
PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Design And Construct Neoh Walla Walla Hatchery

BPA project number: 20138

Contract renewal date (mm/yyyy): Multiple actions?

Business name of agency, institution or organization requesting funding

Confederated Tribes of the Umatilla Indian Reservation

Business acronym (if appropriate) CTUIR

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses

7.4L 1

FWS/NMFS Biological Opinion Number(s) which this project addresses

N/A

Other planning document references

CRITFC, 1995. Wy-Kan-Ush-Mi Wa-Kish-Wit - Volume II. Subbasin Plans - Walla Walla River

ODFW & CTUIR, 1989. Umatilla Hatchery Master Plan - Production Profile

CTUIR, 1990. Walla Walla River Subbasin Plan - Section IV. Anadromous Fish Production Plans

CTUIR, 1998. Draft Walla Walla Hatchery Master Plan - Sections I. Executive Summary - Introduction, Production Profile, Facilities Needed to Implement Program; II. Recommendations; IV. B. Fisheries Management Policies - Subbasin Goals and Policies; V. Production Profile - A. Introduction, B. Spring Chinook Hatchery Production, D.

Summer Steelhead Hatchery Production; VI. Facilities Needed to Implement Program -
 B. Existing Facilities, C. New Facilities

U.S. Army Corps of Engineers, 1997. Reconnaissance Report Walla Walla Basin.
 Section 4.01 (e) (a). Facilities for reintroduction of salmon.

Short description

Add incubation/juvenile rearing capabilities to the existing S. F. Walla Walla brood facility to produce 350,000 spring chinook salmon for release in the Walla Walla River and construct an adult broodstock collection facility.

Target species

Spring chinook salmon, summer steelhead

Section 2. Sorting and evaluation

Subbasin

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input checked="" type="checkbox"/> Anadromous fish <input type="checkbox"/> Resident fish <input type="checkbox"/> Wildlife	<input type="checkbox"/> Multi-year (milestone-based evaluation) <input type="checkbox"/> Watershed project evaluation	<input type="checkbox"/> Watershed councils/model watersheds <input type="checkbox"/> Information dissemination <input type="checkbox"/> Operation & maintenance <input checked="" type="checkbox"/> New construction <input type="checkbox"/> Research & monitoring <input type="checkbox"/> Implementation & management <input type="checkbox"/> Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
8903500	Umatilla Hatchery O & M	Umatilla Hatchery will incubate and rear Walla Walla stock summer steelhead prior to release at the S.Fk. Walla Walla Hatchery site.
8343500	Umatilla Hatchery Satellite Facilities O & M	Project will provide for operation and maintenance of the facilities completed under this project.
0	Walla Walla Basin Fish Passage Operations	Project will provide adult recovery information, broodstock for spawning, and will trap and haul outmigrating hatchery produced juveniles during low water conditions.
9000500	Umatilla Hatchery M & E	Project will provide biological information related to the operation of the facilities and will evaluate the success of the artificial production program.
8343600	Umatilla Passage Facilities O & M	Project will assist in the maintenance of all facilities completed under this project.
8805302	Design and construct Umatilla Hatchery Supplement	The Umatilla Hatchery Supplement will also provide spring chinook production at the S.Fk. Walla Walla facility but releases will occur in the Umatilla Basin.
9601100	Walla Walla River Juvenile Fish Passage Improvements	Project provides juvenile screening, bypass, and trapping facilities for increasing survival of all outmigrants in Walla Walla Basin.
9601200	Walla Walla River Adult Fish Passage Improvements	Project provides adult ladders at irrigation diversion dams to increase survival of adults migrating in the Walla Walla River.

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1995	Conceptual Walla Walla Hatchery designs completed as part of designs for existing spring chinook adult	N/A

	holding/spawning facility	
1998	Draft NEOH - Walla Walla Hatchery Master Plan	N/A

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Assist in Walla Walla Basin spring chinook and summer steelhead restoration program by providing spring chinook hatchery production.	a	Finalize plans and designs for spring chinook hatchery on the Walla Walla River.
		b	Construct spring chinook hatchery on the S.Fk.Walla Walla River.
2	Provide broodstock collection capabilities for spring chinook and summer steelhead.	a	Finalize plans and designs for broodstock collection facility at Nursery Bridge Dam.
		b	Finalize plans and designs for broodstock collection facility at Nursery Bridge Dam.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	10/1999	9/2000			100.00%
				Total	100.00%

Schedule constraints

Master planning, NEPA compliance, final designs, and the NPPC production project review process and all scheduled in 1999. Any delays in these activities may constrain the FY2000 construction schedule.

Completion date

Construction costs will end in FY 2000. Operation and maintenance costs will be provided thereafter by project number 8343500 (Operate and Maintain Umatilla Hatchery Satellite Facilities).

Section 5. Budget

FY99 project budget (BPA obligated):

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel		%0	
Fringe benefits		%0	
Supplies, materials, non-expendable property		%0	
Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Walla Walla Hatchery and adult trap Construction	%96	1,330,000
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel		%0	
Indirect costs		%0	
Subcontractor		%0	
Other	Walla Walla Hatchery design completion	%4	50,000
TOTAL BPA FY2000 BUDGET REQUEST			\$1,380,000

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount (\$)
US Army COE	Initial construction of fish trap in Nursery Bridge Ladder	%3	50,000
		%0	
		%0	
		%0	
Total project cost (including BPA portion)			\$1,430,000

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	\$0	\$0	\$0	\$0

Section 6. References

Watershed?	Reference
<input type="checkbox"/>	Confederated Tribes of the Umatilla Indian Reservation, Oregon Department of Fish and Wildlife, Washington Department of Fisheries, and Washington Department of Wildlife. 1990. Walla Walla River Subbasin Salmon and Steelhead Production Plan. Prepared
<input type="checkbox"/>	Confederated Tribes of the Umatilla Indian Reservation. 1998. Northeast Oregon Hatchery Project - Draft Walla Walla Hatchery Master Plan. Prepared for the Northwest Power Planning Council, Portland, Oregon. 27 pp.
<input checked="" type="checkbox"/>	Confederated Tribes of the Umatilla Indian Reservation and the Oregon Department of Fish and Wildlife. 1990. Umatilla Hatchery Master Plan. Prepared for the Northwest Power Planning Council. Portland, Oregon. 118 pp.
<input checked="" type="checkbox"/>	Confederated Tribes of the Umatilla Indian Reservation. 1998. Draft Umatilla Hatchery Master Plan Supplement. Prepared for the Northwest Power Planning council, Portland, Oregon.
<input type="checkbox"/>	James M. Montgomery Consulting Engineers Inc. 1992. Draft Conceptual Design Report. Prepared for Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	James M. Montgomery Consulting Engineers Inc. 1992. Draft Siting Report. Prepared for Bonneville Power Administration, Portland, Oregon.

PART II - NARRATIVE

Section 7. Abstract

In the mid to late 1990's CTUIR, ODFW and WDFW began implementing a comprehensive Walla Walla Fisheries Restoration Plan. Funding for the structural fish passage (ladders and screens) and habitat enhancement is being provided by BPA and the US Army COE. Flow enhancement studies are being funded by the US Army COE. Artificial production facilities, an integral part of the restoration plan is being proposed under this BPA funding proposal.

This project will provide incubation and rearing capabilities for 350,000 spring chinook salmon to be released into the S.Fk. Walla Walla River. A Umatilla Hatchery Satellite Facility for spring chinook adult holding and spawning for the Umatilla and Walla Walla Basin programs already exists at the proposed S.Fk. Walla Walla River project site. The existing facility includes a water intake and treatment system that is sized to accommodate the proposed new production. Project master planning, NEPA compliance, final designs, and the project review process by the NPPC are scheduled for 1999. Construction of Walla Walla spring chinook production facilities is proposed for FY

2000. Upon completion, the entire facility will be operated under the existing Umatilla Hatchery Satellite Facilities O & M project #8343500.

An adult trap in the Nursery Bridge Dam fish ladder is also proposed under this project to be incorporated into a new fish ladder (under separate project) is to be constructed in 1999 and 2000 under BPA and US Army COE funding. This project will add adult trapping capabilities to the ladder project to enable collection of broodstock for the Walla Walla spring chinook and summer steelhead programs.

Section 8. Project description

a. Technical and/or scientific background

Historically, summer steelhead and spring chinook salmon runs were once abundant in the Walla Walla River Basin. Today, spring chinook salmon are extinct and summer steelhead runs are significantly reduced. Summer steelhead have been proposed for listing under the Endangered Species Act. Losses have generally been attributed to the development of hydroelectric dams and agriculture and irrigation practices.

The CTUIR and ODFW began developing comprehensive plans to enhance steelhead and re-establish salmon runs in the Walla Walla Basin to partially mitigate for these losses in 1990 (Walla Walla Subbasin Plan). The fish restoration plan included fish passage improvements, instream flow enhancement, instream riparian habitat enhancement, and artificial propagation.

Two major diversion structures were removed in 1997 at Marie Dorian Dam on the upper mainstem Walla Walla River and Maiden Dam on the lower Touchet River. In addition, plans are under way to replace fish ladders at Burlingame and Nursery Bridge dams on the Walla Walla River and Hofer Dam on the Touchet River in 1998 to 2000.

Juvenile passage improvements are also being implemented in the subbasin. New screens are being installed at Burlingame and a new screen/bypass/trapping facility is being built at the Little Walla Walla River diversion. There are also two major irrigation ditch consolidation projects planned that will decrease the number of surface diversion points. In addition, WDFW and ODFW are working to improve juvenile fish passage at the smaller surface diversion sites.

The COE completed a storage reconnaissance study in 1992 and analyzed a number of flow enhancement options in their 1997 Walla Walla River Watershed Reconnaissance Report. Instream flow augmentation options discussed in the latter document include groundwater pumping and water injection, upstream storage, and water exchange. There have also been in-basin discussions with the major irrigation districts related to water conservation. Some water conservation and ditch consolidation projects are ongoing.

There are a number of stream channel and riparian zone habitat improvement efforts currently underway in the subbasin. These include habitat projects being implemented by CTUIR, ODFW, and WDFW as well as by local conservation districts and private entities. Conservation districts in Walla Walla and Columbia counties have also implemented programs to reduce erosion and sediment yield from farmed land. The 1997 COE report also identifies habitat improvement options for implementation in the basin including levee setbacks to allow for flood plain flow storage and riparian zone restoration.

In conjunction with habitat and passage condition improvements, CTUIR and ODFW recognize that additional fishery management strategies such as harvest regulation and artificial propagation will be required in order to reestablish salmon runs and rebuild steelhead populations. The 1993 draft Walla Walla Hatchery Master Plan identified the need for a production program of 600,000 spring chinook and 100,000 summer steelhead to assist in rebuilding the salmon and steelhead runs in the Walla Walla Basin.

The NPPC 1987 Columbia Fish & Wildlife program, measure 703 (f) (5), authorized the planning, design, construction, operation, maintenance and evaluation of artificial production facilities to raise chinook salmon and summer steelhead for enhancement and restoration of fish runs in Northeast Oregon including the Walla Walla River Basin. This measure is known as the Northeast Oregon Hatchery Project (NEOH).

The NEOH hatchery project was not pursued in the early 1990's due to the fact that most of the above described habitat and flow enhancement efforts were not under way. Now that major habitat enhancement has been completed and more is ongoing, CTUIR is proposing to implement artificial propagation measures to assist in the comprehensive effort to restore salmon and steelhead runs in the Walla Walla Basin. The current schedule calls for master planning and NPPC review process in 1999 and construction in 2000.

The current proposal calls for a reduced initial Carson stock spring chinook production level of 350,000 smolt to be released only at the South Fork Walla Walla Facility site in Oregon. No production is proposed for the Touchet River at this time until flow and habitat production potential is better defined. The WDFW is currently assessing this under project number 9010 (Assess Fish Habitat and Salmonids in Washington). This proposal also calls for production of 100,000 summer steelhead (utilizing endemic Walla Walla broodstock) to be reared at Umatilla Hatchery and released at the S. F. Walla Walla site for supplementation of natural production and potential development of fisheries. A broodstock collection facility is proposed at the Nursery Bridge fish ladder located about ten miles below the hatchery facility at Milton Freewater. This is an ideal broodstock collection site because weirs or racks will not have to be set up annually and steelhead collected there at the downstream end in Oregon will provide a good representation of an Oregon endemic stock.

Facilities constructed under this project will specifically address juvenile production and acclimation/release needs that are essential to achieving the overall Walla Walla Basin natural and hatchery production goals. When completed, the facilities will allow fish managers to: 1) acclimate/imprint all smolts for increased survival and homing, 2)

achieve the juvenile summer steelhead and spring chinook production necessary to meet adult spring chinook return goals for the Walla Walla River Basin, and 3) release juvenile in targeted areas for reestablishment of natural production and harvest.

A Umatilla Hatchery satellite facility for adult spring chinook holding/spawning already exists on the South Fork Walla Walla River. A hatchery facility at this site would add the necessary incubation and rearing capabilities for the Walla Walla production program. The facility was designed and constructed so that these additions could be added. The existing facility has the available land, water intake, and treatment system that will accommodate the proposed incubation and juvenile rearing functions.

Montgomery Watson Americas Inc., under contract with BPA, has produced two reports (Draft Siting Report and Draft Conceptual Design Report) pertaining to the NEOH Project. One report evaluates site locations and provides conceptual designs for NEOH fish facilities and the second report discusses existing facilities and their potential for expansion, and documents the site/screening process used for NEOH facilities

b. Rationale and significance to Regional Programs

This proposal for hatchery production for the Walla Walla River has been identified in the Council Fish and Wildlife Program under Section 7.4.L. Facilities constructed under this project will be an essential part of comprehensive Walla Walla River Fish Restoration Plans developed by CTUIR, ODFW and WDFW in cooperation with the Council, BPA, US Army COE, Bureau of Reclamation (BOR), NMFS, and various irrigation districts and private landowners. The project will increase smolt production and will help to increase smolt to adult survival and will directly increase returns and survival of salmon and steelhead to the upper Columbia River Basin which is consistent with the Council's Fish and Wildlife Program, U.S. vs. OR Columbia River Fish and Wildlife Plan and the Pacific Salmon Treaty.

CTUIR will operate the facilities in cooperation with ODFW as part of the Walla Walla and Umatilla artificial production programs. Other facility operations to complete the program include Umatilla Hatchery juvenile acclimation/release facilities on the Umatilla River. Numerous complimentary efforts funded by BOR, US Army COE and BPA (fish passage, habitat and flow enhancement, etc.) have been or are being addressed as part of the program. The Umatilla Passage Facilities O & M project will also assist in preventative and heavy maintenance at all facilities.

c. Relationships to other projects

The project, when complete, will require a great deal of cooperation and coordination among many other projects. CTUIR will operate the facilities in cooperation with ODFW as part of the Walla Walla Basin artificial production program. ODFW will operate Umatilla Hatchery which will receive the Walla Walla summer steelhead eggs for incubation and rearing prior to release back at the South Fork Walla Walla Hatchery site. The Umatilla Hatchery Supplement, also at the South Fork Walla Walla site will transfer Umatilla spring chinook production to juvenile acclimation facilities in the Umatilla Basin therefore freeing up raceways for the final rearing and acclimation of Walla Walla

steelhead. Other projects supporting artificial production programs include fish passage and habitat and flow enhancement funded by BPA and the US Army COE.

Several projects will work closely together to monitor population status. In addition to hauling adults and juveniles during low water conditions and providing broodstock for spawning and coded-wire tag recovery information, the Walla Walla Basin. Fish Passage Operations will provide a comprehensive monitoring opportunity for assessing adult returns to the Oregon portion of the Walla Walla River and collect broodstock at the proposed trap facility for the hatchery programs. The Walla Walla Basins Natural Production M & E Project will conduct extensive spawning ground and juvenile outmigration surveys to assess natural production.

A Walla Walla Hatchery M & E Project similar to the Umatilla Hatchery M & E Project will provide biological information and help to evaluate the success of the Walla Walla artificial production program. It is expected that lower density and/or natures rearing techniques will be included in the hatchery M & E efforts to determine the most effective propagation methods to maximize smolt-to-adult returns. Specific M & E plans will be detailed in the Walla Walla Master Plan to be completed in 1999. These plans will be taken into account during the design phases of this project. A Umatilla Hatchery Supplement (project No. 8805302) is being proposed for production of 950,000 spring chinook at the South Fork Walla Walla site. Close coordination will occur for design, construction, operations, and M & E. The same personnel at the facility will work to produce both Umatilla and Walla Walla spring chinook.

d. Project history (for ongoing projects)

This project began in 1989 as Northeast Oregon Hatchery (NEOH) Project and included involvement in planning, siting, and design for the projects in the Umatilla, Walla Walla, Grande Ronde, and Hood River Basins. In 1997 the Umatilla/Walla Walla components were split from the rest of the NEOH subbasins but retained the same project number. The project is again being separated for the FY 2000 proposal in order to clearly propose separate actions for both the Umatilla and Walla Walla subbasins. The Umatilla component (now known as Umatilla Hatchery Supplement Design and Construction) will retain the same project # (8805302) and the Walla Walla component will receive a new project number starting in FY 2000.

Products to date include draft master plans and conceptual design reports. Design costs for this project in 1999 are expected to be about \$200,000. The annual project has averaged \$118,000 over the past ten years but the project included multiple objectives beyond the current Walla Walla project scope.

e. Proposal objectives

Objective 1: Assist in Walla Walla Basin spring chinook and summer steelhead restoration program by providing spring chinook hatchery production.

The South Fork Walla Walla Hatchery will produce 350,000 spring chinook yearling smolts for on-site acclimation and release into the South Fork Walla Walla River. Adult contribution to fisheries and return to the Walla Walla Basin was calculated to be 2,500 in the draft Walla Walla Hatchery Master Plan (CTUIR 1998). The release of 350,000 spring chinook salmon smolts into the Walla Walla River was predicted to contribute 1,380 fish to ocean and Columbia River fisheries and 1,750 to escape to the Walla Walla River. Adults in the Walla Walla Basin will contribute towards achievement of natural production, broodstock, and harvest objectives.

Objective 2: Provide broodstock collection capabilities for spring chinook and summer steelhead.

Provide broodstock trapping capabilities at Nursery Bridge Dam ladder to collect spring chinook and summer steelhead broodstock.

f. Methods

Objective 1: A spring chinook adult holding and spawning facility already exists at the project site. While designing that facility, preliminary plans and designs for the hatchery on the S. Fk. Walla Walla River were discussed and incorporated into the brood facility designs. CTUIR, ODFW, BPA, NMFS, engineers, architects and other interested parties will meet as necessary to discuss final designs for the hatchery. Once final designs are completed, BPA will put the project out for bid and select a contractor(s). Construction is scheduled for completion in FY 2000. CTUIR, the operator of the facility, will coordinate with the engineers and contractor(s) during the construction to ensure various needs and details are met.

The NPPC three-step review process for new artificial propagation projects is expected to be completed in FY 99 prior to construction. The Walla Walla Hatchery Master Plan to be completed for the NPPC in 1999 will include detailed production plan and required facilities, a risk assessment, monitoring and evaluation plans, and a complete breakdown of project costs.

The hatchery will likely involve experimentation in low-density fish rearing and/or nature rearing techniques (raceway sides camouflaged cover in ponds, underwater feeding, etc.). These features will be included in facility design discussion and preparation.

Objective 2: Carson stock spring chinook from other programs will initially be used in the Walla Walla spring chinook restoration program. This program will be closely coordinated with the Umatilla program which uses the same stock. Once adults began to return to the Walla Walla Basin in sufficient numbers, broodstock will be captured at the Nursery Bridge facilities and transferred to the S.F. Walla Walla facility for holding and spawning. Spring chinook will be incubated and reared at the S.F. Walla Walla site with facilities constructed under this project.

Walla Walla stock endemic summer steelhead will be utilized for broodstock in the Walla Walla steelhead supplementation program. Broodstock destined for natural production areas in Oregon will be collected at the Nursery Bridge Dam, ladder and trap and transported to the existing facilities at S. F. Walla Walla Hatchery for holding and spawning. Steelhead eggs will be transferred to Umatilla Hatchery for incubation and rearing prior to final rearing, acclimation and release at the S. F. Walla Walla site.

g. Facilities and equipment

Facilities proposed for construction under this project include incubation and rearing for spring chinook and adult holding facilities for summer steelhead and spring chinook salmon. A Umatilla Hatchery satellite facility for adult spring chinook holding/spawning already exists on the S.F. Walla Walla River. A hatchery facility at this site would add the necessary incubation and rearing capabilities for the Walla Walla production program needed to achieve Walla Walla adult return goals.

“Phase I” of the S.F. Walla Walla facility was constructed in 1997 to hold and spawn spring chinook salmon. While planning and designing the brood facility, preliminary plans and designs were discussed for the hatchery and they were incorporated into the designs for the brood facility. The brood facility was designed so that incubation and rearing capabilities could be added in the future. The pump house was constructed to allow for additional flow requirements. The water treatment and generator systems were designed to allow for additional equipment etc.

The existing facility includes a water intake system with automatic screen cleaning, pump station having a pumping capacity of 18,500 gpm, brood pond effluent water ozone treatment system, pollution abatement pond, five adult holding ponds (each 90x10x10 feet), mechanical fish crowder, standby generator, chemical storage and spawning buildings, tow office spaces, and two homes for fisheries technicians. The spawning building includes a fish life, electroshock anesthesia system, sorting and spawning facilities, wet and dry rooms, walk-in cooler/freezer, office space and restroom. In addition, there are two computers for monitoring the facilities operations.

Other facilities needed include: 1) incubation/early rearing building which would house approximately 58 - eight tray vertical incubation units to accommodate approximately 1.94 million eggs and approximately 60 start troughs (60 cf each) for early juvenile rearing, 2) additional ozone generator to treat the influent water to the incubators and start troughs, 3) approximately 40 raceways (3,000 cf each) for final rearing, 4) additional pump(s) to increase water flows to approximately 25,200 gpm, 5) additional generator to accommodate more pumps, ozone generators, etc., 6) shop building, 7) freezer for feed storage, and 8) two additional houses for hatchery technicians.

A fish pump will need to be purchased or borrowed for loading fish transport units. Two or more GSA vehicles will be required for transportation. Other items needed include trash pumps, pressure washer, forklift, fish feeders, etc. Operation and maintenance of

these facilities will be provided by project number 8343500 and some equipment presently being used under that project will be available for use at the hatchery and acclimation facilities. This includes a microscope, platform scales, weed eaters, sprayers, etc. Many items purchased under project 8343500, such as table saw, Hilti drill, etc. will be moved to the hatchery where it is anticipated the shop for both the Umatilla and Walla Walla programs would be located. The combined operation and maintenance for both Umatilla and Walla Walla satellite facilities should provide for more simplified contractual arrangements and economy.

The Umatilla Passage Facilities O & M project, under contract with BPA, will assist in maintaining the facilities.

h. Budget

Conceptual designs for the proposed facility were completed as part of the existing Umatilla spring chinook adult holding/spawning facility project. Preliminary and some final designing is to occur and FY 1999. Completion of final design in FY 2000 is estimated to be \$50,000 (2% of the budget). Construction of proposed facilities is estimated at 1,330,000 (98% of the budget). Spring chinook incubation and rearing for release into the Umatilla River is also being proposed at the S.F. Walla Walla under a separate proposal. If required planning and approval allows designs and construction to be combined for both Umatilla and Walla Walla programs, contracting may be simplified and less expensive. The hatchery will likely involve experimentation in low-density fish rearing and/or nature's rearing techniques (raceway sides camouflaged, cover in ponds, underwater feeding, etc). These features will be included in facility design discussion and preparation. The Walla Walla Hatchery Master Plan to be completed for the NPPC in 1999 will include a discussion of production plans and required facilities, monitoring and evaluation plans, and complete breakdown of project costs.

Section 9. Key personnel

Project Design and Construction (project 8805302)

Engineers, architects, contractors to be selected

Project Operations and Maintenance (under project 8343500)

Name: Gerald D. Rowan

Education: Oregon State University, Corvallis, Oregon, 1972-1974. Graduate work in Department of Fisheries and Wildlife. Major field in fisheries science. Integrated minor in oceanography, statistics, and zoology. Thesis topic: Effects of Temperature and Ration Size on the Growth of Juvenile Chum Salmon (*Oncorhynchus keta*) in Salt Water.

Oregon State University, Corvallis, Oregon, 1967-1971.
Undergraduate work in Department of Fisheries and Wildlife.
Major field in fisheries science. Integrated minor.

Work Experience:

1990 to present Artificial Production Biologist, CTUIR, Pendleton, Oregon. Full-time (12 FTE'S). Responsible for all project activities including development of annual work statements and budgets, writing quarterly and annual reports, purchasing supplies and materials, data collection and summarization, work scheduling, coordination and operation of juvenile acclimation/release and adult holding/spawning facilities, etc. In addition, helped to plan and design new Umatilla Hatchery satellite facilities including juvenile acclimation and adult holding/spawning facilities.

Project Design and Construction

No funding for CTUIR personnel proposed in design and construction phase.
Engineers, architects, contractors to be selected by BPA.

Project Operations and Maintenance (under project 8343500)

Name and Position:

Gerald D. Rowan, Artificial Production Biologist, 1 FTE

Education:

1972-1974. Oregon State University, Corvallis, Oregon, Graduate work in the Department of Fisheries and Wildlife. Major field in fisheries science. Integrated minor in oceanography, statistics and zoology. Thesis topic: Effects of Temperature and Ration Size on the Growth of Juvenile Chum Salmon (*Oncorhynchus keta*) in Salt Water.

1967-1971. Oregon State University, Corvallis, Oregon, Undergraduate work in the Department of Fisheries and Wildlife. Major field in fisheries science. Integrated minor

Work Experience:

1990-present. Artificial Production Biologist, CTUIR, Pendleton, Oregon. Responsible for all project activities including development of annual work statements and budgets, writing quarterly and annual reports, purchasing supplies and materials, data collection and summarization, work scheduling, coordination and operation of juvenile acclimation/release and adult holding/spawning facilities. In addition, helped to plan and design new Umatilla hatchery satellite facilities including juvenile acclimation and adult holding/spawning facilities.

1978-1989. Freshwater Facilities Manager, Anadromous Inc., St. Helens, Corvallis and Ft Creek, Oregon. Responsible for all aspects of managing three freshwater hatcheries including feed and growth programming, vaccination, grading, egg and juvenile and adult transport operations, fish health monitoring and egg and fish treatments, tagging operations, ordering supplies and materials, hiring and firing, adult holding and spawning, incubation, water quality monitoring, etc. Worked with coho, fall and spring chinook salmon and atlantic salmon.

1976-1978. Oregon Aqua Foods, Newport, Toledo and Springfield, Oregon. Worked as general fish culturist at Newport and Springfield facilities and as fresh water hatchery manager at Toledo facility. Duties as fresh water manager included all aspects of managing a freshwater hatchery. Worked with rainbow trout, chum, pink, coho and chinook salmon.

1975. Aquaculturist, Sand Point Aquaculture Program, Sand Point, Alaska. Responsible for overall development of fish culture program at a small high school. Taught course in fish husbandry built and operated a small demonstration hatchery and assisted in initial development of fish culture curriculum for state school system.

Publications: Have co-written one project annual report and have written eight annual reports

Name and Position:

Chris Dearing, Maintenance Supervisor, 1.FTE

Education:

1998. Walla Walla Community College, Walla Walla, WA. Undergraduate studies in electricity and irrigation technology.

1981-1984. Henley High School, Klamath Falls, OR. Emphasis on vocational courses including basic carpentry and welding.

Work Experience:

1998-present. Satellite Facilities Maintenance Supervisor, CTUIR, Pendleton, Oregon.

1995-1998. Maintenance Supervisor, Umatilla Housing Authority, Pendleton, Oregon.

1994. I-90 Sound Walls, Kiewit Pacific Company, Spokane, Washington.

1993-1994. Whitworth College Addition, Goebel Construction, Spokane, Washington.

1991-1993. Maintenance Supervisor/HIP., CTUIR, Pendleton, Oregon

1986-1991. Construction Crewleader, U.S. Navy Sea Bees, Port Hueneme, California.

Certified Training:

1997. Housing and Urban Development.

1995. Oregon-Washington-Idaho Carpenters Apprentices Program.

1995. UBC Construction Steward.

1992. CABO Electrical Code Workshop

1991. CABO One and Two Family Dwelling Codes

1990. Builder "C1" Advanced-Class 90020

1990. Seabee Construction Management Course.

Section 10. Information/technology transfer

BPA, CTUIR, ODFW, NMFS, engineers, architects and other interested parties will meet as necessary to discuss the final designs for a summer steelhead and spring chinook hatchery on the South Fork Walla Walla River as well as designs for acclimation facilities. A Walla Walla Technical Work Group will be convened to determine acclimation facility needs and develop an Annual Operating Plan for passage, broodstock collection and hatchery operations. These discussions will result in numerous documents being produced including siting and design reports, engineering and architectural drawings/blueprints, contract agreements, construction specifications, operation and maintenance manuals, etc.

Congratulations!