



# Project Report December 8, 2006

## Strategic Plan

### Objectives:

Minimize range expansion and population growth of established aquatic nuisance species.

10 projects found

### 13210-A-042 - [Genetic Analysis of Hybridization between Bull Trout and Brook Trout in the Malheur River, OR](#)

<b>Facility</b>	Abernathy Fish Technology Center	<h3>Accomplishment Summary</h3> <p>We used 13 genetic markers to document the presence of natural hybridization between threatened bull trout and introduced brook trout in three tributaries of the Malheur River, OR. These results will aid the Burns-Paiute Tribe in quantifying the impact of hybridization on bull trout recovery. Results were also used to enter four bull trout populations into the rangewide database allowing for a better understanding of evolutionary relationship of this core area to others over the species range.</p> <h3>Description</h3> <p><b>The importance to the Resource:</b> Working collaboratively with Burns Paiute Tribal biologists, this project provided genetic identification of species or hybrids from 300 trout collected from 3 creeks in the Malheur River Basin. Field identifications and genetic identifications of 15 hybrids were strongly concordant confirming that natural hybridization is occurring in the basin.</p> <p><b>The problem:</b> Naturalized brook trout threaten the continued existence of bull trout via competition and potential natural hybridization. The impact of hybridization on these bull trout populations</p>	
<b>Expended</b>	\$9962		
<b>Objective</b>	Recover fish and other aquatic resource populations protected under the Endangered Species Act.		
<b>Primary Benefited Species</b>	Bull trout ( <a href="#">Salvelinus confluentus</a> )		
<b>Primary Benefited Population</b>	<a href="#">Malheur River core area Bull trout</a>		
<b>Plans</b>	Bull Trout Draft Recovery Plan, Chapter 14 Bull Trout Recovery Plan, Ch 1 Introduction		
<b>Keyword</b>	Genetics		
<b>Need Number</b>	N-002		
<b>Partners</b>	Burns Paiute Tribes of Oregon (\$5000)		
<h3>Accomplishments</h3> <table border="1"> <tr> <td>Number of other Recovery Plan tasks</td> <td>2</td> </tr> </table>			Number of other Recovery Plan tasks
Number of other Recovery Plan tasks	2		

implemented for T&E populations		<p>was unknown until this study was completed.</p> <p><b>The objective:</b></p> <p>To use genetic methods to characterize hybridization between bull and brook trout in Lake Creek, Meadow Creek, and Big Creek all tributaries to the Malheur River on the Burns-Paiute Indian Reservation in central Oregon.</p> <p><b>The method:</b></p> <p>A large number of candidate DNA loci were first tested for their ability to discriminate bull trout and brook trout. Three hundred fish were examined from three populations.</p>
Number of surveys conducted for aquatic invasive species baseline/trend information	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	

10140-A-001 - [Aquatic Nuisance Species coordination](#)

<b>Facility</b>	Assistant Regional Director-fisheries	<p><b>Accomplishment Summary</b></p> <p>Collaborated with a wide variety of partners to develop and implement effective prevention, early detection, monitoring, and control projects that reduced the spread of aquatic invasive species and their ecological/economic impacts throughout the Pacific Northwest and Hawaii.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Aquatic invasive species are a major threat to natural resources in Region 1. Some species, like Spartina cordgrass, have already caused significant damage. Potential invaders like zebra mussels and silver carp can still be avoided.</p> <p><b>The problem:</b></p> <p>Multiple pathways, ranging from shipping to anglers, continue to introduce new aquatic invasive species into the Pacific Northwest and Hawaii. Unless detected and eradicated promptly, ANS introductions usually become permanent sources of economic and ecological impact.</p> <p><b>The objective:</b></p> <p>Specific objectives pursued this fiscal year include:</p> <ul style="list-style-type: none"> <li>- reduce ANS introductions from celebrants of the Lewis and Clark Bicentennial.</li> <li>- delivery of HACCP training in Idaho</li> <li>- enhance rapid response capacity for zebra mussels in the Columbia Basin</li> <li>- control marine algae in Hawaii</li> <li>- engage boat inspectors in zebra mussel detection</li> </ul>
<b>Expended</b>	\$160000	
<b>Objective</b>	Prevent new introductions of aquatic nuisance species.	
<b>Primary Benefited Species</b>	(0) Multiple Species	
<b>Primary Benefited Population</b>	Not specified	
<b>Plans</b>	<p>ANS Task Force Strategic Plan</p> <p>DOI Executive Order #13112 (Invasive Species)</p> <p>National Invasive Species Act of 1996</p> <p>Oregon Aquatic Nuisance Species Management Plan</p> <p>Washington State Aquatic Nuisance Species Management Plan (October 2001)</p> <p>State of Hawaii Aquatic Invasive Species Management Plan</p>	
<b>Keyword</b>	Aquatic Nuisance Species	
<b>Need Number</b>	N-002	
<b>Partners</b>	<p>Bonneville Power Administration (\$5000)</p> <p>Oregon Sea Grant (\$25000)</p> <p>Pacific States Marine Fisheries Commission (\$40000)</p> <p>Portland State University (\$10000)</p>	

U.S. Environmental Protection Agency (\$20000)  
 U.S. Geological Survey (\$10000)  
 Washington Department of Fish and Wildlife (\$10000)

**The method:**

- Education materials were developed/distributed (e.g., brochure for Oregon teachers)
- Plans were developed (e.g., Columbia River rapid response plan)
- Technical assistance was provided (e.g., Puget Sound invasive tunicate control)
- Trainings held (e.g., HACCP)
- Presentations given (e.g., NWNAFWS)
- Surveys conducted (e.g., MCRANS)

**Accomplishments**

Number of other Fishery Management Plan tasks implemented for populations of management concern.	12
Number of risk assessments conducted.	2
Number of surveys conducted for early detection	2
Number of activities conducted to address priority pathways	30
Number of activities conducted to support the management and control of aquatic invasive species	10
Number ANS related of outreach/education activities conducted	30
Number of partnerships	15
Number of technical assistance/coordination activities conducted	70
Number of surveys conducted for aquatic invasive species baseline/trend information	1
Number of activities conducted for rapid response	5

13310-A-214 - [Aquatic Nuisance Species Surveys at Columbia River Basin Hatcheries](#)

<b>Facility</b>	Columbia River Fisheries Program Office	<p><b>Accomplishment Summary</b></p> <p>Planning was initiated on developing sampling designs and monitoring efforts for our national fish hatcheries to preclude the spread of aquatic nuisance species (ANS).</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Nonnative species often compete with and under certain conditions overwhelm native species in limited aquatic habitats. The continuing spread of invasive ANS is often one of the significant contributing factors in native species decline and an often referenced factor in ESA listings for individual species.</p> <p><b>The problem:</b></p> <p>The spread of nonnative aquatic nuisance species (ANS) has become a significant management problem for the fisheries resources and native fish populations in the Pacific Northwest.</p> <p><b>The objective:</b></p> <p>The spread of New Zealand mudsnails and brook trout to new waters as a result of our hatchery release programs will be the initial emphasis of our efforts in FY '05 and FY '06.</p> <p><b>The method:</b></p> <p>This project has enabled the CRFPO to initiate sampling protocols and monitoring efforts at our national fish hatcheries so that our USFWS policy on the spread of ANS in our fish production management actions is not compromised.</p> <p><b>Further description:</b></p>			
<b>Expended</b>	\$10000				
<b>Objective</b>	Prevent new introductions of aquatic nuisance species.				
<b>Primary Benefited Species</b>	(0) Multiple Species				
<b>Primary Benefited Population</b>	Not specified				
<b>Plans</b>	ANS Task Force Strategic Plan				
<b>Keyword</b>	Aquatic Nuisance Species				
<b>Need Number</b>	N-002				
<b>Partners</b>	Carson National Fish Hatchery Eagle Creek National Fish Hatchery Little White Salmon National Fish Hatchery Spring Creek National Fish Hatchery Warm Springs National Fish Hatchery				
<p><b>Accomplishments</b></p> <table border="1"> <tr> <td>Number of other Fishery Management Plan tasks implemented for populations of management concern.</td> <td>1</td> </tr> <tr> <td>Number of activities conducted to support the management and control of aquatic invasive species</td> <td>1</td> </tr> </table>			Number of other Fishery Management Plan tasks implemented for populations of management concern.	1	Number of activities conducted to support the management and control of aquatic invasive species
Number of other Fishery Management Plan tasks implemented for populations of management concern.	1				
Number of activities conducted to support the management and control of aquatic invasive species	1				

Number of technical assistance/coordination activities conducted	1	The USFWS has a policy against taking any management action that leads to the proliferation or spread of ANS.
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13310-A-219 - [Toxicity of herbicides to fish from Little White Salmon National Fish Hatchery](#)

<b>Facility</b>	Columbia River Fisheries Program Office
<b>Expended</b>	\$0
<b>Objective</b>	Minimize range expansion and population growth of established aquatic nuisance species.
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )
<b>Primary Benefited Population</b>	<a href="#">Little White Salmon River</a> <a href="#">Spring Chinook</a>
<b>Plans</b>	2000 NMFS FCRPS Biological Opinion - December 21, 2000 Comprehensive Hatchery Management Plan- Little White NFH Complex ANS Task Force Strategic Plan
<b>Keyword</b>	Aquatic Nuisance Species
<b>Need Number</b>	N-002
<b>Partners</b>	Little White Salmon National Fish Hatchery (\$10000) Skamania County, Washington

**Accomplishments**

Number of other Recovery Plan tasks implemented for T&E populations	1
Number of other Fishery Management Plan tasks implemented for populations of	1

**Accomplishment Summary**

Monitoring and evaluation to protect important salmon and steelhead fishing and populations. Specific evaluation was a toxicity study of herbicides Diquat and 2,4D applied by Skamania County in Drano Lake, Washington for control of exotic plants, water milfoil and elodea.

**Description**

**The importance to the Resource:**

Chinook salmon provide important tribal and sport fisheries.

**The problem:**

Herbicides are applied in areas occupied by salmon. Exotic plants interfere with native plants, boating, and fishing.

**The objective:**

Determine the potential effect of herbicide application on survival and tissue residue in chinook salmon.

**The method:**

Live traps of chinook salmon were placed at Little White Salmon National Fish Hatchery (control) and in Drano Lake where the herbicide was applied (treatment). Sampling was conducted to monitor survival over a 96 hour period. Tissue samples were collected and sent to a lab for analysis for herbicides.

**Further description:**

This was a one year study working with Little White National Fish Hatchery and Skamania County.

management concern.

14330-A-038 - [Survey of the New Zealand Mudsnaill in the South Fork Clearwater River](#)

<b>Facility</b>	Idaho Fisheries Resource Office
<b>Expended</b>	\$750
<b>Objective</b>	Minimize range expansion and population growth of established aquatic nuisance species.
<b>Primary Benefited Species</b>	(0) Multiple Species
<b>Primary Benefited Population</b>	Not specified
<b>Plans</b>	DOI Executive Order #13112 (Invasive Species)
<b>Keyword</b>	Aquatic Nuisance Species
<b>Need Number</b>	N-002
<b>Partners</b>	

**Accomplishments**

Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of surveys conducted for early detection	1
Number of activities conducted to support the management and control of aquatic invasive species	1
Number of consultations conducted to support Tribal fish & wildlife conservation.	1

**Accomplishment Summary**

We monitored established sites in the South Fork Clearwater River for early detection of any New Zealand mudsnail invasion.

**Description**

**The importance to the Resource:**

The spread of New Zealand mudsnails (NZMS) is rapidly becoming a problem in the Western US. NZMS have the potential to cause serious impacts to native species, fisheries, and aquatic ecosystems. While it may take years for impacts to show up, then it's often too late, the only hope of control and possible containment is through early detection.

**The problem:**

Hagerman NFH use to stock steelhead into the SF Clearwater River. In 2002 NZMS were found in the hatchery water source. We surveyed the SF Clearwater in 2003 after stopping the releases and no NZMS were found. However, a negative finding does not guarantee that some NZMS were not present, just that we were unable to find any.

**The objective:**

The objective of the project is to control and contain New Zealand mudsnails in the Clearwater River through early detection of any infestation.

**The method:**

We will annually monitor established transects in the South Fork Clearwater River. The sites selected have the highest potential for colonization of New Zealand mudsnails and will be surveyed at the time of peak population

	numbers. Any finding of mudsnails will trigger control and containment efforts.
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14330-A-075 - [Survey of the New Zealand Mudsnaill in the Upper Salmon River](#)

<b>Facility</b>	Idaho Fisheries Resource Office
<b>Expended</b>	\$1250
<b>Objective</b>	Minimize range expansion and population growth of established aquatic nuisance species.
<b>Primary Benefited Species</b>	(0) Multiple Species
<b>Primary Benefited Population</b>	Not specified
<b>Plans</b>	DOI Executive Order #13112 (Invasive Species)
<b>Keyword</b>	Aquatic Nuisance Species
<b>Need Number</b>	N-002
<b>Partners</b>	

**Accomplishments**

Number of other Fishery Management Plan tasks implemented for populations of management concern.	1
Number of surveys conducted for early detection	1
Number of activities conducted to support the management and control of aquatic invasive species	1
Number of technical assistance/coordination activities conducted	1

**Accomplishment Summary**

We established and monitored sites in the Upper Salmon River for early detection of any New Zealand mudsnail invasion.

**Description**

**The importance to the Resource:**

The spread of New Zealand mudsnails (NZMS) is rapidly becoming a problem in the Western US. NZMS have the potential to cause serious impacts to native species, fisheries, and aquatic ecosystems. While it may take years for impacts to show up, then it's often too late, the only hope of control and possible containment is through early detection.

**The problem:**

Hagerman NFH stocks steelhead into the Upper Salmon River. In 2002 NZMS were found in the hatchery water source. We surveyed the Upper Salmon River in 2004 and no NZMS were found. However, a negative finding does not guarantee that some NZMS were not present, just that we were unable to find any.

**The objective:**

The objective of the project is to control and contain New Zealand mudsnails in the Upper Salmon River through early detection of any infestation.

**The method:**

We will annually monitor established transects in the Upper Salmon River. The sites selected have the highest potential for colonization of New Zealand mudsnails and will be surveyed at the time of peak population numbers. Any

	finding of mudsnails will trigger control and containment efforts.
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**13231-A-014 - [Investigational New Animal Drug \(INAD\) program and its use at Columbia River Natl. Fish Hatcheries](#)**

<b>Facility</b>	Lower Columbia River Fish Health Center	<p><b>Accomplishment Summary</b></p> <p>Chemotherapeutants prevented or controlled disease outbreaks in five lots of salmonids at three hatcheries, allowing successful release of healthy salmon for tribal supplementation and mitigation programs.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>Bacterial kidney disease, coldwater disease and bacterial gill disease can cause serious mortalities in fish. Studies investigating the judicious use of antibiotics for disease control are used to provide validation for safe use, as required by the Food and Drug Administration.</p> <p><b>The problem:</b></p> <p>There is a lack of studies verifying the safe and proper use of chemotherapeutants for treating disease in aquaculture facilities.</p> <p><b>The objective:</b></p> <p>When disease outbreaks occur at a hatchery, the Lower Columbia River Fish Health Ctr. may recommend treatment with antibiotic under controlled conditions. This is to enhance drug application and determine its efficacy and safety in controlling disease.</p> <p><b>The method:</b></p> <p>Diagnosis of furunculosis in the coho at one hatchery necessitated a timely intervention with oxytetracycline medicated feed. At two hatcheries, erythromycin is used to control bacterial kidney disease. Personnel monitor the drug studies and forward the information to the National INAD Office to help garner drug</p>
<b>Expended</b>	\$10000	
<b>Objective</b>	Minimize range expansion and population growth of established aquatic nuisance species.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	<a href="#">Wild Warm Springs River Spring Chinook</a>	
<b>Plans</b>	<p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</p> <p>Warm Springs National Fish Hatchery Assessments and Recommendations Final Report</p> <p>Little White NFH Spring Chinook Salmon Hatchery and Genetic Management Plan</p> <p>Yakima Subbasin Plan</p>	
<b>Keyword</b>	Fish Health	
<b>Need Number</b>	N-002	
<b>Partners</b>	<p>Confederated Tribes of the Umatilla Indian Reservation</p> <p>Yakama Indian Nation</p>	
<b>Accomplishments</b>		

Number of other Recovery Plan tasks implemented for T&E populations	1	<p>approval by FDA.</p> <p><b>Further description:</b></p> <p>While antibiotics can help reduce disease, their use can create drug resistance. Towards that issue, the Lower Columbia River FHC is doing a long-term study that looks at reducing the use while maintaining the current survival benefits provided to fish. Personnel monitor the drug studies and forward the information to the National INAD Office for the Federal-State Aquaculture Drug Approval Partnership Project to help garner drug approval by FDA. We also provide fish health /therapeutic services for tribal, federal, and state biologists.</p>
Number of Fishery Management Plan production tasks implemented (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	2	
Number of applied science and technology tasks implemented as prescribed by Fishery Management Plans. (PART)	2	

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

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

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

**The method:**

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

**Further description:**

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

**Accomplishments**

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

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

<b>Facility</b>	Lower Columbia River Fish Health Center	<p><b>Accomplishment Summary</b></p> <p>Develop methods to rear naturally produced steelhead to adulthood under hatchery conditions, spawn them, and use their progeny to produce a self-sustaining population of 5,000 fish. Progeny from these steelhead were sampled for over 13 different pathogens to check their health and enhance their survival.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>To comply with NMFS' Biological Opinion and USFWS restoration and recovery efforts, Abernathy Fish Technology Center staff are working to establish a native stock of naturally-spawned fish to return a natural population of steelhead to Abernathy Creek, WA.</p> <p><b>The problem:</b></p> <p>Most of the native wild stock of Abernathy Creek had been extirpated.</p> <p><b>The objective:</b></p> <p>Develop methods to rear naturally produced fish under hatchery conditions; use the progeny of this native broodstock to recover the depleted population; avoid the removal of ESA listed adult fish as native broodstock; and ultimately produce a self-sustaining stock of steelhead.</p> <p><b>The method:</b></p> <p>The fish will be spawned, the progeny stocked in Abernathy Creek, and the entire population will be monitored for health, physiology, and abundance. Fish were monitored for the presence of over 13 different pathogens by the</p>
<b>Expended</b>	\$6000	
<b>Objective</b>	Restore declining fish and other aquatic resource populations before they require listing under the Endangered Species Act.	
<b>Primary Benefited Species</b>	Rainbow trout ( <a href="#">Oncorhynchus mykiss</a> )	
<b>Primary Benefited Population</b>	<a href="#">lower Columbia River Steelhead</a>	
<b>Plans</b>	<p>National Wild Fish Health Survey</p> <p>U.S. Fish and Wildlife Service National Aquatic Animal Health Policy</p> <p>1999 NMFS Biological Opinion on Artificial Propagation in the Columbia River Basin.</p> <p>2000 NMFS FCRPS Biological Opinion - December 21, 2000</p> <p>Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, 12/2000 (All H Paper)</p>	
<b>Keyword</b>	Fish Health	
<b>Need Number</b>	N-002	
<b>Partners</b>		
<b>Accomplishments</b>		

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

13320-A-040 - [Chehalis Fisheries Restoration Program - Brazilian Elodea Control](#)

<b>Facility</b>	Western Washington Fisheries Resource Office	<p><b>Accomplishment Summary</b></p> <p>Remove Brazilian elodea from 10 acres of the Chehalis River using diver suction dredging. Removing Brazilian elodea will increase water movement, decrease sediment buildup and improve water quality. Dissolved oxygen levels will increase due to increased mixing at the surface of the water. Native vegetation will be allowed to re-establish benefiting spring Chinook, fall Chinook and coho salmon; steelhead and coastal cutthroat trout, and Olympic mudminnow.</p> <p><b>Description</b></p> <p><b>The importance to the Resource:</b></p> <p>The Chehalis Basin is the second largest in Washington. It has unlisted stocks of Chinook, coho and chum salmon and cutthroat and steelhead trout. These resources are important for sport and commercial, tribal, and interjurisdictional fisheries. The lower Chehalis Basin is designated foraging, migration, and overwintering habitat for bull trout.</p> <p><b>The problem:</b></p> <p>Non-native Brazilian elodea has an early infestation in the middle reach of the Chehalis River. Brazilian elodea slows water movement and increases water temperatures which prevents adult salmon migration. This has diminished the fisheries opportunities and economic benefits for all users and the rural communities that depend on them.</p> <p><b>The objective:</b></p> <p>Remove the Brazilian elodea which will increase water movement and decrease water temperatures throughout the project area.</p>
<b>Expended</b>	\$20768	
<b>Objective</b>	Minimize range expansion and population growth of established aquatic nuisance species.	
<b>Primary Benefited Species</b>	Chinook salmon or king salmon ( <a href="#">Oncorhynchus tshawytscha</a> )	
<b>Primary Benefited Population</b>	<a href="#">Washington Coast ESU</a>	
<b>Plans</b>	Chehalis River Basin Fishery Resources Study and Restoration Act of 1990 (P.L. 101-452) Chehalis Basin Watershed Management Plan	
<b>Keyword</b>	Aquatic Nuisance Species	
<b>Need Number</b>	N-002	
<b>Partners</b>	City of Centralia Confederated Tribes of the Chehalis Reservation County of Lewis Thurston County Noxious Weed Board (\$62536) Washington Department of Fish and Wildlife Washington Department of Natural Resources	

**Accomplishments**

Wetland acres restored	10.0
Number of other Fishery Management Plan tasks implemented for populations of management concern.	2
Number of activities conducted to support the management and control of aquatic invasive species	1
Number ANS related of outreach/education activities conducted	2
Number of surveys conducted for aquatic invasive species baseline/trend information	1
Number of training session to support Tribal fish & wildlife conservation.	1

**The *method*:**

Use diver suction dredging to remove the entire plant and root structure from the aquatic system. The technique is consistent with the existing hydraulic permit for removing noxious weeds permitted by the Washington Department of Fish and Wildlife. Plant material will be transported away from the river and disposed in an approved upland location.