
PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Umatilla Subbasin Umbrella

BPA project number: 20516

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

Business name of agency, institution or organization requesting funding

Oregon Department of Fish & Wildlife

Business acronym (if appropriate) ODFW

Proposal contact person or principal investigator:

Name	<u>Tony Nigro</u>
Mailing Address	<u>P.O. Box 59</u>
City, ST Zip	<u>Portland, OR 97801</u>
Phone	<u>(503) 872-5310</u>
Fax	<u>(503) 872-5632</u>
Email address	<u>Tony.Nigro@state.or.us</u>

NPPC Program Measure Number(s) which this project addresses

N/A

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

N/A

Other planning document references

Oregon Trust Agreement Planning (OPTA) Project, Assessing OTAP Project Using Gap Analysis; Wy-Kan-Ush-Me-Wa-Kush-Wit, vol.II.; The Umatilla Hatchery Master Plan (ODFW and CTUIR, 1990); The Umatilla River Subbasin Salmon and Steelhead Plan (ODFW and CTUIR, 1989); and The Umatilla Basin Project-Initial Project Work plan (USBR and BPA 1989); A Comprehensive Plan for Rehabilitation of Anadromous Fish Stocks in the Umatilla River Basin (Boyce 1986); Umatilla River Subbasin Anadromous Fish Habitat Improvement Implementation Plan (Reeve et al. 1988)

Short description

The purpose of this document is to provide an overview of all FWP funded projects within the basin. The biological goal and objectives for the basin will be linked to specific strategies and tasks to be completed by the proposed new and on-going projects

Target species

Summer Steelhead, Spring Chinook, Fall Chinook, Coho, Native wildlife species including habitat indicator species

Section 2. Sorting and evaluation

Subbasin

Umatilla

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 checked="" type="checkbox"/> Resident fish <input checked="" type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Multi-year (milestone-based evaluation) <input checked="" type="checkbox"/> Watershed project evaluation	<input type="checkbox"/> Watershed councils/model watersheds <input type="checkbox"/> Information dissemination <input checked="" type="checkbox"/> Operation & maintenance <input checked="" type="checkbox"/> New construction <input checked="" type="checkbox"/> Research & monitoring <input checked="" type="checkbox"/> Implementation & management <input checked="" type="checkbox"/> Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

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

Project #	Project title/description
20516	Umatilla Subbasin Umbrella (ODFW)
8903500	Umatilla Hatchery O&M (ODFW)
9000500	Umatilla Hatchery M&E (ODFW)
8710002	Umatilla Habitat Enhancement (ODFW)
8902401	Umatilla Juvenile Salmonid Outmigration Study (ODFW)
8902700	Umatilla Basin Water Exchange Project O&M (BPA)
8343600	Umatilla Ladders and Screens O&M (BPA)
8802200	Umatilla Fish Passage Operations (CTUIR)
8343500	Umatilla Hatchery Satellite Facilities O&M (CTUIR)
8710001	Umatilla Habitat Enhancement (CTUIR)
9000501	Umatilla Natural Production M&E (CTUIR)
9360660	Oregon Fish Screening Project (ODFW)

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
------------------	----------------------------------	-------------------------------

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1986	Development of A Comprehensive Plan for Rehabilitation of Anadromous Fish Stocks in the Umatilla River Subbasin	Set in motion the following activities
1987	Initiation of Habitat Enhancement Projects	Miles of riparian and instream habitats have been restored
1988	Completion of Three Mile Dam ladder and adult trapping facility	Provides adequate adult passage and allows enumeration of all adults for M&E and management purposes
1990	Initiation of Umatilla Natural Production M&E	Gathering of baseline information on the status of natural production and habitats in the basin
1992	Completion of Umatilla Hatchery - began production of fall and spring chinook and summer steelhead juveniles for release into the Umatilla River	Established returns of extirpated spring and fall chinook.
1993	Identified potential wildlife mitigation opportunities by priority (OTAP Project)	
1995	Initiation of juvenile salmonid outmigration studies	Identifying possible in-basin causes of mortality of juvenile outmigrants
1997	Created series of databases and GOA layers to assist in the evaluation of potential wildlife mitigation projects (GAP Analysis Project)	
1998	Full implementation of Phases 1 and 2 of the Umatilla Basin Water Exchange Project	Better flows for passage and rearing of salmonids
1998	Construction of new ladders and screens at major irrigation diversions along the Umatilla River occurred throughout the late 1980's and 1990's	Adults and juveniles are able to immigrate and emigrate the system with relatively few delays
1998	Construction of Umatilla Satellite facilities for acclimating juveniles and holding adult broodstock occurred throughout the late 1980's and 1990's	Established returns of extirpated spring and fall chinook.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Annual adult return of 4,000 naturally produced and 5,670 hatchery produced summer steelhead	a	Improve flows in the Umatilla mainstem.
1		b	Improve upstream/downstream passage at Umatilla River mainstem diversions.
1		c	Improve tributary habitat.
1		d	Supplement natural production through releases of hatchery reared smolts produced from endemic broodstock
1		e	Evaluate the effectiveness of current management programs.
2	Annual adult return of 1,000 naturally produced and 10,000 hatchery produced spring chinook	a	Improve flows in the Umatilla mainstem.
2		b	Improve upstream/downstream passage at Umatilla River mainstem diversions.
2		c	Improve upper mainstem habitat.
2		d	Restore production through releases of hatchery reared smolts.
2		e	Evaluate the effectiveness of current management programs.
3	Annual adult return of 11,000 naturally produced and 10,000 hatchery produced fall chinook	a	Improve flows in the Umatilla mainstem.
3		b	Improve upstream/downstream passage at Umatilla River mainstem diversions.
3		c	Improve middle and lower mainstem habitat.
3		d	Restore production through releases of hatchery reared smolts
3		e	Evaluate the effectiveness of current management programs.
4	Annual adult return of 6,000 coho.	a	Improve flows in the Umatilla mainstem.

4		b	Improve upstream/downstream passage at Umatilla River mainstem diversions.
4		c	Improve middle and lower mainstem habitat.
4		d	Restore production through releases of hatchery reared smolts
4		e	Evaluate the effectiveness of current management programs.
5	Coordinate and implement securing wildlife mitigation sites in Oregon through the development of wildlife mitigation strategies, land acquisition and easement, enhancement planning, and monitoring and evaluation plan development (Project 9705900).		

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
				Total	0.00%

Schedule constraints

N/A

Completion date

N/A

Section 5. Budget

FY99 project budget (BPA obligated): \$0

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.)		%0	
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel		%0	
Indirect costs		%0	
Subcontractor		%0	
Other		%0	
TOTAL BPA FY2000 BUDGET REQUEST			\$ 0

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount (\$)
		%0	
		%0	
		%0	
		%0	
Total project cost (including BPA portion)			\$ 0

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget				

Section 6. References

Watershed?	Reference
<input type="checkbox"/>	Bedrossian, K.L., J. H. Noyes and M.S. Potter. 1985. Wildlife and Wildlife Habitat Loss Assessment at Lookout Point Dam and Reservoir Project Middle Fork Willamette River, Oregon. Prepared by Oregon Department of Fish and Wildlife for U.S. Department of
<input checked="" type="checkbox"/>	Boyce, R.R. 1986. A Comprehensive plan for rehabilitation of anadromous fish stocks in the Umatilla River Basin. Report DOE/BP-18008-1, BPA, Portland, Oregon.
<input type="checkbox"/>	BPA. 1993. Oregon Trust Agreement Planning Project: Potential Mitigation to the Impacts on Oregon Wildlife Resources Associated with Relevant

	Mainstem Columbia River and Willamette River Hydroelectric Projects. Bonneville Power Administration, U.S.
<input type="checkbox"/>	Contor, C.R., E. Hoverson, and P. Kissner. 1995. Umatilla Basin Natural Production Monitoring and Evaluation. Annual Progress Report 1993-1994 sent to BPA, Portland Oregon.
<input type="checkbox"/>	Contor, C.R., E. Hoverson, and P. Kissner. 1996. Umatilla Basin Natural Production Monitoring and Evaluation. Annual Progress Report 1994-1995 sent to BPA, Portland Oregon.
<input type="checkbox"/>	Contor, C.R., E. Hoverson, and P. Kissner. 1997. Umatilla Basin Natural Production Monitoring and Evaluation. Annual Progress Report 1995-1996 sent to BPA, Portland Oregon.
<input checked="" type="checkbox"/>	CRITFC, 1996, WY-KAN-USH-MI-WA- KISH-WIT. The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakima Tribes. Portland, Oregon.
<input checked="" type="checkbox"/>	CTUIR & ODFW 1989. Umatilla Hatchery Master Plan. Prepared for the NPPC, Portland, Oregon.
<input checked="" type="checkbox"/>	CTUIR & ODFW 1990. Umatilla River Subbasin – Salmon and Steelhead plan. Prepared for the NPPC, Portland, Oregon.
<input type="checkbox"/>	Focher, S.M., R.W. Carmichael, M.C. Hayes, and R.W. Stonecypher, Jr. 1997. Umatilla hatchery monitoring and evaluation. 1996 annual progress report to Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	Hayes, M.C., S.M. Knapp, and A.A. Nigro. 1992. Pages 53-103 in S.M. Knapp, editor. Evaluation of juvenile fish bypass and adult fish passage facilities at water diversions in the Umatilla River. Annual and interim progress reports. DOE/BP-10385-2, B
<input type="checkbox"/>	Hayes, M.C., R.W. Carmichael, S.M. Focher, N.L. Hurtado, M.L. Keefe, G.W. Love, W.J. Groberg, Jr., S.T. Onjukka, and K. Waln. 1996a. Umatilla Hatchery Monitoring and Evaluation. Annual progress report to Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	Hayes, M.C., R.W. Carmichael, S.M. Focher, W.J. Groberg, Jr., S.T. Onjukka, R.W. Stonecypher, Jr., and K. Waln. 1996b. Umatilla Hatchery Monitoring and Evaluation. Annual progress report o Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	Keefe, M.L., R.W. Carmichael, R.A. French, W.J. Groberg, and M.C. Hayes. 1993. Umatilla hatchery monitoring and evaluation. Annual progress report to Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	Keefe, M.L., R.W. Carmichael, S.M. Focher, W.J. Groberg, and M.C. Hayes. 1994. Umatilla hatchery monitoring and evaluation. Annual progress report to Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	Noyes, J.H., M.S. Potter and K.L. Bedrossian. 1985a. Wildlife and Wildlife Habitat Loss Assessment at Detroit and Big Cliff Dam and Reservoir Project North Santiam River, Oregon. Prepared by Oregon Department of Fish and Wildlife for U.S. Department of
<input type="checkbox"/>	Noyes, J.H., M.S. Potter and K.L. Bedrossian. 1985b. Wildlife and Wildlife Habitat Loss Assessment at Dexter Dam and Reservoir Project Middle Fork Willamette River, Oregon. Prepared by Oregon Department of Fish and

	Wildlife for U.S. Department of Energy
<input type="checkbox"/>	Noyes, J.H., M.S. Potter and K.L. Bedrossian. 1985c. Wildlife and Wildlife Habitat Loss Assessment at Hills Creek Dam and Reservoir Project Middle Fork Willamette River, Oregon. Prepared by Oregon Department of Fish and Wildlife for U.S. Department of Energy
<input type="checkbox"/>	Noyes, J.H., M.S. Potter and K.L. Bedrossian. 1985d. Wildlife and Wildlife Habitat Loss Assessment at Cougar Dam and Reservoir Project South Fork McKenzie River, Oregon. Prepared by Oregon Department of Fish and Wildlife for U.S. Department of Energy,
<input type="checkbox"/>	Noyes, J.H., M.S. Potter and K.L. Bedrossian. 1986. Wildlife and Wildlife Habitat Loss Assessment at Green Peter-Foster Project Middle Fork Santiam River, Oregon. Prepared by Oregon Department of Fish and Wildlife for U.S. Department of Energy, Bonneville
<input type="checkbox"/>	NPPC (Northwest Power Planning Council). 1994. Columbia River basin fish and wildlife program. Northwest Power Planning Council, Portland, Oregon.
<input type="checkbox"/>	NPPC (Northwest Power Planning Council). 1994. Columbia River basin fish and wildlife program. Northwest Power Planning Council, Portland, Oregon.
<input type="checkbox"/>	ODFW and CTUIR. 1998. Umatilla Hatchery and Basin Annual Operating Plan for the period of October 1, 1998 - September 30, 1999. ODFW, La Grande, Oregon
<input type="checkbox"/>	ODFW 1997. Assessing Oregon Trust Agreement Planning Project Using GAP Analysis. In fulfillment of Project No. 95-65, Contract No. DE-BI179-92BP90299. Prepared for: U.S. Bonneville Power Administration; Project Cooperators: U.S. Fish and Wildlife Service
<input type="checkbox"/>	Oregon Game Commission. 1956. Salmon and steelhead catch data. Portland, Oregon.
<input type="checkbox"/>	Preston, S., Noyes, J., and Potter, M. 1987. A wildlife habitat protection, mitigation, and enhancement plan for eight federal hydroelectric facilities in the Willamette River Basin. Prepared by Oregon Department of Fish and Wildlife for U.S. Department of Energy
<input type="checkbox"/>	Rasmussen, L. and P. Wright. 1990a. Wildlife impact assessment, Bonneville Project, Oregon and Washington. Prepared by U.S. Fish and Wildlife Service for U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 37pp.
<input type="checkbox"/>	Rasmussen, L. and P. Wright. 1990b. Wildlife impact assessment, McNary Project, Oregon and Washington. Prepared by U.S. Fish and Wildlife Service for U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 46pp.
<input type="checkbox"/>	Rasmussen, L. and P. Wright. 1990c. Wildlife impact assessment, John Day Project, Oregon and Washington. Prepared by U.S. Fish and Wildlife Service for U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 47pp.
<input type="checkbox"/>	Rasmussen, L. and P. Wright. 1990d. Wildlife impact assessment, The Dalles Project, Oregon and Washington. Prepared by U.S. Fish and Wildlife

	Service for U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 34pp.
<input checked="" type="checkbox"/>	Reeve, R., S. Williams, J. Snachez and J. Neal. 1988. Umatilla River Drainage Anadromous Fish Habitat Improvement Plan. 37pgs.
<input type="checkbox"/>	USBR (U.S. Bureau of Reclamation) and BPA (Bonneville Power Administration). 1989. Umatilla basin project. Initial project workplan presented to the Northwest Power Planning Council, May 1989.
<input type="checkbox"/>	USBR. 1986. Umatilla basin project draft environmental impact statement.
<input type="checkbox"/>	Van Cleve, R. and R. Ting. 1960. The condition of salmon stocks in the John Day, Umatilla, Walla Walla, Grande Ronde and Imnaha rivers as reported by various fisheries agencies. January 1960. Publisher unknown.

PART II - NARRATIVE

Section 7. Abstract

The purpose of the Umatilla Subbasin Umbrella is to provide reviewers of individual project proposals the context of the overall fisheries and wildlife restoration effort in the subbasin. To accomplish this the management intent of each species is provided in the form of objectives, the overall approach or strategies for accomplishing objectives are presented and FWP projects are related to the strategies in the form of actions.

It is intended that this document provide a clear picture of how projects within the Umatilla Subbasin are carefully planned and implemented to function as a unified set of actions to accomplish restoration objectives.

Development of the basin extirpated salmon in the early 1900's and depressed steelhead populations. ODFW, Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and others have identified 6 strategies to restore Umatilla basin anadromous fish production (Umatilla Subbasin Umbrella; Boyce 1986; CRITFC 1996; CTUIR and ODFW 1989; USBR and BPA 1989). These strategies include: 1) Improving Umatilla flow; 2) Improving passage at Umatilla River irrigation diversions; 3) Improving riparian communities and instream habitat; 4) Reestablishing salmon production through hatchery releases; 5) Supplementing steelhead populations using endemic broodstock; and, 6) Monitoring and evaluation.

Objectives include return of 11,000 adult spring Chinook, 21,000 adult upriver bright fall Chinook, 6,000 adult coho and 9,700 adult summer steelhead. These goals include both natural and hatchery production expectations. Since Umatilla salmon were extirpated a non- indigenous stock was used to initiate this program. Steelhead supplementation uses endemic stock.

Section 8. Project description

a. Technical and/or scientific background

The Umatilla River in northeast Oregon originates on the west slope of the Blue Mountains east of Pendleton. The river flows northwesterly across the Umatilla Plateau for about 115 miles to its

confluence with the Columbia River at River Mile (RM) 289. Virtually all of the 2,290-square-mile drainage is within Umatilla County. The basin is comprised of two major physiographic regions. Multiple flows of basalt formed the Deschutes-Umatilla Plateau, a broad upland plain that slopes northward from the Blue Mountains to the Columbia River to about 3,000 feet along the toe of the Blue Mountains.

Faulting and folding of a variety of volcanic, sedimentary and metamorphic rocks created the high relief Blue Mountains region. The mountains stretch along the southern and eastern boundary of the basin. Elevations range from 3,000 feet to 6,000 feet. A small percentage of the basin's area, the Blue Mountains are the source of the subbasin's major rivers and streams.

Multiple flows of lava known as the Columbia River basalt underlie nearly all of the Umatilla River Subbasin. Older volcanic, sedimentary, and metamorphic rocks are exposed along the crest of the Blue Mountains. Sedimentary deposits cover the basalt throughout much of the subbasin. Alluvium deposited by modern rivers and streams is common in the valleys and floodplains. Windblown silt and fine sand cover much of the basin.

Annual precipitation ranges from less than 10 inches in a band along the Columbia River, up to 45 inches in the Blue Mountains. Annual temperatures from the lowest elevation areas average from 50° to 55° F (10° to 13° C). Extremes of 115° F (46° C) and minus 21° F (29° C) recently have been recorded.

Principal forest species in the Blue Mountains include lodgepole pine, ponderosa pine, Douglas fir, white fir, grand fir, subalpine fir, Engelman spruce and western larch. On the plateau lands, overgrazing by domestic livestock and cultivation has converted native grassland to sagebrush, rabbit brush, bitter brush and other drought-tolerant species. Vast areas of upland soils are dryland farmed and have sparse vegetative cover from fall to early spring. Thousands of acres of sagebrush and grass in the lower reaches of the subbasin have been converted to irrigated cropland.

Riparian vegetation on reaches of the mainstem Umatilla and many tributary streams in poor condition. Approximately 70 percent of 422 miles of stream in the Umatilla inventoried by the Oregon Department of Fish and Wildlife (Reeve et al. 1988) would benefit from riparian improvement. Headwater areas are generally well shaded by a conifer canopy. On the mainstem Umatilla between the forks (RM 90) and Meacham Creek (RM 79) a mixture of deciduous trees and conifers provides a moderate amount of shading. Below Meacham Creek, the river channel widens and deciduous trees, shrubs, and grasses provide little shading.

Approximately 51 percent of the Umatilla River Drainage basin is privately owned; 37 percent is managed by federal agencies, principally the U.S. Forest Service; 1 percent is owned by the state of Oregon; and approximately 11 percent lies within the boundaries of the Umatilla Indian Reservation, much of which is privately owned.

Although once abundant in the Umatilla River Subbasin, Spring chinook have not been present for many years. In 1806 Lewis and Clark reported the presence of a large village at the mouth of the Umatilla River where 700 hundred Indians were anxiously awaiting arrival of the spring chinook. This was one of the largest villages seen between The Dalles area and the mouth of the Snake River. The largest run of chinook on record was in 1914 when Indians and non-Indians caught "thousands upon thousands of salmon from spring to fall" at the site of Three Mile and Hermiston Power and Light dams (Van Cleave and Ting 1960). These authors report salmon and steelhead runs declined following construction of these dams. Forty-one spring chinook were

caught in the Umatilla River in 1956 (OGC 1956). Passage blocks, dewatering of the mainstem Umatilla, degradation of headwater habitat and mortalities at mainstem Columbia River dams eventually exterminated Umatilla spring chinook (ODFW and CTUIR 1990; Reeve et al. 1988; Boyce 1986).

Once large runs of summer steelhead that supported productive tribal and non-tribal fisheries is now a fraction of historical run sizes (CTUIR and ODFW 1990). The dramatic decline in summer steelhead, as the spring and fall chinook, is largely the result of hydroelectric and irrigation operations on the mainstem Umatilla River. Additional losses resulted from habitat degradation and extremely low streamflows and dewatering of the lower Umatilla River by irrigation diversions and by construction and operation of mainstem Columbia River hydroelectric projects.

Although once abundant in the Umatilla River subbasin, fall chinook have not been present for many years. Van Cleave and Ting (1960) report large numbers of fall chinook in the Umatilla River in 1914. The causes for decline and extirpation of fall chinook in the Umatilla River are the same as those for spring chinook and summer steelhead.

Coho salmon are speculated to be indigenous to the Umatilla Subbasin, although clear documentation is not available. Reasons for the decline and extirpation of coho are the same as discussed for the other species.

Restoration planning identified 6 strategies to restore Umatilla basin anadromous fish production (Umatilla Subbasin Umbrella, Boyce 1986; CRITFC 1996; CTUIR and ODFW 1989; USBR and BPA 1989). These strategies include: 1) Improving Umatilla flow; 2) Improving passage at Umatilla River irrigation diversions; 3) Improving riparian communities and instream habitat; 4) Reestablishing salmon production through hatchery releases; 5) Supplementing steelhead populations using endemic broodstock; and, 6) Monitoring and evaluation.

ODFW, CTUIR and others had discussed rehabilitating Umatilla salmon and steelhead fisheries and populations for years. Unfortunately, until Congress passed the Northwest Power Planning and Conservation Act of 1980 (Regional Act) there was not a clear mechanism to meet this goal. Umatilla restoration planning began in earnest after adoption of the first Fish and Wildlife Program (FWP, NPPC 1987 and 1994) called for by the Regional Act. This led to development of a number of planning documents (Boyce 1986; CTUIR and ODFW 1989 and 1990; USBR and BPA 1989).

The Umatilla Basin Water Exchange Project implemented by the BOR has to a degree implemented the first strategy. Construction of facilities to implement the first strategy has been largely completed by BOR. Planning for this project considered a number of possibilities including use of stored water in McKay Reservoir; water exchanges with irrigation districts and Construction of new storage reservoirs (USBR 1986). The projects implemented best meet the needs of providing improved flows in the lower Umatilla River at the best cost while not impacting natural production of both resident and anadromous fishes.

To accomplish the second strategy, new ladders and juvenile bypass screens were constructed at the Three Mile Dam, Maxwell Dam, Westland Dam, Feed Canal Dam and Stanfield Dam. Additionally two non-federal irrigation dams have been removed and provided another means of delivering water from the Umatilla River. These projects were accomplished with Mitchell Act, BPA and ODFW funds. Most of the small diversions in the basin have been screened through

funding from the Mithcell Act. Although a comprehensive survey of pump stations on the Umatilla has not been completed, fish friendly screens are installed on an opportunistic basis.

Implementation of the third strategy, fish habitat improvements funded by the FWP, began in 1987. A plan for the implementation of projects was developed based on a basin-wide inventory of habitat conditions in known anadromous fish streams (Reeve et al. 1988). This plan provided a solid basis for implementing projects that address habitat limiting factors in high priority stream reaches. Restoration approaches have adapted to new information gained of fish and changing knowledge regarding the approach to habitat restoration.

To implement the forth and fifth strategies ODFW and CTUIR developed the Umatilla Hatchery Master Plan (Plan, CTUIR and ODFW 1990). The Plan considered the basin specific goal of reestablishing fisheries and, if possible, extirpated natural populations as well as the Northwest Power Planning Council's "doubling the run size" goal as outlined in the FWP.

b. Rationale and significance to Regional Programs

FISHERIES

The Umatilla River Subbasin anadromous fishery restoration program is a cooperative effort between the fishery managers (Oregon Department of Fish & Wildlife and Confederated Tribes of the Umatilla Indian Reservation), Bonneville Power Administration (BPA) and U.S. Bureau of Reclamation (USBR). We are using six strategies to restore salmon and steelhead including restoring streamflows, improving upstream and downstream passage, habitat improvement, reestablishing salmon production through hatchery releases, supplementing steelhead populations using endemic broodstock and monitoring and evaluation. Each of these composites of the Umatilla basin restoration activities contribute toward FWP elements.

Flow Enhancement

- Section 7.8G Instream Flows for Salmon and Steelhead

In development of the Umatilla subbasin restoration program it was obvious that the first increment toward improving natural production potential in the basin involved restoring flows in the lower Umatilla. It was estimated that under flow conditions that existed in the 1980's, on average from 70 to 90 percent of outmigrating smolts survived. It was predicted that survival in low flow years would be much lower (Boyce 1986). A range of options including construction of new reservoirs, utilizing storage from existing reservoirs and exchanging Columbia River water with local irrigation districts to leave natural flow in the Umatilla were considered in the development of the Umatilla plan. Use of storage in the existing McKay Reservoir and water exchanges with Umatilla Basin irrigation districts are the options now under implementation by the USBR and BPA. In addition, the Oregon Water Trust and USBR are currently seeking to lease and/or purchase instream flows for fish and aquatic life.

- Section 7.9: Pursue Subbasin Water Projects

BPA, BOR, the Oregon Water Resources Department, ODFW and CTUIR are currently carrying out implementation of the Umatilla Basin Water Exchange Project as described in measures 7.9B.1 through 7.9B.12. Construction of phases one and two by USBR are

complete. Operation of the exchange, under various stages of completion has been implemented for several years.

Passage Improvement

- Section 7.10 Provide Passage and Protective screens on tributaries

The Umatilla Subbasin has an extensive network of irrigation diversions. In the past these diversions blocked and/or impeded upstream passage, and outmigrating juveniles ended up stranded in irrigation ditches. Through the 1990's all of the diversion dams needing ladders and ditches need bypass screening have had new facilities installed per NMFS passage criteria. Additionally smaller gravity type diversions in the basin have received bypass screens. However, a number of tributary diversion dams are still need improvements for passage. A number of gravel-push-up diversion dams have been removed by installing alternative means of delivering water; they have been converted from gravity flow to pumps on a cost share basis.

Habitat Improvement

- Systemwide Goal: A Healthy Columbia Basin

Habitat projects implemented in the Umatilla Subbasin are intended to restore natural physical and biological processes within the stream, riparian zone and floodplain. This holistic approach to dealing with habitat deficiencies will contribute toward creating a healthy Columbia Basin.

- 7.1D Wild and Naturally Spawning Policy

Unlike the plight of salmon in the Umatilla Basin, the endemic summer steelhead population has not been extirpated although they occur at reduced levels. In addition to hatchery supplementation efforts, increased carrying capacity resulting from habitat improvements will lead to increased wild and/or naturally spawning populations of summer steelhead. Habitat enhancement efforts also focus on spring chinook habitats that will result in increased natural production of this reintroduced species.

- Section 7.6A: Habitat Goal

Projects 8710002 and 8710001 are currently implementing habitat restoration projects compatible with the biological needs of the target species (measure 7.6B.3). These projects are implemented under guidance of a watershed assessment/implementation plan (Reeve et al.1988) that identified anadromous fish habitat in need of improvement and prioritized treatment reaches based on the expected benefits to the target species, landowner acceptance and project feasibility. This planning/assessment approach and adaptive management as new information gained, has resulted in effective use of the funding investment (measure 7.6B.4).

- Section 7.6C: Coordinated habitat planning

Habitat projects continue to increase efforts toward coordinating with other basin interests to work towards accomplishing an integrated ridgetop-to-ridgetop watershed approach. Project personnel have held scoping meetings to gather public input, interact with local stakeholder

groups to assist in the development of watershed assessments and treatments, attend local watershed council meetings to keep members updated on project activities and regularly interact with private landowners about habitat issues

Current monitoring and evaluation efforts (Umatilla hatchery monitoring and evaluation, Umatilla outmigration studies, and Umatilla natural production M & E.) all call for the need of substantial habitat improvement to meet natural production goals. Monitoring and evaluation biologists stress the need for substantial improvements in water quality, spawning, instream, and riparian habitats (Umatilla basin research/management review January 1998). The specific program objective to mitigate these losses is to increase natural salmonid production in the Umatilla River basin by reducing sediment loading, decreasing un-natural high water temperatures, improving riparian habitat, increasing instream habitat diversity, and improving salmonid access to historical/preferred habitats (Boyce 1986; Reeve et al. 1988; CTUIR and ODFW 1990).

The current emphasis of both on-going habitat projects in the basin (8710002 and 8710001) is on protecting riparian areas by overuse from livestock by construction exclosure fences. While the goal of this treatment is enhancement of riparian communities, long term maintenance of these projects (15 year lease agreements) accomplishes measure 7.6A.2 of maintaining the current productivity of salmon and steelhead habitat.

- Section 7.6D: Habitat Objectives

Habitat projects focus on restoring normative ecological processes. Where possible passive restoration approaches are taken by removing negative land use practices from streamside and floodplain areas. Emphasis is placed on achieving habitat conditions that are in concert with physical and biological processes in the watershed. Earlier approaches of instituting unnatural habitat features are no longer implemented.

- Section 7.7: Cooperative Habitat Protection and Improvement with Private Landowners

Because of the large proportion of private lands within the Umatilla subbasin, significant improvements to habitat mean implementing projects on private lands. Habitat projects are developed with private landowners on a cooperative, voluntary basis. Fifteen-year lease agreements of stream corridors are developed for each project implemented. Each agreement is tailored to the specific site.

After working with landowners for approximately 11 years in the Umatilla subbasin, significant progress has been made towards developing positive relationships with landowners. While it seems that gaining landowner acceptance of environmental projects is slow, landowners are now showing individual initiative for implementing habitat improvements. They are beginning to understand the overall ecosystem benefit of these kinds of projects.

Hatchery Production

- Section 2.2B Systemwide Policies: Support Native Species in Native Habitat

An important consideration in planning Umatilla Hatchery production (measure 7.41 Umatilla production facilities) was protecting fish populations that existed. Umatilla summer steelhead had not been extirpated although they occurred at reduced levels. The Plan

recognized protecting this stock was an important consideration in Umatilla basin restoration.

As a result an endemic broodstock program was established in an effort to bolster harvestable steelhead numbers and natural production. This program relies on proportionally collecting wild broodstock throughout the run. Allowances are made for including one hatchery (marked) male for every five wild (unmarked) male included in the broodstock (ODFW and CTUIR 1998).

As noted above, salmon were extirpated from the Umatilla basin. In planning Umatilla basin restoration upriver bright fall Chinook, Carson spring Chinook and Tanner Creek coho stocks were chosen. These stocks were selected because they were available, could be successfully propagated and, it was hoped, might successfully reproduce in the wild if suitable habitat were available.

Measure 2.2B recognizes that in some cases natural environments may be altered to the point that native fishes may not be able to survive. This fact was recognized in the NPPC's review of the Plan. In this case fishery benefits were thought to be significant enough and to potential for establishing some natural production intriguing enough that the Plan was approved.

- 7.1D Wild and Naturally Spawning Policy

Unlike the plight of salmon in the Umatilla Basin, the endemic summer steelhead population has not been extirpated although they occur at reduced levels. As a result an endemic broodstock program was established in an effort to bolster harvestable steelhead numbers and natural production. This program relies on proportionally collecting wild broodstock throughout the run.

Monitoring and Evaluation

- Section 3.1B Coordinated Implementation, Research, Monitoring and Evaluation: Implementation and Monitoring

In presenting the Plan to the NPPC, ODFW and CTUIR recognized there were a number of uncertainties (CTUIR and ODFW 1989; NPPC 1989). Specifically, uncertainties were identified in the areas of hatchery effectiveness and natural production and supplementation potential. The Plan proposed an experimental approach to test these uncertainties as it was implemented. Projects 8902401, 9000500 and 9000501 incorporate the research, monitoring and evaluation necessary to address these concerns (Contor et al. 1995, 1996, and 1997, Focher et al. 1997; Hayes et al. 1992, 1996a, and 1996b; Keefe et al. 1993, 1994, and 1997)

Activities across program element and co-managers are coordinated through a number of forums. Included is the development of an AOP by the co-managers each spring to direct activities, quarterly Umatilla Management, Monitoring and Evaluation Oversight Committee (UMMEOC) meetings to coordinate in-season activities and periodic research reviews and informal meetings to address immediate needs.

Habitat improvement projects are monitored to determine progress toward meeting project objectives. The most broadly used tool is the taking of photopoint pictures annually. This pictorial record allows us to visually assess the changes to riparian plant communities. Other

measures including channel morphology transects, stream temperatures and aquatic macroinvertebrate communities are measured.

WILDLIFE

Actions to enhance habitat on acquired and eased lands will contribute to the FWP goal of achieving and sustaining levels of habitat and species productivity as a means to fully mitigate for wildlife losses caused by the construction and operation of the hydropower system. The protection of high quality native habitats or species of concern is called for under Measure 11.2D.1. Projects proposed under this “umbrella” proposal are consistent with and will help fulfill the FWP’s mitigation goals for priority habitats and indicator species.

c. Relationships to other projects

The success of projects implemented within the Umatilla Basin are subject to activities on-going throughout the Columbia Basin such as ocean and mainstem fisheries, operation of the Columbia River hydroelectric projects, other hatchery programs and continued development of the Columbia Basin. All of these activities play a role in shaping the results of the Umatilla restoration program.

While outside influences can affect results in the basin, activities in the Umatilla can improve returns of salmon and steelhead as has already occurred. Positive changes in the factors mentioned above can improve the overall success of the program, however.

d. Project history (for ongoing projects)

FISHERIES

By the beginning of the 20th century significant anthropogenically caused impacts had already occurred to the landscape in the Umatilla subbasin. During the period 1793 to 1821 British fur trappers zealously pursued beaver for their pelts. By the 1830’s, fur trappers shifted emphasis from beaver to muskrat due to the low abundance of beavers. It is believed that the removal of beaver from watersheds throughout the region led to significant changes in watershed hydrology and the condition of streams and flood plains.

With the coming of settlers in the mid to late 1800’s, came a range of land use impacts from grazing to land clearing. Perhaps the largest early impact was that of large numbers of grazing livestock. Before settlers came Indians had large bands of horses. With white settlers came large bands of sheep and cattle that had devastating affects on riparian and flood plain vegetative communities.

Shortly after the turn of the century the USBR began the Umatilla Irrigation Project and by the 1920’s the river was fully appropriated. In the 1960’s irrigation of croplands began to spread to the dry western part of Umatilla County.

The construction of Three Mile Dam in 1914 was thought to be the major cause for extinction of salmon in the Umatilla River (CTUIR and ODFW 1990). The combination of low flows and

inadequate passage prevented adults from immigrating the river and prevented smolts from emigrating.

The construction of McKay Reservoir in 1927 is another significant event in the history of the Umatilla Basin. The dam at River Mile 6 was constructed with no fish passage. Many miles of productive salmon and steelhead habitat were lost. McKay dam is without passage facilities today.

Continued development in the basin through the 20th century has continued in loss of instream flows and habitat degradation. Today, even with restoration efforts underway, many miles of stream are without sufficient streamflow in the summer months and have severely degraded riparian and instream habitats.

Sections 8a and 8e provide an overview of the history and status of anadromous fish runs in the Umatilla Subbasin.

In 1980, Congress passed the Pacific Northwest Electric Power Planning and Conservation Act (the Northwest Power Act). This act, in part, mandates that mitigation is to occur for fish and wildlife losses resulting from the construction and operation of federally licensed hydroelectric facilities in Montana, Idaho, Washington, and Oregon. The act also established and charged the Northwest Power Planning Council (NPPC or Council) with the development of a comprehensive fish and wildlife mitigation program. Under the Northwest Power Act, the Council is required to include in its Fish and Wildlife Program measures to "protect, mitigate, and enhance" fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. BPA is responsible for using its funds and authorities to carry out such mitigation in a manner consistent with the Council's FWP.

ODFW, CTUIR and others had discussed rehabilitating Umatilla salmon and steelhead fisheries and populations for years. Unfortunately, until Congress passed the Northwest Power Planning and Conservation Act of 1980 (Regional Act) there was not a clear mechanism to meet this goal. Umatilla restoration planning began in earnest after adoption of the first Fish and Wildlife Program (FWP, NPPC 1987 and 1994) called for by the Regional Act. This led to development of a number of planning documents (Boyce 1986; CTUIR and ODFW 1989 and 1990; USBR and BPA 1989).

Restoration planning identified 6 strategies to restore Umatilla basin anadromous fish production (Umatilla Subbasin Umbrella, Boyce 1986; CRITFC 1996; CTUIR and ODFW 1989; USBR and BPA 1989). These strategies include: 1) Improving Umatilla flow; 2) Improving passage at Umatilla River irrigation diversions; 3) Improving riparian communities and instream habitat; 4) Reestablishing salmon production through hatchery releases; 5) Supplementing steelhead populations using endemic broodstock; and, 6) Monitoring and evaluation.

Through the late 1980's and 1990's a number of improvements have been made to the Umatilla River to improve passage including excavation of a channel through a bedrock reach of the lower 3 miles of the river, construction of ladders and by-pass screens at several irrigation ditches. Of particular interest is the completion of a new ladder and adult trapping facility at Three Mile Dam. Construction of the trap has allowed the implementation of a trap and haul program to transport adults past dewatered sections of the river. Today as water exchange projects are underway the need for trap and haul has been greatly diminished. Additionally, the trap allows enumeration, monitoring and evaluation of all adult salmonids immigrating the Umatilla River.

In the fall of 1991 Umatilla Hatchery was completed. This hatchery was designed and built for the purposes of rearing and release of spring chinook, fall chinook and summer steelhead into the Umatilla River. Production at Umatilla Hatchery began in 1992. Associated with the hatchery are a number of satellite facilities. Four acclimation facilities are currently under operation including Bonifer Pond, Minthorn Springs, Imeqes c-mem-ini-kem and Thorn Hollow. One additional acclimation is scheduled for construction at RM 56. The Three Mile Dam Facility was upgraded to accomplish holding of fall chinook and coho broodstock. This facility includes adult holding ponds and a spawning room.

A spring chinook adult holding and spawning facility was built on the South Fork Walla Walla River to handle Umatilla broodstock adults. Planning is currently underway to add rearing space for both Umatilla and Walla Walla spring chinook production.

WILDLIFE

During the early and mid 1980's, BPA funded wildlife loss assessments for construction of and inundation by the major hydroelectric dams at the Council's direction. The first studies completed were those for Libby and Hungry Horse Dams. The Council reviewed the losses, amended it's FWP to specify the number of Habitat Units (a Habitat Evaluation Procedures unit of measure) for each indicator species that would constitute adequate mitigation, and authorized BPA to proceed with mitigation projects. The assessments and calculations of wildlife impacts expressed as Habitat Units are found in multiple documents written over a period of six years (Bedrossian et. al. 1985; Noyes et. al. 1985a, 1985b, 1985c, 1985d, 1986; Preston et. al. 1987; Rasmussen and Wright 1990a, 1990b, 1990c, 1990d).

Rather than carry out the mitigation itself, BPA undertook negotiations with the State of Montana with the intent of having Montana undertake the mitigation. Because year-to-year contracts with Montana were not viewed as an administratively practical way of acquiring and maintaining habitat, the Council and the region's utilities encouraged Bonneville to consider establishing a trust fund, giving Montana flexibility to acquire and maintain habitat as the opportunity arose.

BPA was initially reluctant to consider trust funds because they felt such arrangements would give them inadequate control over the outcome of the mitigation. Bonneville eventually decided that a trust fund would be a good idea. In exchange, it could get the state to agree to: 1) a once-for-all-time settlement of Bonneville's wildlife obligation and; 2) to a hold harmless clause which would make the state liable for any additional mitigation which might be required by the Council or anyone else during the next 60 years.

BPA asked for the Council's response to this type of mitigation trust, and the Council replied in a July 14, 1987 letter from Chairman Bob Duncan. The Council agreed that trusts are a good funding vehicle, but that once-for-all-time settlements were not in tune with either the Northwest Power Act or with FERC practice regarding mitigation at private hydroelectric facilities. This position was reiterated in subsequent amendments to the FWP and is reflected in the current Council Program, where the Council endorses agreements (Section 11.3D and long-term Section 11.3E) as the preferred method for implementing wildlife mitigation.

During 1988, BPA negotiated with Montana to reach an agreement on a wildlife mitigation trust for Libby and Hungry Horse Dams. The Council was not invited to participate in these negotiations and was not briefed on them by BPA. Shortly before the end of the Governor's term, the State of Montana reached an agreement with BPA, including a once-for-all-time settlement, and hold harmless conditions.

Although the mitigation to be achieved under the agreement was based on the Council's FWP, and the Program called for BPA funding of a Montana trust "upon approval by the Council", the Council was not asked to approve this agreement and did not do so. Given Montana's determination to enter into the agreement before the end of the Governor's term, the Council did not attempt to block the agreement, but did send a letter on December 20, 1988 from Chairman Trulove to BPA expressing concern that the proposed trust agreement had not received a public airing or Council approval. The Council noted that the Montana Trust should not be considered a precedent for future wildlife mitigation.

In November 1989, the Council took up wildlife mitigation for most of the remaining federal hydroelectric projects in the Columbia River basin. Because there was widespread disagreement about the loss estimates and the hydropower share of those losses, the Council did not make any determination about the total mitigation due at any of these projects. Instead, the Council amended the FWP to include a wildlife mitigation goal of achieving 35% of the agency-submitted losses during the next decade, using the agency estimates as a "starting point".

This Wildlife Rule established a two-track process (including project specific criteria) for implementation of wildlife projects. One track called for projects to be submitted to BPA under the Implementation Planning Process. Once projects were reviewed and selected for inclusion in the BPA Annual Implementation Workplan, the Council's Wildlife Advisory Committee was to review them. The other track permits agreements if agreed to by all parties for a particular facility.

In 1990, the Nez Perce approached BPA about the possibility of an agreement for the Nez Perce portion of wildlife mitigation for Dworshak Dam. Following initial contacts with BPA, the tribe informed the Council and the State of Idaho of its decision to seek a settlement. At BPA's urging, the state and the tribe began working on a joint agreement and memorandum of understanding for the entire Dworshak project. Both parties worked with Council staff during this period and progress reports were made to the Council. Because of renewed interest expressed in agreements at this time, Council Chairman Tom Trulove wrote to the Bonneville Administrator and other interested parties reiterating the Council's views on mitigation agreements. In January 1991, the state and the tribe signed a memorandum of agreement delineating each party's share of the project and agreeing to negotiate jointly with BPA for an agreement. The parties negotiated extensively over the spring and summer, with a staff member from the Council present for the early discussions but excluded from the later discussions.

Once again, BPA insisted that the agreement be conditioned upon a once-for-all-time settlement and hold harmless agreement from the other parties. In this instance, BPA requested Council approval of the adequacy of the proposed mitigation (but not of the other terms of the agreement, such as the full settlement). BPA notified the Council that it needed advice from the Council at the Council's February 26, 1992 working session so that it could meet a March closing date for a key parcel involved in the settlement, the Pene Lands. Because of the short time, the Council again was unable to provide adequate opportunity for public comment on the proposed agreement. The Council notified BPA that, based on the information available from the parties, the mitigation was likely to succeed and would satisfy BPA wildlife obligation. However, the Council advised BPA that an amendment to the Program was needed, and that the Council would be required to give full consideration to comments received in the amendment proceedings before making a final decision on the amendment.

In June 1991, the Council approved BPA implementation of the Conforth Ranch wildlife

mitigation project. Because of concerns over the project by the Port of Umatilla, the Council instructed BPA to work with the Port to address the Port's concerns while proceeding with acquisition of the property. After several months of negotiating with the Port, (no agreement was reached) BPA announced its intent to acquire the Conforth property in early December 1991. Following the BPA announcement, Senator Packwood and Representative Bob Smith of Oregon, wrote the Secretary of Energy requesting that he overturn the BPA decision to acquire the ranch because of local opposition to the project. After meeting with the parties, the Bonneville Administrator announced that his decision to acquire the Conforth property was being put on hold for 45 days in order continue discussions with the parties and to consider other alternatives.

On February 12, 1992 the BPA Administrator announced his decision on the Conforth project in a letter to Chairman Hallock. BPA's decision was to purchase a one-year option on the Conforth Ranch from the Trust for Public Lands. The letter also stated that it was BPA's decision to meet its responsibilities for wildlife mitigation "through long-term trust agreements with States, tribes, and other agencies." Though it was not clear in the letter what the extent of the policy was, BPA has since clarified that its intent is to do no more wildlife mitigation absent trust agreements. Discussions with BPA staff indicate that this policy will apply to previously Council approved projects as well as to new projects.

In 1993, Washington and BPA signed an interim five-year agreement. The agreement guarantees \$45 million to Washington's wildlife managers over a five-year period. This was not a trust agreement, only a stream of funds. The Washington Coalition and BPA agreed to continue to negotiate for a long-term agreement. During this time the Council issued a draft rule which endorsed agreements as a preferred method to achieve wildlife mitigation and calls on BPA to enter into short-term agreements, similar to the Washington Agreement, with Oregon and Idaho and to negotiate long-term agreements over the next three years. BPA stated in comments on draft rule that it would not enter into short-term agreements. Bonneville then announced that its FY 1994 and FY 1995 budgets contained no funds for new wildlife projects, including implementation of activities called for in Phase 4 of the Draft Wildlife Rule.

The Council adopted the final Wildlife Rule in November 1993. The rule continued to call for short-term agreements (Section 11.3D) and states that if BPA cannot enter into such agreements in 90 days that the Council will then solicit projects from the agencies and tribes and approve them for implementation. If short-term agreements are not in place thereafter the Council will call for project proposals each October thereafter; long-term agreements are to be in place within three years. Because BPA failed to enter into short-term agreements with states and tribes, the Council solicited project proposals in late February 1994. In 1994 and 1995, Bonneville funded only a few new, individual wildlife mitigation projects outside the above agreements because the existing agreements used most or all of the available funds and there was a lack of any stable commitment from BPA to fund wildlife mitigation.

In August 1995, the Council completed a Wildlife and Resident Fish rule-making that included an amendment to establish specific funding percentages for Bonneville's Direct Program budget under a Memorandum of Agreement: 70% for anadromous fish and 15% each for Resident Fish and Wildlife. This MOA makes \$15M (plus interest) available each year from FY96 through FY01 to the region's wildlife managers for wildlife mitigation. While most of the available funds through FY98 will be used to finish up the Washington Interim Agreement, some funds have been available for use on other individual projects, notably the Chief Joseph and Southern Idaho projects. Unfortunately, in the history of BPA wildlife mitigation under the Council's program, few of Oregon's losses have been mitigated.

Oregon's wildlife managers (The Oregon Coalition or Coalition) have been working together since 1991 to coordinate the planning, selection, and implementation of BPA funded wildlife projects under the Council's FWP as outlined in Section 11, specifically measures 11.3D and 11.3E. The Oregon Wildlife Coalition (OWC) is made up of wildlife managers from ODFW, the Confederated Tribes of the Warm Springs Reservation in Oregon (CTWSRO), the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Burns-Paiute Tribe (BPT), and the U.S. Fish and Wildlife Service (USFWS). In the early 1990's, the Coalition began developing a Memorandum of Agreement (MOA) to coordinate the planning, selection and implementation of BPA funded wildlife projects in Oregon under the Council's FWP.

BPA had determined that beginning in 1992 so-called "wildlife agreements" would be pursued with the wildlife management agencies of each state. These agreements were intended to take the place of the annual project submittal and approval process which, by 1993, had resulted in only three wildlife projects implemented region-wide. The agreements between the BPA and each state would include signatories from each tribe and agency responsible for implementing mitigation measures within the respective states. In order to develop an effective agreement, BPA stated it was necessary to determine what the mitigation objectives of the agreement would be, the economic costs of achieving those objectives and the possible outcomes. Oregon's wildlife managers and tribes chose to develop the implementation team known as the Oregon Wildlife Coalition and proposed the Oregon Trust Agreement Planning (OTAP) Project as the means of achieving those objectives. In July 1992, the OTAP was initiated in response to BPA's desire to use trust funds/wildlife agreements as a mechanism to fund wildlife mitigation and to address concerns for having an "outcomes" based approach. It was Coalition's hope to develop an Oregon trust/wildlife agreement similar to what was done in Montana and Washington. The OTAP consisted of two parts. The first was the compilation of a database that contained information about potential mitigation sites. This information originated from Coalition project sponsors, various tribal and state management and mitigation plans, and the Oregon Natural Heritage Database. The second component of the OTAP consisted of gathering land values from recent land sales and appraisals within the geographic areas and habitat types where mitigation activities were likely to occur. A range of potential trust agreement costs was also calculated. This range was based upon the assumption of complete mitigation for the wildlife losses in Oregon.

In October of 1993, after a year of development, the findings of the OTAP were published (BPA 1993). Then in January of 1994, the Coalition began meeting to formulate a strategy for trust negotiations with BPA. In February 1994, the Coalition requested in writing that BPA begin trust fund negotiations. This met the Council's deadline for trying to get to interim agreements within 90 days after the rule went into effect. In March 1994, BPA responded positively and identified its' lead negotiators. Between April and July, BPA trust fund negotiations broke down when it became apparent that no BPA wildlife mitigation funds would be available and that BPA was moving away from trusts. In response to BPA's move away from trust funds, the Coalition stopped meeting for over a year and decided against a formal MOA in favor of some less formal structure.

During these years the Council's wildlife advisory group had become the Wildlife Working Group (now the Columbia Basin Fish and Wildlife Authority's [CBFWA's] Wildlife Caucus), made up of all the wildlife managers in the Columbia Basin. They met regularly to help implement the Council's wildlife rule and in doing so developed, reviewed and adopted habitat assessment tools and strategies. Once it became apparent from the Council's 1995 rule-making and the MOA negotiations that wildlife funding would become stable at approximately \$15M per year through 2001, the Wildlife Caucus started discussions of both long- and short-term funding

for future wildlife mitigation in the Basin. Various strategies were discussed, but all agreed that Oregon had not received a reasonable share of funds spent to date. In the end, a budget was developed and adopted by the Wildlife Caucus covering BPA funds through FY 2001. This budget called for Oregon's wildlife mitigation to receive \$275K in FY97, \$500K in FY98, \$4M in FY99, \$5M in FY00, and \$6M in FY01. The first two years were earmarked for planning and coordination efforts, and the next three years for project implementation.

In helping develop this budget as members of the Wildlife Caucus, Oregon's coalition members realized the need to come together once again to start developing strategies on how best to implement wildlife mitigation in Oregon. The Coalition also realized the need for a formal MOA to document its commitment to a coordinated, statewide approach to the planning and implementation of BPA funded wildlife mitigation projects in Oregon. At this time, a project to reaffirm the original findings of the OTAP Project was completed. This project, Assessing Oregon Trust Agreement Planning Process Using GAP Analysis, provided a more rigorous scientific/policy filter on the sites originally identified in the OTAP report and demonstrated the validity and applicability of that effort. The GAP Analysis project identified potential wildlife mitigation sites in Oregon for possible acquisition. The draft results of the GAP effort, published in 1997 (ODFW 1997) characterize the potential contribution to the mitigation target species and habitats. In addition, the role a project might play in conservation planning, within the range of habitat types and conditions statewide, was determined. The results of this project, undertaken by ODFW, in coordination with BPA and other Oregon wildlife managers, will be used in the next phase of the OTAP Project to identify and prioritize wildlife mitigation opportunities.

The Oregon Wildlife Coalition has met regularly since this time. They developed a coordination and planning budget proposal for FY97 BPA funds, which due to contracting problems was not initiated until fall of 1997. This delay allowed the entities involved to provide staff dedicated to this planning and implementation effort. For the FY98 project proposal process, the Coalition developed and proposed the initiation of a small group of projects scattered throughout the state along with some continued funding of planning and coordination (Securing Wildlife Mitigation Sites in Oregon "Umbrella Proposal"). For FY99, specific project areas under the Coalition's "Umbrella" (Project 0705900), sites, were identified for purchase, enhancement or O&M along with a small coordination budget. In September 1998, the Council recommended to BPA that \$4M be available to the Oregon Wildlife Coalition to implement this suite of projects

Currently, the Coalition is finalizing an updated MOA that outlines the shared vision for wildlife mitigation, mitigation planning and implementation operating principles and guidelines, and commitment to planning and implementing wildlife mitigation projects in a coordinated fashion throughout Oregon. The Coalition continues to work together to develop project priorities and implementation funding strategies.

Although there currently no wildlife mitigation projects proposed within this subbasin, the Oregon Wildlife Coalition will continue to investigate specific opportunities that would address wildlife mitigation goals and objectives while helping BPA meet their mitigation obligations associated with the hydrofacilities within the subbasin.

e. Proposal objectives

Objective 1: Annual adult return of 4,000 naturally produced and 5,670 hatchery produced summer steelhead (CTUIR and ODFW 1990).

Since 1990 summer steelhead returns to the Umatilla River have averaged 1,187 (725-2246) naturally produced and 658 (246-1,463) hatchery produced summer steelhead as counted at Three Mile Dam.

When these biological objectives were developed it was anticipated that significant improvements in spawning and rearing habitat would have to occur to reach a return of 4,000 naturally produced fish (CTUIR and ODFW 1990; Boyce 1986). In addition, smolt to adult survival rates were based on what was observed in the mid 1980's when restoration plans for the Umatilla Basin occurred. Several things anticipated in the development of these objectives are not currently being realized. Ocean survival rates have been poor since the early 1990's. Improvement in survival through Columbia River hydroelectric projects has been slower than anticipated. Cooperation from landowners in implementing habitat improvements has not been as good as hoped for and recovery of treated habitat has been slower than anticipated overall. The result has been fairly low smolt to adult survival rates.

Positive changes in any of the above mentioned factors could significantly improve returns and progress towards meeting biological objectives. However, it should also be noted that policies and philosophy about the use of hatcheries to restore natural production has changed. The objective of 5,670 returning hatchery steelhead may no longer be prudent based on current knowledge. The relative success of the hatchery program and natural production now show a fairly good balance between hatchery origin fish and natural fish on the spawning grounds.

ODFW believes that the current objective for natural production may be a good long term objective. However, the hatchery return goal as stated in the Umatilla River Subbasin Salmon and Steelhead Production Plan should be reevaluated.

Objective 2: Annual adult return of 1,000 naturally produced and 10,000 hatchery produced spring chinook (CTUIR and ODFW 1990).

Since 1990 annual returns of adult spring chinook have averaged 1,264 (460-2194). In recent years approximately ten percent of the run have been unmarked fish probably resulting from natural production in the Umatilla River.

When these biological objectives were set fairly ambitious smolt to adult survival rates were set based on good ocean survival, significantly improved survival through Columbia River hydroelectric projects, and improved conditions for passage and natural production in the Umatilla subbasin. Due to water supply problems at Umatilla Hatchery, the production of the number of smolts anticipated to meet return objectives have not been produced.

At the outset of the spring chinook program it was realized that Umatilla Hatchery was not the ideal situation, due to consistently warm water temperatures, for rearing spring chinook. Current return rates of spring chinook reared at Umatilla Hatchery and released on the Umatilla River confirm this. Survival rates of these fish as compared to fish reared at other stations with more natural temperature regimes show that Umatilla Hatchery is not currently producing adults at acceptable smolt to adult survival rates. Plans are currently being discussed to address this situation.

The returns realized under the conditions discussed above have been relatively good. Fishery managers believe that by making changes in the production location of spring chinook and by adding additional production as indicated in the draft Umatilla Hatchery Supplemental Master Plan and CTUIR and ODFW (1990), significant progress towards meeting biological objectives will be made.

Objective 3: Annual adult return of 11,000 naturally produced and 10,000 hatchery produced fall chinook (CTUIR and ODFW 1990).

Since 1990 annual returns of adult fall chinook have averaged 429 (239-646). No return of adults from natural production in the Umatilla River has been documented although natural juvenile fall chinook outmigrants have.

As discussed above with other species, return objectives were based on smolt to adult survival rates that would be more realistic under different conditions than now exist including ocean conditions and passage on the Columbia River mainstem.

When the Umatilla Restoration plan was developed it was realized that there were many uncertain variables. Most of the variables used were derived from other river systems. The original calculations were used primarily to model results through implementing different improvements. It was intended that actual rates of return would need to be developed through monitoring and evaluation efforts.

With respect to the implementation of the proposed in-basin improvements proposed to meet biological objectives, the program is fairly young. The basin flow improvement project has just reached full production. Monitoring results are just now coming available to evaluate current program scenarios.

While it appears that the original goals set for this program are high, a complete life cycle has not yet benefitted from all the improvements currently implemented including passage, flow and acclimation. It is anticipated that improved returns will be realized through these improvements.

Objective 4: Annual adult return of 6,000 coho (CTUIR and ODFW 1990).

Since 1990 adult returns of coho have averaged 906 (355-1,531). No natural production objective currently exists for coho.

Rearing and release of coho into the Umatilla River is accomplished with NMFS Mitchell Act funding. In-basin improvements as discussed are primarily FWP funds. Future acclimation of coho will be done in FWP facilities.

The Umatilla coho program has been one of the more successful upper river (above Bonneville Dam) coho programs. In 1989, approximately 4,108 adults returned to Three Mile Dam. Current returns have been significantly lower, but it is anticipated that runs will improve with better ocean survival conditions.

Objective 5: Coordinate and implement securing of wildlife mitigation sites in Oregon through the development of wildlife mitigation strategies, land acquisition and easement, enhancement planning, and monitoring and evaluation plan development (**Project 9705900**).

f. Methods

Strategy 1a: Improve flows in the Umatilla mainstem.

Action 1a.1: Exchange West Extension Irrigation District withdrawal at Three Mile Dam with Columbia River water delivered by siphon, allowing formerly diverted flows to remain instream below Three Mile Dam (Columbia River Pumping Plant - Phase I).

Status: Construction complete; O/M on-going. Bureau of Reclamation constructed siphon with appropriated funds; completed in FY 1993. Operating costs funded by BPA (8805000 & 8902700).

Action 1a.2: Exchange mainstem Umatilla water withdrawal at Stanfield Irrigation District and U. S. Feed Canal Diversion with water pumped from the Columbia River allowing formerly diverted flows to remain in the Umatilla (Columbia River Pumping Plan - Phase II).

Status: Construction complete; O/M on-going. Pumping station built with appropriated funds; completed in FY 1994. BPA funds operating costs (8902700).

Strategy 1b: Improve upstream/downstream passage at Umatilla River mainstem diversions.

Action 1b.1: Improve passage through bedrock channel below Three Mile Dam. BPA funded COE to blast a channel below Three Mile Dam to concentrate the little remaining instream flows.

Action 1b.2: Construct new state-of-the-art screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs, and other diversions. Completed with BPA funds.

Action 1b.3: Remove gravel-push-up diversions and convert to pumps to remove barriers to adult and juvenile migration. Provide pump screens to landowners on a voluntary basis (ODFW 93606600).

Action 1b.4: Operate and maintain screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs diversions. Project 8343600 funds on-going screens & ladder O/M.

Action 1b.5: When flows in the Umatilla River are inadequate to provide passage project 8802200 funds on-going trap-and-haul operations to move adults and juveniles around thermal/low flow blocks. Project also provides oversight of water exchange project and passage facility operations.

Strategy 1c: Improve riparian vegetation communities and instream fish habitat on tributaries in the Umatilla Subbasin.

Action 1c.1: Construct riparian livestock enclosure fencing to protect riparian zones and plant native vegetation (ODFW 8710002 and CTUIR 8710001).

Action 1c.2: Improve instream habitat by placing site specific instream structures and stabilizing eroding streambanks (ODFW 8710002 and CTUIR 8710001).

Action 1c.3: Create stable sinuous channels where anthropogenic actions have actively altered stream channels (ODFW 8710002).

Action 1c.4: Protect and enhance fish and wildlife habitat in the Squaw Creek watershed by purchasing and managing the land (CTUIR 9506000).

Strategy 1d: Supplement natural summer steelhead production through releases of hatchery smolts produced from endemic broodstock.

Action 1d.1: Collect summer steelhead brood stock, hold and spawn at the Minthorn Springs facility. Broodstock are adult steelhead returning to the Umatilla River at Three Mile Dam (CTUIR 8343500).

Action 1d.2: Incubate eggs and rear steelhead juveniles at Umatilla Hatchery (ODFW 8903500).

Action 1d.3: Acclimate and release approximately 150,000 steelhead smolts from Bonifer and Minthorn Springs fish acclimation facilities (ODFW 8903500 and CTUIR 8343500).

Strategy 1e: Monitor and evaluate the effectiveness of current fisheries restoration activities.

Action 1e.1: Monitor and evaluate the outmigration and survival of natural and hatchery produced smolts in the Umatilla subbasin (ODFW 8902401).

Action 1e.2: Monitor operation of screens and ladders, and juvenile and adult passage (CTUIR 8902401).

Action 1e.3 Monitor releases of summer steelhead reared at Umatilla Hatchery to determine pre-release condition, egg to smolt survival, smolt to adult survival, catch and escapement of adults and cost of rearing. Evaluate effectiveness of hatchery program in meeting stated objectives and provide recommendations for improvement (ODFW 9000500).

Action 1e.4: Monitor fish health of hatchery reared summer steelhead and recommend treatment (ODFW 9000500).

Action 1e.5: Monitor and evaluate the success of naturally producing summer steelhead in meeting biological objectives (CTUIR 9000501).

Strategy 2a: Improve flows in the Umatilla mainstem.

Action 2a.1: Exchange West Extension Irrigation District withdrawal at Three Mile Dam with Columbia River water delivered by siphon, allowing formerly diverted flows to remain instream below Three Mile Dam (Columbia River Pumping Plant - Phase I).

Status: Construction complete; O/M on-going. Bureau of Reclamation constructed siphon with appropriated funds; completed in FY 1993. Operating costs funded by BPA (8805000 & 8902700).

Action 2a.2: Exchange mainstem Umatilla water withdrawal at Stanfield Irrigation District and U. S. Feed Canal Diversion with water pumped from the Columbia River allowing formerly diverted flows to remain in the Umatilla (Columbia River Pumping Plan - Phase II).

Status: Construction complete; O/M on-going. Pumping station built with appropriated funds; completed in FY 1994. BPA funds operating costs (8902700).

Strategy 2b: Improve upstream/downstream passage at Umatilla River mainstem diversions.

Action 2b.1: Improve passage through bedrock channel below Three Mile Dam. BPA funded COE to blast a channel below Three Mile Dam to concentrate the little remaining instream flows.

Action 2b.2: Construct new state-of-the-art screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs, and other diversions. Completed with BPA funds.

Action 2b.3: Remove gravel-push-up diversions and convert to pumps to remove barriers to adult and juvenile migration. Provide pump screens to landowners on a voluntary basis (ODFW 93606600).

Action 2b.4: Operate and maintain screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs diversions. Project 8343600 funds on-going screens & ladder O/M.

Action 2b.5: When flows in the Umatilla River are inadequate to provide passage project 8802200 funds on-going trap-and-haul operations to move adults and juveniles around thermal/low flow blocks. Project also provides oversight of water exchange project and passage facility operations.

Strategy 2c: Improve riparian vegetation communities and instream fish habitat on the upper mainstem Umatilla River.

Action 2c.1: Construct riparian livestock enclosure fencing to protect riparian zones and plant native vegetation (ODFW 9608500 and CTUIR 8710001).

Action 2c.2: Improve instream habitat by placing site specific instream structures and stabilizing eroding streambanks (ODFW 9608500 and CTUIR 8710001).

Strategy 2d: Restore production through releases of hatchery reared smolts

Action 2d.1: Collect spring chinook brood stock at the Three Mile Dam facility, Little White Salmon Hatchery or Ringold Hatchery and hold and spawn at the South Fork Walla Walla Facility and Little White Salmon Hatchery (CTUIR 8343500, CTUIR 8802200).

Action 2d.2: Incubate eggs and rear spring chinook juveniles at Umatilla Hatchery and Little White Salmon Hatchery (ODFW 8903500).

Action 2d.3: Acclimate and release approximately 810,000 spring chinook yearlings from Imeques c-mem-ini-kem and Thorn Hollow fish acclimation facilities (ODFW 8903500 and CTUIR 8343500).

Strategy 2e: Monitor and evaluate the effectiveness of current fisheries restoration activities.

Action 2e.1: Monitor and evaluate the outmigration and survival of natural and hatchery produced smolts in the Umatilla Subbasin (ODFW 8902401).

Action 2e.2: Monitor operation of screens and ladders, and juvenile and adult passage (CTUIR 8902401).

Action 2e.3: Monitor releases of spring chinook reared at Umatilla Hatchery to determine pre-release condition, egg to smolt survival, smolt to adult survival, catch and escapement of adults and cost of rearing. Evaluate effectiveness of hatchery program in meeting stated objective and provide recommendations for improvement (ODFW 9000500).

Action 2e.4: Monitor fish health of hatchery reared spring chinook and recommend treatment (ODFW 9000500).

Action 2e.5: Monitor and evaluate the success of naturally producing spring chinook in meeting biological objectives (CTUIR 9000501).

Strategy 3a: Improve flows in the Umatilla mainstem.

Action 3a.1: Exchange West Extension Irrigation District withdrawal at Three Mile Dam with Columbia River water delivered by siphon, allowing formerly diverted flows to remain instream below Three Mile Dam (Columbia River Pumping Plan - Phase I).

Status: Construction complete; O/M on-going. Bureau of Reclamation constructed siphon with appropriated funds; completed in FY 1993. Operating costs funded by BPA (8805000 & 8902700).

Action 3a.2: Exchange mainstem Umatilla water withdrawal at Stanfield Irrigation District and U. S. Feed Canal Diversion with water pumped from the Columbia River allowing formerly diverted flows to remain in the Umatilla (Columbia River Pumping Plan - Phase II).

Status: Construction complete; O/M on-going. Pumping station built with appropriated funds; completed in FY 1994. BPA funds operating costs (8902700).

Strategy 3b: Improve upstream/downstream passage at Umatilla River mainstem diversions.

Action 3b.1: Improve passage through bedrock channel below Three Mile Dam. BPA funded COE to blast a channel below Three Mile Dam to concentrate the little remaining instream flows.

Action 3b.2: Construct new state-of-the-art screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs, and other diversions. Completed with BPA funds.

Action 3b.3: Remove gravel-push-up diversions and convert to pumps to remove barriers to adult and juvenile migration. Provide pump screens to landowners on a voluntary basis (ODFW 93606600).

Action 3b.4: Operate and maintain screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs diversions. Project 8343600 funds on-going screens & ladder O/M.

Action 3b.5: When flows in the Umatilla River are inadequate to provide passage project 8802200 funds on-going trap-and-haul operations to move adults and juveniles around thermal/low flow blocks. Project also provides oversight of water exchange project and passage facility operations.

Strategy 3c: Improve riparian vegetation communities and instream fish habitat on the middle and lower mainstem Umatilla River.

Action 3c.1: No current activities. Actions taken on upper mainstem and tributary habitats should derive benefits on the lower mainstem. Lower mainstem is a difficult and risky area to implement habitat improvements.

Strategy 3d: Restore production through releases of hatchery reared smolts.

Action 3d.1: Collect, hold and spawn fall chinook brood stock at the Three Mile Dam (CTUIR 8343500, CTUIR 8802200).

Action 3d.2: Incubate eggs and rear fall chinook juveniles at Umatilla Hatchery and Little White Salmon Hatchery (ODFW 8903500).

Action 3d.3: Acclimate and release approximately 3,162,000 fall chinook yearlings and sub-yearlings from Imeques c-mem-ini-kem and Thorn Hollow fish acclimation facilities (ODFW 8903500 and CTUIR 8343500).

Strategy 3e: Evaluate the effectiveness of current management programs.

Action 3e.1: Monitor and evaluate the outmigration and survival of natural and hatchery produced smolts in the Umatilla subbasin (ODFW 8902401).

Action 3e.2: Monitor operation of screens and ladders, and juvenile and adult passage CTUIR 8902401.

Action 3e.3: Monitor releases of fall chinook reared at Umatilla Hatchery to determine pre-release condition, egg to smolt survival, smolt to adult survival, catch and escapement of adults and cost of rearing. Evaluate effectiveness of hatchery program in meeting stated objective and provide recommendations for improvement (ODFW 9000500).

Action 3e.4: Monitor fish health of hatchery reared fall chinook and recommend treatment (ODFW 9000500).

Strategy 4a: Improve flows in the Umatilla mainstem.

Action 4a.1: Exchange West Extension Irrigation District withdrawal at Three Mile Dam with Columbia River water delivered by siphon, allowing formerly diverted flows to remain instream below Three Mile Dam (Columbia River Pumping Plan - Phase I).

Status: Construction complete; O/M on-going. Bureau of Reclamation constructed siphon with appropriated funds; completed in FY 1993. Operating costs funded by BPA (8805000 & 8902700).

Action 4a.2: Exchange mainstem Umatilla water withdrawal at Stanfield Irrigation District and U. S. Feed Canal Diversion with water pumped from the Columbia River allowing formerly diverted flows to remain in the Umatilla (Columbia River Pumping Plan - Phase II).

Status: Construction complete; O/M on-going. Pumping station built with appropriated funds; completed in FY 1994. BPA funds operating costs (8902700).

Strategy 4b: Improve upstream/downstream passage at Umatilla River mainstem diversions.

Action 4b.1: Improve passage through bedrock channel below Three Mile Dam. BPA funded COE to blast a channel below Three Mile Dam to concentrate the little remaining instream flows.

Action 4b.2: Construct new state-of-the-art screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs, and other diversions. Completed with BPA funds.

Action 4b.3: Remove gravel-push-up diversions and convert to pumps to remove barriers to adult and juvenile migration. Provide pump screens to landowners on a voluntary basis (ODFW 93606600).

Action 4b.4: Operate and maintain screens and ladders at Stanfield, Maxwell, Three Mile, Westland, Feed/Cold Springs diversions. Project 8343600 funds on-going screens & ladder O/M.

Action 4b.5: When flows in the Umatilla River are inadequate to provide passage project 8802200 funds on-going trap-and-haul operations to move adults and juveniles around thermal/low flow blocks. Project also provides oversight of water exchange project and passage facility operations.

Strategy 4c: Improve riparian vegetation communities and instream fish habitat on the middle and lower mainstem Umatilla River.

Action 4c.1: No current activities. Actions taken on upper mainstem and tributary habitats should derive benefits on the lower mainstem. Lower mainstem is a difficult and risky area to implement habitat improvements.

Strategy 4d: Restore production through releases of hatchery reared smolts.

Action 4d.1: Collect, hold and spawn coho broodstock at Cascade and Oxbow hatcheries.

Action 4d.2: Incubate eggs and rear coho juveniles at Cascade and Oxbow hatcheries.

Action 4d.3: Acclimate and release approximately 1,500,000 coho smolts in the Umatilla River.

Strategy 4e: Evaluate the effectiveness of current management programs.

Action 4e.1: Monitor and evaluate the outmigration and survival of natural and hatchery produced smolts in the Umatilla subbasin (ODFW 8902401).

Action 4e.2: Monitor operation of screens and ladders, and juvenile and adult passage CTUIR 8902401.

g. Facilities and equipment

N/A

h. Budget

N/A

Section 9. Key personnel

N/A

Section 10. Information/technology transfer

The results of each BPA funded project are reported in annual reports and published journal articles.

Coordination of efforts between FWP projects is accomplished through monthly meetings of the Umatilla Management/Monitoring and Evaluation oversight committee. Fish passage technical work group meetings are held as needed to address mainstem passage issues. A review of information gathered from completed and on-going monitoring and evaluation projects was held in January 1998 to facilitate sharing of information, discussion of accomplishments and problems and to set in motion processes for dealing with identified problems.

Fishery program staff attend monthly River Operation Group meetings to coordinate passage facility O & M issues, water exchange project O & M issues and to provide fisheries information to irrigation district managers so they are prepared to appropriately manage their diversion facilities when large releases of smolts are made. The Umatilla River Fish Passage Operations Project (8802200) is in daily contact with irrigation districts, BOR and OWRD to oversee passage facilities and the water exchange project.

Various fishery program staff attend meetings of Soil and Water Conservation Districts, Watershed Councils, Resource Conservation and Development Councils, County Planning Departments and other groups to coordinate on-going fishery restoration activities in the basin.

Congratulations!