

MAINSTEM, MIDDLE FORK, AND N. FORK JOHN DAY RIVER FISH HABITAT ENHANCEMENT

8402100

SHORT DESCRIPTION:

Improve the quantity and quality of spawning and rearing habitat available for salmon and steelhead through fish passage, riparian fencing, planting, etc. on private lands within the John Day subbasin.

SPONSOR/CONTRACTOR: ODFW

Oregon Department of Fish and Wildlife
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SUB-CONTRACTORS:

The Grant County Soil and Water Conservation District for construction contract writing, publishing and payment. Data processing, project design assistance and landowner contacts. Various local contractors for fence material delivery, fence construction, equipment rental, log and rock delivery and fish habitat construction activities.

GOALS

GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Provides needed habitat protection

ANADROMOUS FISH:

Habitat or tributary passage

NPPC PROGRAM MEASURE:

7.6, 7.7, 7.8

RELATION TO MEASURE:

This program establishes long term riparian and tributary passage improvement on private lands through riparian leases, cooperative agreements and easements for up to 15 years. Individual projects contribute to ecosystem and basin wide watershed restoration and management efforts that are underway by state, federal and tribal agencies. Project planning and implementation includes the participation and involvement of private landowners, state and federal agencies tribes, model watersheds and watershed councils as called for in measure 7.7 of the Program. The goal is also to rehabilitate and improve anadromous fish spawning, rearing habitat and tributary passage (program measure 7.6) to contribute to the Northwest Power Planning Council's interim goal of doubling anadromous fish runs in the Columbia River basin.

BIOLOGICAL OPINION ID:

N/A

TARGET STOCK

Summer Steelhead

John Day Spring Chinook

LIFE STAGE

All Summer Steelhead freshwater life stages

All Spring Chinook freshwater life stages

MGMT CODE (see below)

W

W

AFFECTED STOCK

Redside Shiner, Northern Squawfish, Speckled Dace
 Westslope Cutthroat Trout, Redband Trout, Pacific Lamprey, Cottids, Neo-Tropical Songbirds, Upland Game Birds, Waterfowl, fish eating birds, Stream dwelling small mammals, Amphibians
 Bull Trout

BENEFIT OR DETRIMENT

Detrimental
 Beneficial
 Beneficial

BACKGROUND

STREAM AREA AFFECTED

LAND AREA INFORMATION

Stream name:

Mainstem, Middle Fork and North Fork and tributaries

Subbasin:

John Day

Stream miles affected:

57.9 miles directly affected as of Jan. 1997. Eight additional miles in 1998 Many more miles of affected water quality and quantity downstream of each project area.

Land ownership:

Private Lands

Hydro project mitigated:

The intent of this project is to provide offsite mitigation for losses of habitat and fish productivity caused by the construction and operation of Bonneville, The Dalles and John Day Dams on the Columbia River.

Acres affected:

1,463 acres directly affected as of Jan. 1997. Forty additional acres in 1998 Many more acres of affected habitat quality and quantity downstream of each project area.

Habitat types:

Spawning, rearing, migration, instream and riparian habitat for fish and Wildlife

HISTORY:

This project is comprised of numerous smaller projects throughout the John Day River subbasin. These projects will provide fish passage and restore degraded instream and riparian habitats. Prior to FY 1995 the program was 100% funded by BPA. In FY 1995 ODFW supplemented BPA funds with about \$71,000 of outside funds (i.e. Restoration and Enhancement, and Acid Spill funds). In 1996 the project was supplemented with \$17,586 from Restoration and Enhancement funds.

BIOLOGICAL RESULTS ACHIEVED:

This project has benefitted wild spring chinook, summer steelhead, bull trout, redband trout, westslope cutthroat and Pacific lamprey by increasing habitat diversity, shade, cover and bank stability and by restoring fish passage. Cattle ranchers and other land users have been informed of the importance of restoring riparian areas. Habitat achievements to date include: 92.6 miles of riparian fencing, 135 livestock watergaps, 57.9 miles of stream with varying quantities of instream structures, construction of two fish passage structures allowing passage to 74 miles of new habitat. 1,442 acres of fenced riparian areas are inspected and treated for noxious weeds as needed. Steelhead redd counts have risen from an average of 3.75 redds per mile in 1990 to 12.3 redds per mile in 1996 in our study stream. Chinook redd counts have risen from an average of 5.6 redds per mile at the start of the project (1986) to 10.6 redds per mile 10 years later (1996). Bird species diversity has risen from 20 species in 1986 to 40 species in 1996.

PROJECT REPORTS AND PAPERS:

Quarterly activity reports and annual progress reports.

ADAPTIVE MANAGEMENT IMPLICATIONS:

Since there is no hatchery stocking of anadromous salmonids in the John Day subbasin the system is totally dependent on habitat quality to sustain its fish runs. Modification/removal of artificial fish passage barriers allows adult and juvenile salmonids better access to preferred habitat at critical times of the year. Enhanced instream diversity results in improved habitat quality and therefore an increase in the carrying capacity of the stream. Increased riparian vegetation results in lower summer stream temperatures and stable stream banks. To date this has been accomplished by stabilizing or establishing streambank vegetation, excluding livestock from riparian areas and creating adult holding pools for anadromous fish.

We have found in the John Day Sub Basin that the exclusion of livestock from riparian areas provides the best form of habitat restoration.

We have tried many styles of fence; electric, smoothwire, barbwire and pole. We have settled on four strand barbed wire as fence of choice.

At the project's initiation three main riparian enhancement strategies were used. Riparian pasture management, intensive vegetation planting and livestock exclusion. Based on our experiences riparian exclusion has required the least amount of effort and obtained the best results given the cattle management strategies used by private landowners in this area.

Our experiences have shown that high elevation riparian areas require much longer recovery periods than low elevation areas. We now inform landowners of what recovery rate to expect.

Our experiences have shown that installing instream structures is not as effective at long term habitat recovery as growing riparian vegetation is. Instream structures only last for a short time and riparian vegetation continues to grow year after year. We now insist landowners allow us to fence any areas where we install instream structures. Originally riparian fences were presumed to require very little maintenance. Our experiences have shown the cattle very frequently get inside our exclusion fences during hot weather and when food is eaten down. We now use weekly airplane flights to find and remove any trespassing cows before they do much damage. Successful vegetative propagation is very dependant on the source of parental plant stock. In the past we have used both local and distant plant stocks and have found local stocks much more likely to become established.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

The program OBJECTIVE is to increase salmonid production by reducing sediment loading and water temperatures, improving riparian habitat, instream habitat diversity, and salmonid access to preferred habitats.

To achieve this objective we will continue fencing riparian areas, planting grasses, forbs, shrubs and trees, adding off-site watering developments and improving instream habitat diversity. We will also inspect, maintain, monitor and evaluate existing projects.

In FY 1997 we will complete a minimum of 2.5 miles of fencing along the upper John Day River. We will also perform routine maintenance on existing projects and provide additional maintenance following severe flooding that occurred in January of 1997. We will also correct any new damages (Wind storms, ice flows etc.), and monitor the effectiveness of completed projects.

CRITICAL UNCERTAINTIES:

It has been identified by CTUIR and others that 542 miles of fish habitat was in poor condition in the John Day subbasin. No hatchery supplementation of anadromous fish occurs here. Therefore the better the quality of our habitat the more likely our fish stocks are to rebound. Recovery of these areas is critical to improving habitat quality. The level of success of our program depends on whether mainstem passage problems, consumptive fisheries or any number of other variables will be addressed thereby assuring maximum returns of adult salmonids back to the John Day subbasin so that they and their progeny can take full advantage of the enhanced habitat. Floods, windstorms and other natural occurrences can influence project outcome.

BIOLOGICAL NEED:

Low summer stream flows and the associated high water temperatures adversely affect salmonids throughout much of the John Day subbasin. Degradation of riparian areas and their effective hydrologic function has contributed significantly to these flow/temperature problems. In 1984*, 542 miles of degraded stream habitat on private lands within the John Day subbasin were identified as in need of habitat restoration. After eleven years of intensive efforts by ODFW 57.9 miles have been treated.

* CTUIR, 1984, Recommended Salmon and Steelhead habitat improvement measures for the John Day Subbasin.

HYPOTHESIS TO BE TESTED:

Restoring and/or enhancing riparian habitat and instream habitat diversity will result in improved quantity and quality of salmonid spawning and rearing habitat and the fish's access to it.

ALTERNATIVE APPROACHES:

Hatchery supplementation was dismissed as an option for increasing salmon and steelhead numbers in the basin back in the 1970's. Habitat enhancement is now the only option for increasing populations.

JUSTIFICATION FOR PLANNING:

N/A

METHODS:

- Control livestock utilization of riparian area by: a) fencing riparian areas to exclude grazing and b) developing off-site water sources to attract livestock away from riparian areas.
- Revegetate riparian areas by: a) planting shrubs and trees, b) seeding grasses into riparian areas and c) controlling noxious

weeds within riparian areas.

- Improve streambank stability and instream habitat diversity by: a) using bioengineering techniques to stabilize streambanks and provide grade control and b) installing large wood and/or boulders inchannel to increase habitat diversity.
- Improve fish access to preferred habitat by modifying or removing fish passage barriers.
- Project has been implemented by treating 2 to 10 miles of stream per year and maintaining these treatments for 15 years. Maintenance now totals 57.9 miles of stream.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase **Start** 1984 **End** Ongoing **Subcontractor**

Task For FY 1997 we will continue to talk to new landowners, coordinate with other agencies and implement new projects as opportunities arise and continue all maintenance and monitoring activities. For FY 1998 through FY 2001 we will continue to implement new projects as opportunities arise and perform all scheduled maintenance and monitoring activities.

Implementation Phase **Start** Ongoing **End** Ongoing **Subcontractor**

Task For 1998 and beyond we will continue to work cooperatively with landowners to implement new habitat enhancement projects as opportunities arise and attempt to implement flood damage repairs to our existing projects. In addition we will carry out all scheduled maintenance and monitoring activities.

O&M Phase **Start** Ongoing **End** Ongoing **Subcontractor**

Task For FY 1998 and beyond we will continue to provide /conduct scheduled operation and maintenance activities on all existing projects.

PROJECT COMPLETION DATE:

Program should continue until all 542 miles of poor condition fish habitat identified in CTUIR 1984 is in a recovering condition.

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

- Potential for reduced benefits from completed projects due to catastrophic natural events (e.g. floods, wind storms etc.).
- Change of landownership and the level of commitment to the project by the new landowner.
- Potential for reduced benefits from changes in local land use laws, increased flood plain development, and a weakening of environmental regulations that protect fish habitat.
- Potential for reduced benefits from not procuring funds needed for project maintenance.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:

Improvement of the quantity and quality of spawning and rearing habitat for spring chinook and summer steelhead will result from implementation of planned habitat enhancement activities.

Present utilization and conservation potential of target population or area:

Present utilization of spring chinook is in ocean fisheries or by limited tribal harvest. No angler harvest occurs in river at this time. Present utilization of summer steelhead is in ocean harvest, Columbia river sport and tribal harvest and in river sport and tribal harvests. In river harvest averages about one thousand steelhead per year. A lack of knowledge and funds have held conservation potential well below its optimum levels.

Assumed historic status of utilization and conservation potential:

More than at present

Long term expected utilization and conservation potential for target population or habitat:

To double target populations which will allow a stable and productive anadromous fishery in the Mainstem John Day River every year.

Contribution toward long-term goal:

The doubling of spring chinook and summer steelhead numbers will not be possible in this basin without a substantial improvement in habitat quality. The John Day is a wild fish only system. No hatchery supplementation will occur. This project can provide the needed improvement in habitat quality.

Indirect biological or environmental changes:

Lower water temperatures, increased summer streamflows, stable streambanks, improved habitat for other water dependant organisms.

Physical products:

In 1988 we intend to fence an additional 10 miles of stream and continue to maintain existing projects.

Environmental attributes affected by the project:

As the projects grow and develop, riparian vegetation is beginning to shade the stream, filter sediment from overland runoff, provide allochthonous input(s) to the stream ecosystem, reduce the negative impacts of flooding, improve landscape aesthetics increase habitat diversity, lower water temperatures, increase summer streamflows, stabilize streambanks and improve habitat for other water dependant organisms.

Changes assumed or expected for affected environmental attributes:

By protecting these areas from intensive land uses (15 year minimum), attributes will become more and more pronounced as time goes on by allowing plant communities inside the fences areas to succeed to a climax plant community Fenced areas will continue to produce these attributes until fence maintenance ceases.

Measure of attribute changes:

Sedimentation or number of habitat units has not been quantified for this project.

Assessment of effects on project outcomes of critical uncertainty:

By continuing to count returning adult salmon and steelhead to the treated reaches, by monitoring vegetative recovery through transects and photopoints and by looking for techniques to improve restoration rates.

Information products:

Repeated photopoints showing the rate of riparian recovery in one year increments. Stream temperature and cross sectional profile responses to riparian recovery. This information is reported in quarterly and annual reports.

Coordination outcomes:

In planning and implementation, coordination occurs with DSL, DEQ, tribal and federal agencies and watershed councils. This assures a good understanding among all parties of what the limiting factors/needs of the target species are.

MONITORING APPROACH

- Measure fish access above project fish ladders using redd counts and juvenile population counts.
- Measure streambank vegetative recovery using stream transects and yearly photopoints.

Provisions to monitor population status or habitat quality:

- Measure stream temperature changes with hydro thermo graphs.
- Measure adult returns of salmon and steelhead using redd counts.

Data analysis and evaluation:

By comparing yearly measurements to pretreatment baseline and/or benchmark measurements.

Information feed back to management decisions:

Through the Quarterly and Annual reporting process. Through annual meetings and information exchanges.

Critical uncertainties affecting project's outcomes:

Fish habitat improvement projects should have a research and development section devoted just to them.

EVALUATION

By establishing a program that answers specific questions about overall project performance such as:

1. Are the riparian areas under management re-establishing key riparian vegetative components conducive to creating optimal fish habitat characteristics?
2. Are water quality and quantity parameters being improved?
3. Are target species populations increasing?

These questions can be answered by:

- repeated photopoints from within treated areas.
- Stream temperature monitoring upstream and downstream of treated areas.
- Yearly steelhead and chinook redd counts in selected areas.
- Yearly smolt run size estimates

Incorporating new information regarding uncertainties:

Since our projects are multiyear coop agreements we can always reenter a leased area to incorporate new technology.

Increasing public awareness of F&W activities:

- By working cooperatively with private landowners to improve conditions on their lands.
- By publicizing the results of monitoring and evaluation activities.

RELATIONSHIPS

RELATED BPA PROJECT

RELATIONSHIP

9303800 North Fork John Day Fish Habitat Improvement.
U.S.F.S.

8710002 Umatilla Habitat Enhancement project.

9306600 Oregon Fish Screening program.

This project provides passage protection for downstream anadromous fish migrants in the John Day basin.

8400800 North Fork John Day Fish Habitat Improvement.
U.S.F.S.

These projects focus on riparian and instream habitat enhancement as a means of improving the quality and quantity of salmonid spawning and/or rearing habitats on Forest Service lands.

8710001 CTUIR Habitat Enhancement Project.

This project addresses watershed, riparian, and instream habitat diversity and fish passage as a means of improving salmonid spawning and rearing habitat on the Umatilla River tribal lands.

8402500 Grande Ronde Habitat Enhancement project.

These projects focus on riparian and instream habitat enhancement as a means of improving the quality and quantity of salmonid spawning and/or rearing habitats on Private lands.

RELATED NON-BPA PROJECT

RELATIONSHIP

Mitchell Act program (Columbia River Fisheries Development Program) John Day Acid Spill Fund Grant
 County Soil and Water Conservation District/Bureau of Reclamation Monument High School's Stream Enhancement Team/Various funding sources Malheur National Forest Fish Enhancement Project/BPA, KV funds
 The Nature Conservancy Trout Unlimited, Pendleton Chapter Bureau of Land Management, Prineville District Oregon Restoration and Enhancement Fund

Provides protection of upstream and downstream migrating anadromous fish. Provides funds for fish habitat improvement projects Improve fish passage and fish habitat in the John Day basin Monitor stream enhancement projects throughout the John Day basin Improve fish habitat on forest service lands Partners in restoration of the Middle Fork Dunstan Ranch Improve fish habitat using volunteer labor Improve fish habitat on BLM lands

Provides funds for fish habitat improvement projects

OPPORTUNITIES FOR COOPERATION:

The success of this project depends on forming cooperative agreements with private landowners, local high schools, volunteer groups, conservation groups, local planning departments, city concils and private industry. Recent development of the North Fork John Day watershed council should facilitate relationships with natural resource users in the basin. All basin fish habitat projects are coordinated through the John Day Fish Habitat Implementation Plan written in 1985. Yearly cooperative agreements are signed with the Grant Soil and Water Conservation District Monument High School students volunteer their services to the project Cooperation from state and federal agencies (e.g. COE, DEQ, DSL, WRD, etc.) and their respective permitting/waiver processes.

COSTS AND FTE

1997 Planned: \$315,000

FUTURE FUNDING NEEDS:

PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>	<u>FY</u>	<u>OBLIGATED</u>
1998	\$380,000	10%	30%	60%	1984	\$149,656
1999	\$395,000	10%	30%	60%	1985	\$527,940
2000	\$410,000	10%	30%	60%	1986	\$467,898
2001	\$425,000	10%	30%	60%	1987	\$475,994
					1988	\$371,483
					1989	\$224,890
					1990	\$248,014
					1991	\$359,281
					1992	\$279,449
					1993	\$238,352
					1994	\$207,122
					1995	\$289,963
					1996	\$295,106
					1997	\$349,751

TOTAL: \$4,484,899

Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects.

<u>FY</u>	<u>OTHER FUNDING SOURCE</u>	<u>AMOUNT</u>	<u>IN-KIND VALUE</u>
1998	Oregon Restoration and Enhancement fund John Day Acid Spill Fund	\$20,000	\$15,000
1999	Oregon Restoration and Enhancement fund John Day Acid Spill Fund	\$20,000	\$15,000
2000	Oregon Restoration and Enhancement fund John Day Acid Spill Fund	\$20,000	\$15,000

2001	Oregon Restoration and Enhancement fund John Day Acid Spill Fund	\$35,000	\$15,000
2002	Oregon Restoration and Enhancement fund John Day Acid Spill Fund	\$40,000	\$15,000

OTHER NON-FINANCIAL SUPPORTERS:

Monument High School stream enhancement team. Private landowners of the John Day River.

LONGER TERM COSTS: \$300,000 per year for Operations and Maintenance and \$125,000 per year for Implementatio
O&M costs will continue until 15 years after the last agreement is signed with a private landowner.

1997 OVERHEAD PERCENT: 20.5%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

Only to a portion. Personal Services and Supplies but not Capital Outlay or Contractual Services.

CONTRACTOR FTE: 3 FTE's

SUBCONTRACTOR FTE:

1/6th FTE for the Grant Soil and Water Conservation District. Fence and Instream construction personnel are employed on a per mile or hourly basis on contract.