishermen, the fishing pressure on wild stocks would be increased.

The *problem*:

Provide fishing opportunity for treaty / non-treaty; recreational, and commercial fishermen
.
If these hatchery fish were not there for fishermen, the fishing pressure on wild stocks would be increased.

The *objective*:

Increase fishing opportunity for the treaty / non-treaty; recreational, and commercial fishermen. If these hatchery fish were not there for fishermen, the fishing pressure on wild stocks would be increased

The *method*:

Quilcene NFH will collect, fertilize, incubate eggs and hatch fry from returning adult coho salmon. The fish will be raised for 1 1/2 years at the hatchery prior to release as smolts into the Big Quilcene river

Further description:

Release of these coho salmon should result in

Number of Fishery Management Plan production tasks implemented (PART)	2		adult fish available for harvest by treaty and non-treaty commercial fisherman and recreational fishers. Quilcene NFH released 488,080 coho smolts into the Big Quilcene river at the end of April 2006.This amount exceeded the task of releasing 400,000 coho smolts.
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.	3		

13245-A-009 - Coho salmon to Quilcene Bay net pens (Tribal)

Facility	Quilcene National Fish Hatchery
Expended	$96721
Objective	Provide fish for Tribal resource management.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Puget Sound/Strait of Georgia ESU
Plans	Hood Canal Salmon Management Plan (Quilcene NFH) Puget Sound Salmon Management Plan Pacific Region Fisheries Outreach Action Plan
Keyword	Tribal
Need Number	N-002
Partners	Skokomish Tribe ($4000) Washington Department of Fish and Wildlife ($500)

Accomplishments

Number of Fishery Management Plan production tasks implemented (PART)	2
number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	2
Number of other Fishery Management Plan	3

Accomplishment Summary

Transferred 199,191 coho salmon fingerlings weighing 7,758 pounds to Skokomish tribal net pens in Quilcene Bay.

Description

The *importance* to the Resource:

Provide fishing opportunity for treaty / non-treaty; recreational, and commercial fishermen .
If these hatchery fish were not there for fishermen, the fishing pressure on wild stocks would be increased.

The *problem*:

Provide fishing opportunity for treaty / non-treaty; recreational, and commercial fishermen .
If these hatchery fish were not there for fishermen, the fishing pressure on wild stocks would be increased.

The *objective*:

Increase fishing opportunity for the treaty / non-treaty; recreational, and commercial fishermen. The fish return to the Quilcene Bay for the Skokomish tribal fishermen and other fishermen.

The *method*:

At Quilcene NFH, spawn coho salmon adults, incubate and hatch eggs, and raise fish for over a year until transfer to tribal net pens in Quilcene Bay. These fish are raised for several months before release. The returning hatchery adult salmon are targeted by all groups of fishermen

tasks implemented for populations of management concern.		**Further description:** Provided 180,582 coho salmon weighing 6,433 pounds to net pens in Quilcene Bay. This provides additional fishing opportunities to tribal and non tribal fishermen. All adult fish used in spawning are inspected by US Fish and Wildlife Service fish pathologist prior to any fish transfers. The fish raised at Quilcene National Fish Hatchery are routinely inspected by a US Fish and Wildlife Service fish pathologist.

13245-A-011 - Genetic Analyses of coho salmon populations in Hood Canal

Facility	Quilcene National Fish Hatchery
Expended	$34600
Objective	Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Puget Sound/Strait of Georgia ESU
Plans	Puget Sound and Coastal Washington Hatchery Reform Project Pacific Region Fisheries Outreach Action Plan
Keyword	Genetics
Need Number	N-002
Partners	Jamestown S'Klallam tribe Lower Elwha S'Klallam tribe NOAA Fisheries ($30000) Port Gamble S'Klallam tribe Skokomish Tribe Suquamish tribe Washington Department of Fish and Wildlife

Accomplishment Summary

Quilcene NFH funded the Genetic Analyses of Coho Salmon Populations in Hood Canal with the Abernathy Fish Technology Center Genetics Lab. Genetic analyses of 11 hatchery stocks and 17 natural populations are being evaluated. The genetic relationship of the Quilcene NFH stock relative to natural populations within Hood Canal will be determined. This effort provides information to help cooperators decide on objectives and broodstock sources for any new or modified coho programs in Hood Canal.

Description

The *importance* to the Resource:

The Hatchery Scientific Review Group (HSRG) has recommended that the current coho stock at the Quilcene NFH be replaced with a new broodstock derived from an existing natural population in Hood Canal, Big Beef Creek. These fish were chosen in part to reduce the genetic risks of straying of returning hatchery-origin adults from Port Gamble Bay.

The *problem*:

Hood Canal comanagers felt that the HSRG lacked enough scientific information to make the recommendations for coho stocks used for on station release and tribal net pens. The Service is attempting to secure data to scientifically evaluate those recommendations and then act on them.

The *objective*:

Determine the genetic relationship of the Quilcene NFH stock relative to natural populations within Hood Canal. The co-managers can use this genetic information to

Accomplishments

Number of other Fishery Management Plan tasks implemented for populations of management concern.	4
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

make a sound scientific decision on the HSRG recommendations for Quilcene NFH

The *method*:

The Genetics Lab at Abernathy Fish Technology Center will use DNA markers to genetically compare 11 hatchery and 17 natural populations of coho salmon in Hood Canal. Out-of-basin populations will serve as genetic “outgroups” for quantifying the genetic similarity of hatchery and natural populations within Hood Canal.

Further description:

The comanagers felt that the HSRG lacked enough scientific information to make the recommendations they did. Quilcene NFH and their partners will use genetic sampling and analyses to make a sound scientific decision on the HSRG recommendations.

The USFWS will work closely with NOAA-Fisheries Northwest Fisheries Science Center to combine the data generated in this study with an extensive coho salmon baseline.

Note that the HSRG recommendations are not a recognized management plan.

13245-A-016 - Mass Marking to Support Selective Fisheries

Facility	Quilcene National Fish Hatchery
Expended	$6500
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Puget Sound/Strait of Georgia ESU
Plans	FY 2003 Omnibus Bill and H.R. 2361--Department of the Interior, Environment, and Related Agencies Appropriations Act, 2006 (Reported in House) Hood Canal Salmon Management Plan (Quilcene NFH) Pacific Region Fisheries Outreach Action Plan
Keyword	Management
Need Number	N-002
Partners	Jamestown S'Klallam tribe Lower Elwha S'Klallam tribe Port Gamble S'Klallam tribe Skokomish Tribe Suquamish tribe

Accomplishment Summary

Assisted the Western Washington Fisheries Resource Office (WWFRO) in mass marking coho salmon at Quilcene NFH. Also worked with the WWFRO to transport and maintain the marking trailer for the mass marking programs at Makah NFH and Quinault NFH.

Description

The *importance* to the Resource:

Marking hatchery coho salmon by removal of the adipose fin allows selective harvest of hatchery fish.

The *problem*:

Removal of the adipose fin confounds the coded -wire-tag system used in the Northwest and Alaskan salmon management. Removal of the adipose fin is required by federal law.

The *objective*:

This project's goals are to 100% mass mark the hatchery fish at Quilcene National Fish Hatchery working with the Western Washington Fisheries Resource Office

The *method*:

Working with the Western Washington Fisheries Resource Office, assisted in operation of the fish marking trailer at Quilcene NFH. Also helped move and maintain the marking trailer at three federal fish hatcheries on the Washington Olympic peninsula or scheduled mass marking.

Accomplishments

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.	1

13290-A-000 - Support Spring Chinook Salmon Catch in the Deschutes River, Oregon

Facility	Warm Springs National Fish Hatchery
Expended	$665511
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Wild Warm Springs River Spring Chinook
Plans	Warm Springs Hatchery and Genetic Management Plan (draft)
Keyword	Recreational
Need Number	N-002
Partners	Abernathy Fish Technology Center Columbia River Fisheries Program Office Columbia River Inter Tribal Fish Commission Confederated Tribes of The Warm Springs Lower Columbia River Fish Health Center National Marine Fisheries Service Oregon Department of Fish and Wildlife

Accomplishments

Accomplishment Summary

Provided a catch of approximately 200 adult spring salmon in the Deschutes river tribal dip net fishery. Provided tribal subsistence program with 1958 adult salmon. Passed 1178 salmon upstream. (all data as of 8/31/06)

Description

The *importance* to the Resource:

Protect indigenous fish populations, produce healthy externally clipped spring Chinook smolts, produce a return to the Deschutes River of at least 2,250 hatchery fish, maintain stock integrity and genetic diversity of the hatchery and wild stocks, monitor and evaluate populations, monitor aquatic environment.

The *problem*:

Provide fishing opportunities for the public and tribal fishers.

The *objective*:

minimize interactions with indigenous fish populations, monitor and evaluate populations

The *method*:

maximize survival at all life stages using disease control and prevention techniques, implement hatchery quality improvement measures Operate fish passage system to promote efficient passage of native species and wild stocks while maintaining separation of hatchery and wild stocks.

Further description:

The objectives of the program as stated in the implementation plan are protect indigenous fish

Recovery Plan production tasks implemented (PART)	2		populations, produce 750,000 healthy externally clipped spring Chinook smolts, produce a return to the Deschutes River of at least 2,250 hatchery fish, maintain stock integrity and genetic diversity of the hatchery and wild stocks, maximize survival at all life stages using disease control and prevention techniques, minimize interactions with indigenous fish populations, monitor and evaluate populations, monitor aquatic environment, implement hatchery quality improvement measures, and communicate with others. Operate fish passage system to promote efficient passage of native species and wild stocks while maintaining separation of hatchery and wild stocks. Operate adult holding facility to maximize brood stock survival to spawning. Performed maintenance of facilities to assure reliable functioning of equipment needed conduct fish passage and husbandry activities. Returning adults provide benefits to recreational fishermen, tribal subsistence fishermen, tribal ceremonial fishermen and tribal subsistence and ceremonial programs. Funding includes $134,592 of maintenance monies.
Number of post-stocking survival tasks met, as prescribed by Recovery plans for hatchery propagated listed species. (PART)	1		

13320-A-017 - Coho Salmon Fishery Management Modeling

Facility	Western Washington Fisheries Resource Office
Expended	$15000
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Southern Coho Management Plan Pacific Salmon Treaty of 1999
Keyword	Interjurisdictional
Need Number	N-002
Partners	Alaska Department of Fish and Game ($1000) Columbia River Inter Tribal Fish Commission ($1000) Fisheries and Oceans Canada ($12000) Northwest Indian Fisheries Commission ($10000) Oregon Department of Fish and Wildlife ($1000) Washington Department of Fish and Wildlife ($50000)

Accomplishment Summary

We are developing planning tools which will be used to evaluate the performance of fisheries regimes adopted by the parties to the Pacific Salmon Treaty.

Description

The *importance* to the Resource:

New management measures and programs are needed to prevent further decline in spawning escapements, adjust fishing patterns, and initiate, develop, or improve management programs for coho stocks. This Project provides for the programming of functions and compilation of input data essential to development of the fisheries management tool FRAM.

The *problem*:

There is a need to enhance our capability to implement the Pacific Salmon Treaty's Southern Coho Management Plan. Successful implementation of this plan depends on development of planning tools used to evaluate performance of fisheries regimes adopted by the parties to the Pacific Salmon Treaty.

The *objective*:

Parties to the US/Canada Pacific Salmon Treaty have committed to joint development of pre-season planning and post-season evaluation tools and protocols.

The *method*:

We are completing essential tasks that will produce necessary components of the agreed planning tools (specifically the Fishery Regulation Assessment Model - FRAM). We

Accomplishments

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

are creating a historical database containing fishery exploitation rate estimates to be used in pre-season evaluation of fishing impacts to US and Canadian management units.

Further description:

This project represents the U.S. portion of essential tasks that have been defined by the bilateral Coho Technical Committee and Southern Panel, intended to produce necessary components of the agreed planning tools and the data needed as input for application of those planning tools and documentation of those products.

13320-A-018 - Hatchery Reform Project

Facility	Western Washington Fisheries Resource Office
Expended	$70016
Objective	Recover fish and other aquatic resource populations protected under the Endangered Species Act.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Shared Strategy for Puget Sound and Recovery Plan, Draft Puget Sound and Coastal Washington Hatchery Reform Project
Keyword	Recovery
Need Number	N-002
Partners	

Accomplishments

Number of other Recovery Plan tasks implemented for T&E populations	1
Number of post stocking survival tasks met as prescribed by Fishery Management Plans, for hatchery propagated depleted species (PART)	1
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2

Accomplishment Summary

We continued to support the Western Washington Hatchery Reform Project by participating in multiple co-manager meetings on hatchery reform; monitoring Quilcene River summer chum salmon recovery by mark and scale sampling carcasses throughout the run; and by collecting northern Hood Canal coho salmon for DNA analysis in order to determine an appropriate Quilcene NFH coho brood stock.

Description

The *importance* to the Resource:

As part of the Endangered Species Act recovery process for several Puget Sound and coastal salmon and steelhead stocks, the State, Tribal and Federal managers of Washington's salmon and steelhead resources must ensure that their hatcheries do not present a risk to listed species.

The *problem*:

Hatcheries may cause adverse impacts to wild salmon through competition, predation, and interbreeding with wild cohorts.

The *objective*:

The hatchery reform process is intended to help recover naturally-spawning salmon, while providing sustainable fisheries. FWS hatcheries in western Washington were reviewed by the project's Hatchery Scientific Review Group, which developed a series of recommendations for FWS hatcheries to meet the objectives of hatchery reform.

The *method*:

		The Western Washington Fish and Wildlife Office is specifically working to implement hatchery reforms recommendations for Quilcene, Quinault and Makah National Fish Hatcheries.

13320-A-030 - Mass Marking to Suppport Selective Fisheries

Facility	Western Washington Fisheries Resource Office
Expended	$479591
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Chinook salmon or king salmon (*Oncorhynchus tshawytscha*)
Primary Benefited Population	Not specified
Plans	Pacific Salmon Treaty of 1999 FY 2003 Omnibus Bill and H.R. 2361--Department of the Interior, Environment, and Related Agencies Appropriations Act, 2006 (Reported in House) Makah NFH Cooperative Agreement Quinault NFH Cooperative Agreement Hood Canal Salmon Management Plan (Quilcene NFH)
Keyword	Management
Need Number	N-002
Partners	Makah Indian Nation Northwest Indian Fisheries Commission Pacific Salmon Commission Point No Point Treaty Tribes

Accomplishment Summary

We mass marked 100% of Chinook, coho, and steelhead at the western Washington National Fish Hatcheries. We are developing assessment methods and models for management of selective and non-selective fisheries for Chinook and coho salmon. We participated in an ad hoc working group that is addressing the Pacific Salmon Commission's Coded-Wire-Tag Expert Report, and funded Washington Department of Fish and Wildlife to assist with biometric issues identified in the Coded-Wire-Tag Expert Report.

Description

The *importance* to the Resource:

Marking hatchery Chinook and coho salmon and steelhead by removal of the adipose fin allows selective harvest of hatchery fish.

The *problem*:

Removal of the adipose fin from hatchery-produced Chinook and coho salmon and steelhead is required by federal law, but it confounds the coded-wire-tag system used in Northwest and Alaskan salmon management.

The *objective*:

This project's goals are to 100% mass mark the Chinook and coho salmon and steelhead produced at Quilcene, Quinault, and Makah National Fish Hatcheries in western Washington, and to assist with salmon harvest management issues arising from mass marking.

The *method*:

We completed mass marking using

	Quinault Indian Nation

Accomplishments

number of marking and tagging targets met, as prescribed by Fishery management plans. (PART)	8
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	1

conventional and automated fish-marking units. We developed and tested methods to evaluate the impacts of future selective fisheries on depressed and ESA-listed salmon stocks. We provided interagency forums with staff support and funding to help resolve biometric issues related to mass marking.

Further description:

13320-A-033 - Coho Production Density Study - Quinault NFH

Facility	Western Washington Fisheries Resource Office
Expended	$24987
Objective	Support, facilitate, and/or lead collaborative approaches to manage interjurisdictional fisheries.
Primary Benefited Species	Coho salmon or silver salmon (*Oncorhynchus kisutch*)
Primary Benefited Population	Not specified
Plans	Quinault NFH Cooperative Agreement
Keyword	Fish Technology
Need Number	N-002
Partners	Quinault Indian Nation

Accomplishments

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

Accomplishment Summary

Tag recoveries of coho salmon adults from the final broodyear of this study have been completed and reported to the coastwide tag recovery database. Analysis of complete survival data from ocean fisheries, local terminal fisheries, and returns to the hatchery is continuing on schedule, with final analysis expected during FY 2007.

Description

The *importance* to the Resource:

This project will assess whether reducing coho salmon production at Quinault NFH yields the same fishery benefits as higher levels of fish production, thus avoiding potential disease problems at the hatchery as well as lowering production costs.

The *problem*:

Rearing density of coho salmon was recently cut at Quinault NFH because of high levels of disease. Disease levels are now lower, but it is unknown if survival has increased to compensate for the reduced production.

The *objective*:

This project will evaluate production protocols for coho salmon at Quinault NFH to determine production levels that most benefit Tribal, recreational, and commercial fishers of coastal Washington. Other related studies were conducted in different rearing environments and had low statistical power.

The *method*:

Tag recoveries of coho adults from the final broodyear of this study were completed and

		reported to the coastwide tag recovery database. Analysis of complete survival data from ocean fisheries, local terminal fisheries, and returns to the hatchery is continuing on-schedule.