

Pacific Coastal Salmon Recovery Fund

FY 2000-2005

**Nez Perce Tribe
Clearwater River Coho Salmon
Reintroduction Project II**

Project Name: Nez Perce Tribe Clearwater River Coho Salmon Reintroduction Project II

PCSRF Project Number: Contract Number: T04-12, P.O. Number: 0401210

Project Status: Complete

PCSRF Fiscal Year: 2004

PCSRF Budget Update: The following budget (Table 1) covers expenditures for Coho Salmon Reintroduction Project for the period of July 1, 2004 to April 30, 2006.

Table 1. Itemized budget for 2004 to 2006 for the Coho Salmon Reintroduction Project.

Budget Line Item	Requested/Appropriated	Expended (April 30, 2006)	Remaining
Salary & Fringe	\$ 167,243.00	\$ 167,243.00	\$ 0.00
Travel	\$ 4,470.00	\$ 4,470.00	\$ 0.00
Supplies	\$ 144,794.00	\$ 143,767.49	\$ 1,023.51
Indirect	\$ 54,993.00	\$ 54,629.63	\$ 303.37
Total	\$ 371,500.00	\$ 370,173.12	\$ 1,326.88

Date: July 1, 2004

Project Proposed End Date: December 31, 2006

Geographic Area Name/Watershed: Clearwater River Watershed

Geospatial reference/Location/GPS Point: 46N25'39", 117W25'44"

Project Manager:

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PCSRF Objective: C. Salmon Enhancement Project

Note: A description of activities addressed by objective D, (Salmon Research, Monitoring, and Evaluation) has been included in this report.

Project Description:

The goal of the project is to restore coho salmon in the Clearwater River. Restoration of coho stocks upriver of Bonneville Dam has been a priority for the four Columbia River Tribes. The Nez Perce Tribe (NPT) initiated coho salmon restoration in 1995 by releasing 630,000 coho salmon parr in five streams. These were the first coho salmon released in the Snake River Basin in 30 years. Coho were extirpated in the Snake River Basin until 1997 when 92 adults from the Nez Perce Tribe's program were recognized at Lower Granite Dam.

Broodstock from Lower Columbia River hatcheries and returning Clearwater River broodstock, have been used to stock eyed eggs, fry, parr, and smolts into tributaries of the lower main stem Clearwater, Middle Fork Clearwater and South Fork Clearwater Rivers. Primary reintroduction efforts have been focused in Lapwai Creek, Potlatch River, Clear Creek, Eldorado/Lolo Creek, Meadow Creek (SF Clearwater River) and Meadow Creek (Selway River).

Target Salmon Species Affected/Benefits to Salmon:

The intended benefit of the program is that coho salmon will be restored to sufficient numbers in the Clearwater River subbasin to support natural production, and tribal and non-tribal harvest. Initially, we estimate the population needs to be at least 2,358 adults for both hatchery and natural spawning and additional adults to provide meaningful harvest. This level of production would provide for a Clearwater broodstock to be self-sustaining and provide all the eggs for both the in-basin and the out-of-basin production. Our long-term adult return goal for the Clearwater River is 14,000 coho salmon, as identified in Wy-Kan-Ush-Mi-Wa-Kish-Wit (CRITFC 1996).

Project Objectives:

The goal of the Nez Perce Tribe Clearwater River Coho Salmon Reintroduction Project is to reintroduce and restore coho salmon to levels of abundance and productivity sufficient to support sustainable runs and annual tribal and non-tribal harvest.

Objective1. Produce coho salmon for releases in the Clearwater River subbasin.

Task 1.1. Rear coho salmon from broodyear 2003.

Activity 1.1.1. Provide personnel and materials to rear 280,000 coho salmon at Dworshak National Fish Hatchery. Transport the fish to Kooskia National Fish Hatchery for a four to six week acclimation period during the spring of 2004 and release the coho as smolts into Clear Creek.

Activity 1.1.2. Transport approximately 550,000 coho smolts from Eagle Creek National Fish Hatchery for release into Lapwai Creek and Potlatch Creek in spring of 2005.

Task 1.2. Trap and rear coho salmon from broodyear 2004.

Activity 1.2.1. Assist in trapping and transporting returning adult coho salmon from weirs and trap sites to Dworshak National Fish Hatchery in fall 2004.

Activity 1.2.2. Provide personnel and materials to spawn adult coho salmon at Dworshak National Fish Hatchery in fall 2004. The first 308,000 eggs collected will be incubated at Dworshak National Fish Hatchery for Clear Creek smolt releases. The next 330,000 eggs will be incubated at Clearwater Anadromous Fish Hatchery for the presmolts releases. Any eggs above these 638,000, may be shipped to Eagle Creek National Hatchery for the Lapwai Creek and Potlatch River smolt releases.

Activity 1.2.3. Provide personnel and materials to rear 270,000 coho salmon at Clearwater Fish Hatchery. Release the coho as pre-smolts during the fall of 2005 into Lolo Creek

Activity 1.2.4. Provide personnel and materials to rear 280,000 coho salmon smolts at Dworshak National Fish Hatchery. Transport the fish to Kooskia National Fish Hatchery for a four to six week acclimation period during the spring of 2006 and release the coho smolts into Clear Creek.

Objective 2. Effectively communicate program approach and findings to resource managers.

This activity is divided into three specific areas involving: interagency coordination with on-going production issues, coordination with regards to Endangered Species Act issues, and coordination with regards to funding processes.

Task 2.1. Coordinate supplementation planning.

Activity 2.1.1. Coordinate with the following agencies: Northwest Power Planning Council (NPPC), Bonneville Power Administration (BPA), Bureau of Indian Affairs (BIA), National Marine Fisheries Service (NMFS), US Fish and Wildlife Service (USFWS), US Forest Service (USFS), IDFG, Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), Columbia River Inter-Tribal Fish Commission (CRITFC), and private entities, through one or more of the following forums: technical work groups, hatchery production management meetings, the NPPC hatchery review committees, intergovernmental agreements (NPT/IDFG, 1992 Memorandum of Agreement), US

v Oregon PAC or Technical Advisory Committee (TAC), other technical and policy meetings, and progress reports.

Task 2.2. Participate in consultation with NMFS to address Section 7 terms and conditions for the coho program.

Activity 2.2.1. Participate on production coordination, committees required by NMFS to meet the Recovery Plan for salmon and address ESA the listing of Snake River steelhead. Due to concerns of listed steelhead and how they interact with coho salmon, we will pursue agency coordination to reduce negative impacts of coho salmon releases.

Task 2.3. Communication of results.

Activity 2.3.1. Develop summary reports.

Activity 2.3.2. Develop semi-annual and annual reports.

Project Summary:

WY-KAN-USH-MI WA-KISH-WIT: THE COLUMBIA RIVER ANADROMOUS FISH RESTORATION PLAN OF THE NEZ PERCE TRIBE, UMATILLA, WARM SPRINGS AND YAKAMA TRIBES

This Tribal Restoration Plan (CRITFC 1995) focuses on restoring salmon runs to the rivers and streams of the Columbia River system and embodies the tribal management philosophy of gravel-to-gravel management. This approach differs from many of the existing state and federal plans that are focused more on providing fish for sport and commercial harvest and returning fish to concrete hatcheries. The plan recognizes the need to ensure that salmon throughout the life cycle from the freshwater to the ocean are protected, managed or restored.

A key element in the restoration is the use of hatchery technology to supplement the natural runs rather than supplant the natural runs as with state and federal hatchery programs. Supplementation as defined in the Tribal Restoration Plan is the act of releasing young, artificially propagated fish into natural spawning and rearing habitat. As adults, these fish will return to spawn naturally in the stream where they were released rather than returning to the propagation facility. Wy-Kan-Ush-Mi Wa-Kush-Wit: Volume I: 5B-14-22; Volume II: 2-118-127. "Implement supplementation projects that have met the screening criteria of RASP (1992) and Cuenco et al. (1993), establish additional programs for each of the subbasin tributary systems to monitor adult escapement and resulting smolt production, and to evaluate (by measuring the number of adults returning) the ability of managers to meet goals set by the Columbia River Management Plan." The Nez Perce Tribe Coho Salmon Reintroduction Project as described in the Nez Perce Tribe coho salmon management plan for the Clearwater River is consistent with basin-wide Columbia River restoration plans found in WY-KAN-USH-MI WA-KISH-WIT, The Spirit of the Salmon (CRITFC 1995).

NEZ PERCE TRIBE COHO SALMON MANAGEMENT PLAN FOR THE CLEARWATER RIVER SUBBASIN

The Nez Perce Tribe has a vision of restoring all fish species native to the Nez Perce ICC Treaty. To that end, the Nez Perce Tribe has initiated a comprehensive management plan for all fish species- both resident and anadromous- for all streams, lakes and watersheds within their management authority. The Nez Perce Tribe began coho salmon restoration in 1995 and has developed a long-term coho salmon management plan for the Clearwater River Subbasin (NPT 2004). Coho salmon production in the Clearwater River Subbasin will be authorized under the Nez Perce Tribal Hatchery program, the Mitchell Act and U.S. vs. Oregon proceedings. Pursuant to this vision, the research data collection and analysis for the project intends to: 1) provide science-based recommendations for management and policy consideration, 2) demonstrate when the reintroduction program meets its recovery, restoration and mitigation goals and 3) assist in the re-establishment of tribal and recreational fisheries.

Project Progress Summary:

Objective1. Produce coho salmon for releases in the Clearwater River subbasin.

Task 1.1. Rear coho salmon from broodyear 2003.

Adult traps/weirs were installed at trapping in late September 2003. Trapping began at Dworshak National Fish Hatchery (DNFH). Trapped and transferred fish yielded approximately 182,000 green eggs (Clearwater River stock). These fish were reared to full term smolts at Dworshak NFH and transferred to Kooskia NFH for acclimation. A total of 287,000 coho salmon smolts were released on April 25, 2005.

Coho salmon smolts were transported by from Eagle Creek National Fish Hatchery (ECNFH) in March 2005. Neil Ring was contracted to transport the majority of these fish and was complemented by one truck from the Nez Perce Tribe. A pre-liberation health screening was conducted, and transport permits were issued by USFWS fish pathology personnel. Fish were hauled and directly released into the Potlatch River on March 7, 2005. Due to low flows, the majority of the coho salmon destined for release in Lapwai Creek were outplanted into the mainstem Clearwater River and Clear Creek on March 9 and 10, 2005. A total of 575,000 coho smolts were transported from ECNFH.

Task 1.2. Trap and rear coho salmon from broodyear 2004.

Staff at Eagle Creek NFH have trapped and spawned and are currently rearing enough Brood Year 2004 coho salmon to meet the U.S. Fish and Wildlife Service's rearing obligation of 570,000 smolts. These fish will be reared at Eagle Creek NFH to the smolt stage, hauled to Idaho, and directly released into several sites on Lapwai Creek and Potlatch River in March of 2006.

Nez Perce Tribal staff has trapped and spawned brood year 2004 coho salmon to contribute 192,500 smolts to the DNFH/KNFH release. DNFH has no BY 2004 Eagle Creek coho salmon on hand. The release goal was 280,000 smolts in the spring of 2006 from Kooskia Hatchery following a 4-6 week acclimation period. In 2005, we experienced a high level of early-rearing mortality at DNFH. We will not meet our production goal of 280,000 smolts. As of April 30, 2006 we have 192,522 coho smolts on station at Kooskia NFH. Scheduled release date is May 1, 2006. Fish will have received nearly four weeks of on site acclimation.

A total of 294,000 coho salmon presmolts were reared at Clearwater Fish Hatchery. The Nez Perce Tribe's Production staff conducted the daily fish culture activities. These fish were released into the Lolo Creek drainage on September 27 and 28, 2005.

Objective 2. Effectively communicate program approach and findings to resource managers.

Task 2.1. Coordinate supplementation planning.

We have completed intergovernmental MOU's for fish production services and fish health screening. We have participated in several AOP meetings at Clearwater, Snake and Columbia River Fish hatcheries.

Task 2.2. Participate in consultation with NMFS to address Section 7 terms and conditions for the coho program.

We are operating under a 1998 formal consultation with NMFS. We annually update NFMS with our proposed operations, and are currently in the process of updating our coho salmon HGMP.

Task 2.3. Communication of results.

We develop summary semi-annual and annual progress reports. We participate and assist with developing AOP's with cooperating hatcheries. We update CWT and PIT tag databases. Trap and release end-of-season summary reports and monthly production reports are produced and distributed.

Monitoring and Evaluation Plan:

The objectives, tasks, and activities of the Nez Perce Tribe Clearwater River Coho Salmon Reintroduction Project M&E plan have been formulated to insure that operations can be adaptively managed to optimize hatchery and natural production, sustain harvest, and minimize ecological impacts.

Objective 1. Determine if program targets for contribution rate of hatchery fish are being achieved and can be improved.

Task 1.1. Monitor fish culture and hatchery operational practices at each of the facilities utilized for the project.

Activity 1.1.1. Assist in the development of a Nez Perce Tribe coho salmon annual operation plan.

Activity 1.1.2. Quantify adult returns to each weir/broodstock collection site.

Task 1.2. Estimate the number of smolts and adults produced from each hatchery by treatment and rearing strategy.

Activity 1.2.1. Mark a portion of the hatchery-reared coho salmon with a unique mark so they can be detected as smolts and as adults (Table 2).

Table 2. Proposed coho salmon production, mark and tag totals for 2005.

Location	Stage	# Release	PIT	CWT	Adult Collect	Screw Trap
Lolo Creek	Pre-smolt	294,000	3,000	120,000	Yes	Yes
Lapwai Creek	Smolt	287,000	1,500	100,000	Yes	No
Potlatch River	Smolt	287,000	1,500	100,000	Yes	No
Clear Creek	Smolt	192,500	1,000	80,000	Yes	No
Dworshak	-	-	-	-	Yes	-

Activity 1.2.2. Estimate abundance of hatchery fish departing as smolts equivalents from selected treatment streams.

Activity 1.2.3. Estimate total hatchery adults produced from each release in each stream.

Task 1.3. Estimate survival from egg-to-smolt, release-to-smolt, mainstem passage survival, and smolt-to-adult survival for various treatments in each release stream.

Activity 1.3.1. Estimate release-to-smolt, and egg-to-smolt survival for each treatment based on eggs taken, number of fish released, and number of total smolts estimated in Activity 1.2.2.

Activity 1.3.2. Estimate smolt-to-adult survival for each treatment based on smolt abundance from Activity 1.2.2 and adult abundance in Activity 1.2.3.

Task 1.4. Determine the effects of rearing and release treatments on the dispersal of juveniles and returning adults to occupy available habitat in the target streams.

Activity 1.4.1. Determine effects of treatments on proportion of juvenile emigrants moving in fall or spring by fishing screw traps. Cost sharing with BPA

is ongoing.

Activity 1.4.2. Determine the effects of treatments on spawning distribution by conducting spawner surveys.

Task 1.5. Estimate the continuing stocking rates needed in each stream to establish sustainable natural production.

Activity 1.5.1. Use monitoring and evaluation results to revise parameters in the life-history simulation model used to predict stocking rates.

Activity 1.5.2. Predict stocking rates needed for the present brood, based on percentage of spawner capacity achieved and hatchery:natural ratios among spawners.

Objective 2. Document natural production that results from supplementation, and relate them to limiting factors.

Task 2.1. Measure life history traits that may reflect limitations to natural production.

Activity 2.1.1. Monitor the timing, size and abundance of juvenile coho salmon emigrating from each target stream.

Activity 2.1.2. Estimate growth, migration timing, and survival of coho salmon.

Activity 2.1.3. Estimate age at maturity, time of river entry and spawning, and pre-spawning survival of natural and hatchery adults.

Task 2.2. Determine the influence of environmental variation on natural production.

Activity 2.2.1. Monitor environmental variables affecting fish in the treatment and reference streams.

Activity 2.2.2. Determine correlation of environmental variation to variation in coho salmon population parameters.

Task 2.3. Determine the spatial and temporal distribution of coho salmon in the Clearwater River Subbasin.

The potential exists for a great deal of cost sharing through coordination of effort with existing research in the Snake and Clearwater rivers. Personnel from other studies may be available to assist with fish handling and tagging at the Lower Granite Adult Facility.

Activity 2.3.1. Provide sampling protocol for use in the separation system at the Lower Granite Dam Adult Fish Facility.

Activity 2.3.2. Provide radio tags and data sheets for NMFS personnel at Lower Granite Dam.

Activity 2.3.3. Capture and tag at least 50 adult coho salmon at Lower Granite Dam.

Activity 2.3.4. Establish fixed monitoring.

Activity 2.3.5. Monitor tagged fish movement via vehicle, boat and aircraft.

Activity 2.3.6. Coordinate with NMFS, the US Army Corps of Engineers, the USFWS, the University of Idaho and other agencies with existing telemetry studies for additional radio tracking assistance and data sharing from fixed monitoring sites.

Objective 3. Monitor genetic profile of introduced coho salmon stock, broodstock developed from adult hatchery returns and naturally returning coho salmon adults.

Task 3.1. Collect samples to determine if there is evidence of genetic change in coho salmon.

Activity 3.1.1. Collect representative baseline genetic samples from hatchery-reared coho smolts released in Clearwater River streams. The analysis of these samples is pending future funding.

Activity 3.1.2. Initiate the development of a genetic monitoring plan.

Objective 4. Monitor the ecological interactions.

Task 4.1. Monitor the ecological interactions of residual coho salmon, hatchery reared coho parr, and naturally produced coho juveniles with other fish species.

Activity 4.1.1. Conduct a literature review of coho salmon ecological interactions with other salmonid species and identify key food and space related parameters for monitoring.

Activity 4.1.2. Determine emigration timing of PIT tagged coho parr and smolts to describe the overlap with juvenile fall chinook salmon rearing in the lower Clearwater River.

Objective 5. Effectively communicate monitoring and evaluation program approach and findings to resource managers.

Task 5.1. Facilitate effective data management and dissemination.

Activity 5.1.1. Provide data summary to StreamNet.

Activity 5.1.2. Send PIT tag files to the PIT Tag Information System (PTAGIS).

Activity 5.1.3. Report Coded-Wire Tagging summary reports to the Coded-Wire Tag (CWT) database.

Task 5.2. Communication of results and transfer of technology.

Activity 5.2.1. Develop Annual Statement of Work.

Activity 5.2.2. Develop summary reports.

Activity 5.2.3. Develop Endangered Species Act Section 7 and 10 Summary Reports.

Activity 5.2.5. Develop annual reports.

Activity 5.2.6. Develop Peer Reviewed Journal Publications

Activity 5.2.7. Participate in regional conferences and workshops.

Task 5.3. Develop and maintain open communications with all resource managers.

Activity 5.3.1. Facilitate Nez Perce Tribe Coho Salmon Reintroduction Project annual review and operating plan modification.

Activity 5.3.2. Attend research and production coordination meetings.

ESA, NEPA and other Regulatory Compliance Plan if appropriate:

Activities under the NPT Clearwater River Subbasin coho salmon reintroduction program have been reviewed for Endangered Species Act (ESA) compliance. In 1995 and 1998 the Nez Perce Tribe requested consultation from the NMFS on the coho salmon release strategies. In 1995 the NMFS determined that the proposed actions would have no more than a negligible effect on listed salmon (Stelle 1995). In 1998, the NMFS determined that coho salmon releases did not jeopardize the continued existence of Snake and Columbia River salmon (NMFS 1999). The NPT is currently updating their HGMP for coho salmon production.

Partners and Cost Share:

Memorandums of Agreement are established with the U.S. Fish and Wildlife Service (USFWS), and the Idaho Department of Fish and Game (IDFG) for coho salmon production at fish hatchery facilities. The Nez Perce Tribe is allotted specific incubation, early rearing, and final rearing space at Dworshak and Kooskia NFH and Clearwater Fish Hatchery for coho

salmon production. The USFWS provides fish health monitoring for the program. Activities associated with rearing fish at Eagle Creek National Fish Hatchery are covered by Mitchell Act funding.

The USFWS operates a fish ladder on the North Fork of the Clearwater River at Dworshak National Fish Hatchery and an adult weir and ladder at Kooskia National Fish Hatchery to trap adult coho salmon. In addition, the Nez Perce Tribal Hatchery Monitoring and Evaluation Project operates the juvenile fish.

Project Products:

We develop summary semi-annual and annual progress reports. We participate and assist with developing AOP's with cooperating hatcheries. We update CWT and PIT tag databases. Trap and release end-of-season summary reports and monthly production reports are produced and distributed.

C. Salmon Enhancement Projects:

Projects that will enhance depressed stocks of naturally spawning anadromous salmonids through salmonid supplementation, reduction in fishing effort on depressed wild stocks; or enhancement of Pacific salmon fisheries on healthy stocks.

Type of Enhancement:

Rebuilding weak stocks or sustaining/enhancing salmon populations

Rebuilding weak stocks or sustaining/enhancing salmon populations

Enhancement projects that rebuild weak stocks or sustain/enhance naturally spawning salmon populations.

Compensate for reductions in harvest levels set to meet Pacific Salmon Treaty obligations:

N/A

Compensate for weak or depressed stocks:

N/A

Marked as result of marking enhancement:

We marked a total of 400,000 juveniles with coded wire tagged (CWT), 7,000 with passive integrate transponder (PIT) tags, and 50,000 with adipose fin clips

Released for the purpose of natural spawning

Coho salmon. 294,000 presmolts were released into the Lolo Creek drainage.

Redirecting fishing effort:

N/A

Releases compensate harvest reductions:

N/A

Supplementing weak/depressed salmon stocks:

Coho salmon, annual supplementation of 1,060,500 juvenile were released into the Clearwater River Subbasin.

Fish Marking or production enhancements

Enhancement projects that invest in fish marking, hatchery modifications, or production improvements.

Does the project evaluate potential sites or strategies for Pacific salmon enhancement to promote fisheries that do not impact depressed stocks?

No

Enhancement projects that reduce effort on depressed stocks. Report whether or not the project implements management measures designed to reduce fishing effort on depressed stocks.

No

Type of fish marking or production enhancement:

We used CWT, PIT and adipose fin clipping, as well as final rearing acclimation.

Fish Marking Details

Fry/smolts produced through production technology improvements:

We propose to acclimate 192,500 coho salmon smolts.

Number of fish marked:

We have marked 400,000 juveniles with CWT's, 7,000 with PIT tags and adipose fin clipped 50,000.

Production technology improvements:

We propose to acclimate 192,500 coho salmon smolts.

D. Salmon Research, Monitoring, and Evaluation Projects

Projects for conducting salmon research and monitoring to: 1) assess watershed health and salmon status; 2) monitor and evaluate PCSRF projects; 3) validate the effectiveness of protection and restoration projects; and 4) implement data requirements of the 1999 Pacific Salmon Treaty agreement.

State whether or not the project is directly related to key salmon management questions regarding salmon recovery and/or sustainability of healthy salmon stocks?

Yes

List names of the organizations cooperating on the Research, Monitoring and Evaluation Project:

Nez Perce Tribe, US Fish and Wildlife Service, US Army Corps of Engineers, US Forest Service, Bureau of Land Management, Bureau of Indian Affairs, Idaho Dept of fish and Game, Washington Dept of Fish and Wildlife, and the University of Idaho.

Number of organizations cooperating on the Research, Monitoring and Evaluation Project:

9

Report the number of research findings related to Pacific Salmon Treaty incorporated into abundance-based management regimes:

2

- 1) Estimates of harvest using double index marking.
- 2) Estimates of abundance to mainstem dams and some tributaries.

Describe the Research Monitoring and Evaluation findings utilized in adaptive changes to salmon and watershed programs and policies:

Three release strategies or alternatives have been considered. Alternative 1 (status quo) proposes to continue the current 2005 and 2006 release strategies. Alternative 2 proposes the construction of low-tech acclimation facilities in Lapwai and Lolo Creeks to capitalize on the higher observed survival of acclimated releases. Under this alternative, Lower Columbia River (LCR) smolt releases would cease in the Potlatch River, and:

- 280,000 Clearwater Localize Stock (CLS) smolts from DNFH would be acclimated and released from KNFH on Clear Creek,
- 270,000 CLS presmolts would be transferred from CFH to the NPTH Site 1705 facility, reared over winter to the smolt stage, transported to the Musselshell acclimation site, and released into Musselshell Creek in the spring, and
- 550,000 LCR smolts would be acclimated at the proposed North Lapwai Valley (NLV) facility and volitionally released into Lapwai Creek.

Alternative 3 seeks to increase rearing and acclimation facilities available for coho salmon in the Clearwater River Subbasin. Alternative 3 would expand hatchery facilities at NPTH to spawn 1,404 adults and rear approximately 687,700 coho salmon smolts for use in a rotating supplementation schedule. Initially, broodstock for the expanded NPTH facility would be obtained from adults returning from the release of 550,000 LCR smolts in Lapwai Creek. The resulting CLS progeny would be reared to the smolt stage and released in natural production areas. This strategy was selected to maximize the potential for natural selection to act on first generation LCR smolts and adults prior to their introduction to natural spawning areas. Additionally, this strategy slowly severs reliance on LCR coho salmon transfers such that genetic drift should be minimized, and the full compliment of useful genetic variation present in LCR hatchery broodstocks should be present in the CLS broodstock and Clearwater River Subbasin natural spawning aggregates.

This alternative would follow the release strategies above with the addition of:

- 729,000 CLS smolts would be divided into three release groups (243,000 per group) for release into the three Clearwater tributaries to be identified later, for a duration of three years, at which time these releases would cease, and releases would occur in three alternative tributaries for a period of three years.

Production estimates for localized coho salmon in the hatchery environment were calculated assuming 2,100 eggs per female and 70% survival from egg to smolt in the hatchery environment (observed at DNFH). Egg to presmolt survival was assumed to be 75%. Prespawning mortality was assumed to be 10%. Based on recent coho escapement within the Clearwater River Subbasin, we assumed that females constitute an average of 37% of the adult return (including jacks).

Utilizing a stochastic model, total adult return, potential presmolt and smolt hatchery production from the estimated adult return, and the juvenile to juvenile replacement rate for each alternative (calculated as potential juvenile production in generation two divided by the number of juveniles released in generation one) were estimated (Tables 3 to 5).

Table 3. Estimated adult return and juvenile production for the currently planned 2005 and 2006 coho salmon releases in the Clearwater River Subbasin.

Stream	Stock	Number Released	Adult Return (95% CI)	Potential Production ¹	Replacement Rate
Clear Creek	CC	280,000 Smolt	578 (464, 593)	282,817	1.01
Lolo Creek	CC	270,000 Presmolt	115 (90, 140)	60,260	0.22
Lapwai Creek ²	LCR	275,000 Smolt	323 (6, 882)	157,950	0.57
Potlatch River ²	LCR	275,000 Smolt	323 (6, 882)	157,950	0.57
				Mean Replacement	0.73
¹ Potential production refers to the number of smolts (presmolts in Lolo Creek) that could be produced by spawning all returning adults in hatchery facilities.					
² Return rates based on direct stream release.					

Table 4. Estimated adult return and juvenile production following implementation of Alternative 2.

Stream	Stock	Number Released	Adult Return (95% CI)	Potential Production	Replacement Rate
Clear Creek	CC	280,000 Smolt	578 (464, 693)	282,817	1.01
Lolo Creek	CC	270,000 Smolt	557 (447, 668)	272,716	1.01
Lapwai Creek ¹	LCR	550,000 Smolt	1,404 (88, 3,186)	687,653	1.25
				Mean Replacement	1.14

¹Return rate based on acclimated release.

Table 5. Estimated adult return and juvenile production following implementation of Alternative 3.

Stream	Stock	Number Released	Adult Return (95% CI)	Potential Production	Replacement Rate
Clear Creek	CC	280,000 Smolt	578 (464, 693)	282,817	1.01
Lolo Creek	CC	270,000 Smolt	557 (447, 668)	272,716	1.01
Lapwai Creek	LCR/CC	550,000 Smolt	1,404 (88, 3,186)	687,653	1.25
American River ¹	CC	243,000 Smolt	500 (402, 601)	Unknown	Unknown
Red River ¹	CC	243,000 Smolt	500 (402, 601)	Unknown	Unknown
Crooked River ¹	CC	243,000 Smolt	500 (402, 601)	Unknown	Unknown
Ohara Creek ²	CC	243,000 Smolt	500 (402, 601)	Unknown	Unknown
Newsome Creek ²	CC	243,000 Smolt	500 (402, 601)	Unknown	Unknown
Mill Creek ²	CC	243,000 Smolt	500 (402, 601)	Unknown	Unknown
				Mean Replacement³	1.14

¹Streams in group one of the three year rotating supplementation schedule.
²Streams in group two of the three year rotating supplementation schedule.
³Replacement rate calculated only for Clear, Lolo, and Lapwai Creeks.

Alternatives 1 is unlikely, on average, to yield positive replacement rates, and is therefore considered inappropriate. Alternatives 2 and 3 both yield average smolt to smolt replacement rates of 1.14, suggesting that implementation of either alternative would be appropriate.

Report the stream length assessed/monitored for habitat condition, water quality, salmonid abundance and productivity in accordance with Research Monitoring and Evaluation or watershed monitoring strategy in miles:

We have to monitored 100 miles of stream for radio-tagged coho salmon, and 75 miles for coho salmon redds and carcasses.

Cite the repots prepared by the project on key management or restoration data, information and needs. These reports could be progress reports, or final reports associated with research:

Everett, S.R. 2005. Clearwater River Coho Salmon Reintroduction Project II. Pacific Coastal Salmon Recovery Fund. (November) Semi- Annual Report. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2005. Clearwater River Coho Salmon Reintroduction Project II. Pacific Coastal Salmon Recovery Fund. (April) Annual Report. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2004. Clearwater River Coho Salmon Reintroduction Project II. Pacific Coastal Salmon Recovery Fund. (November) Semi-Annual Report. P.O. Box 365, Lapwai, ID 83540.

Nez Perce Tribe and FishPro, A Division of HDR Engineering, Inc. 2004. Coho Salmon Master Plan, Clearwater River Basin. Draft submitted to the Bonneville Power Administration. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2004. Clearwater River Coho Salmon Reintroduction Monitoring and Evaluation Project. Pacific Coastal Salmon Recovery Fund. (April) Annual Report. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2004. Clearwater River Coho Salmon Reintroduction Project. Pacific Coastal Salmon Recovery Fund Annual Report. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2003. Clearwater River Coho Salmon Reintroduction Project. Pacific Coastal Salmon Recovery Fund Semi-Annual Report, for the period April 2003-November 2003. P.O. Box 365, Lapwai, ID 83540.

Davenport, C.J. 2003. Clearwater River Coho Salmon Reintroduction Project. Pacific Coastal Salmon Recovery Fund Annual Report. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2003. Clearwater River Coho Salmon Reintroduction Monitoring and Evaluation Project. Pacific Coastal Salmon Recovery Fund Annual Report. P.O. Box 365, Lapwai, ID 83540.

Davenport, C.J. 2002. Clearwater River Coho Salmon Reintroduction Project. Pacific Coastal Salmon Recovery Fund Semi-Annual Report, for the period April 2002- November 2002. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2002. Clearwater River Coho Salmon Reintroduction Monitoring and Evaluation Project. Pacific Coastal Salmon Recovery Fund Semi-Annual Report, for the period April 2002-November 2002. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. 2001. Clearwater River Coho Salmon Reintroduction Monitoring and Evaluation Project. Pacific Coastal Salmon Recovery Fund Annual Report. P.O. Box 365, Lapwai, ID 83540.

Everett, S.R. and S.C. Sprague. 2001 draft. Nez Perce Tribe Coho Salmon Reintroduction Program Monitoring and Evaluation Plan. Nez Perce Tribe Department of Fisheries Resource Management. Lapwai, ID.