

YAKIMA RIVER FALL CHINOOK SUPPLEMENTATION

9603301

SHORT DESCRIPTION:

Supplement the populations of naturally spawning fall chinook in the Yakima River basin by trapping adult fall chinook at Prosser Dam and Marion Drain and utilizing the Prosser Hatchery for adult holding, spawning, egg incubation, and early rearing, then acclimating and releasing smolts at selected sites in Marion Drain and the lower Yakima River.

SPONSOR/CONTRACTOR: YIN

Yakama Indian Nation

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SUB-CONTRACTORS:

Sea Springs, Blue Fox Construction, White Eagle

Construction, HCI Steel Building Systems Inc., U.S.F.W.S,

B.O.R, W.D.F.W

GOALS

GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Adaptive management (research or M&E), Program coordination or planning, Basinwide, Education

ANADROMOUS FISH:

Production, O&M, Research, M&E

NPPC PROGRAM MEASURE:

7.3B;7.4A;7.40.1

RELATION TO MEASURE:

Project identified by U.S. v. Oregon Policy Committee as 1 of 15 high priority supplementation projects. This project involves implementation of new production initiatives using " low-capitol techniques, acclimation and conversion of existing artificial production facilities to address the needs of weak stocks".

OTHER PLANNING DOCUMENTS:

This project is specifically identified in Wy-Kan-Ush-Mi-Wa-Kish-Wit in Subbasin Plans, Yakima River, Recommended Actions for The Yakima River System, (9b) Fall Chinook

TARGET STOCK

Marion Drain fall chinook

Yakima River fall chinook

LIFE STAGE

Adult/egg/juvenile

Adult/egg/juvenile

MGMT CODE (see below)

S, W, N

S, W, N

AFFECTED STOCK

Competitors

Predators, Pathogens, Mutualists

BENEFIT OR DETRIMENT

Beneficial

BACKGROUND

Stream name:

Yakima River/Marion Drain

Stream miles affected:

80

LAND AREA INFORMATION

Subbasin:

Yakima River

Land ownership:

Tribal, State, Private, Federal

Acres affected:

7

ADAPTIVE MANAGEMENT IMPLICATIONS:

By experimenting with releases at different life stages, release locations, acclimation pond/ raceway design, more knowledge will be gained about which life stage (adult vs. egg vs. juvenile) best achieves enhancement/ restoration goals, the benefits of acclimation and what low capitol, low tech design produces the best quality smolt, the rearing of hatchery-influenced fish in more natural environments. This knowledge will help the region to make better decisions about how best to implement supplementation to further rebuilding goals throughout the Columbia River basin.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

Restore the numbers of returning fall chinook in the Yakima River and Marion Drain to levels of abundance and productivity sufficient to support sustainable annual harvests by tribal and other fishers within a decade. This natural stock supplementation project will be scientifically supported through an evaluation program. The goal of the supplementation program is the rehabilitation of two weak wild and natural spawning populations.

CRITICAL UNCERTAINTIES:

This project will follow the principles of supplementation as discussed in Cuenco et al (1993), "The use of Supplementation to aid in Natural Stock Restoration". Data on Yakima River spring chinook suggest egg-to-smolt survival rates for wild fish of 2.5% compared to the expected 75% survival in this proposed hatchery supplementation program.

BIOLOGICAL NEED:

The Marion Drain sub-stock has been discussed in most all production forums (PAC especially) as unique yet badly depressed. Both sub-stocks (Marion Drain and Yakima River) have been identified by YKFP scientific and policy managers as in need of supplementation. Marion Drain has averaged 36 fall chinook redds since 1991. The total number of adult fall chinook returning to the Yakima River has averaged about 1,150 fish since 1991. The Yakama Nation has identified a goal for the Yakima River of 4,700 returning fall chinook adults.

JUSTIFICATION FOR PLANNING:

N/A

METHODS:

The project is located in Yakima and Benton counties, Washington State. Two depressed fall chinook sub-stocks have been identified as genetically unique in the Yakima River basin. Supplementation will occur by trapping adults returning to Marion Drain at an existing ladder and the lower Yakima River sub-stock at the Prosser Dam adult trap, spawning those adults separately, and acclimating/releasing the smolts at sites on the Drain and on the lower Yakima River. Initially, Prosser Hatchery will be used for egg incubation, early rearing, adult holding and spawning. A hatchery will be built on Marion Drain to accommodate all aspects of fish propagation for the Marion Drain sub-stock in 1997-1998. A phased approach is proposed to fully test all facilities and methods while the sub-stocks are being supplemented. Facilities will be designed to ultimately produce 300,000 Marion Drain smolts per year and 700,000 lower Yakima River smolts per year.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase	Start 7/96	End 12/99	Subcontractor Sea Springs Co.
Task Final design of Prosser and Marion Drain facilities, develop M/E program			
Implementation Phase	Start 9/96	End 4/00	Subcontractor Blue Fox Const. & White Eagle Const. , BOR
Task Construction of facilities, implement M/E program			
O&M Phase	Start 7/97	End 2015	Subcontractor
Task Operate and maintain above program and facilities, monitor M/E program			

PROJECT COMPLETION DATE:

Indefinite, depends on results from M/E program

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

Since this project is federally funded, it will have to conform to the guidelines of NEPA, BPA environmental analysis department has initially determined that this project qualifies as experimental with regards to supplementation and therefore qualifies for a “categorical exclusion”. However, as the project becomes more fully implemented, an Environmental Analysis will be completed. This analysis has already begun in anticipation of its need for completion in the next year or so. For hatchery and acclimation site development, the Yakama Indian Nation has obtained the necessary environmental permits including HPAs, water rights, shoreline development, wetlands, etc. The Yakama Indian Nation has identified more than enough sites for their project that have cooperative landowners. In general, there are no foreseen constraints that may cause this project to be delayed.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

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

The Prosser Hatchery is cooperatively operated and maintained by the Yakama Indian Nation and Bureau of Reclamation. Both entities have contributed to construction and operation of the facility. NMFS's Mitchell Act funds have been the main funding source for acclimation of 1.7 million fall chinook at the facility from a lower river hatchery. Benefits should be visible with the first adult returning generations from supplemented fish. The ultimate outcome will be restoration of the two Yakima River sub-stocks to levels that are self -sustaining and allow a tribal/ non-tribal harvest.

Present utilization and conservation potential of target population or area:

Because these two sub-stocks are depressed, the potential for enhancement is high. Marion Drain has been documented as very depressed, identified as unique, and in need of immediate protection and restoration.

Assumed historic status of utilization and conservation potential:

N/A

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

The expected utilization is to enhance the Yakima River fall chinook populations to levels of abundance and productivity sufficient to support sustainable annual harvests by tribal and other fishers.

Contribution toward long-term goal:

This project will provide hatchery supplemented fish to enhance both sub-stocks population sizes.

Indirect biological or environmental changes:

Increase productivity of the entire basin from additional salmonid production. Increase in watershed nutrient level from spawned out fall chinook carcasses.

Physical products:

Number of tagged fish will depend on finalization of M&E goals. Land acquisition (two- three acres/ site) will be needed for hatchery and acclimation facilities.

Environmental attributes affected by the project:

N/A

Changes assumed or expected for affected environmental attributes:

N/A

Measure of attribute changes:

N/A

Assessment of effects on project outcomes of critical uncertainty:

By data collection of tagged fish both juveniles and adults we will be able to assess the use of in- basin brood stock in a supplementation program to enhance the two Yakima River fall chinook populations.

Information products:

The information collected will evaluate the benefits of acclimation, juvenile survival vs. water quality in the migration corridor during smoltification, adult trapping in small tributaries, supplementation potential of depressed fall chinook populations.

Coordination outcomes:

Outcomes will be coordinated with WDFW and other resource managers through the PAC.

MONITORING APPROACH

The project is located in Yakima and Benton counties, Washington State. Two depressed fall chinook sub-stocks have been identified as genetically unique in the Yakima River basin. Supplementation will occur by trapping adults returning to Marion Drain at an existing ladder and the lower Yakima River sub-stock at the Prosser Dam adult trap, spawning those adults separately, and acclimating/releasing the smolts at sites on the Drain and on the lower Yakima River. Prosser Hatchery will be used for egg incubation, early rearing, adult holding and spawning. A phased approach is proposed to fully test all facilities and methods while the sub-stocks are being supplemented. Facilities will be designed to ultimately produce 300,000 Marion Drain smolts per year and 700,000 lower Yakima River smolts per year.

Provisions to monitor population status or habitat quality:

In 1997, a detailed Monitoring/ Evaluation plan for the two Yakima River sub-stocks is being developed by the Yakama Indian Nation and the Washington Department of Fish and Wildlife. This plan will be an adaptive document and will serve as a base M&E plan for future years. It will be reviewed annually and updated or modified as necessary to achieve enhancement goals. It will be coordinated with supplementation research developed by the Yakima/ Klickitat Fisheries Project.

Data analysis and evaluation:

Juvenile and adult survival results by CWT interception plus reproductive success by spawning ground surveys. Traps will provide data on levels of risk from predators on the potential success of the project.

Information feed back to management decisions:

Through U.S. v. Oregon Production Advisory Committee and Policy Committee. The Yakama Nation Fish and Wildlife Committee will be informed continually of project results.

Critical uncertainties affecting project's outcomes:

This project has the advantage of being located in the Yakima River Basin, the site of a major supplementation research effort under the YKFP. Results from their test and hypothesis will be considered and incorporated as deemed appropriate.

EVALUATION

Increased fall chinook escapement to Yakima River Basin. Improve smolt to smolt survival from release as measured at Prosser and Mc Nary Dam. Enhanced Columbia River fall chinook runs resulting in increased tributary, Zones 1-6, and ocean harvest.

Increasing public awareness of F&W activities:

Through the Fisheries Resource Management's Department of the YIN's public informations specialist Carol Craig. She is responsible for coordinating FRM project development with NPPC, BPA, local interest groups and the media.

RELATIONSHIPS

RELATED BPA PROJECT

9506402
9006300
8812004

RELATIONSHIP

Yakima Species Interaction Studies.
Develop and test M/E plans for Y/KFP
Training Assistance for Personnel for Y/KFP needs.

RELATED NON-BPA PROJECT

Fall Chinook Acclimation/ NMFS

RELATIONSHIP

Tribal Hatchery/ YIN Tribal Hatchery/ BOR

OPPORTUNITIES FOR COOPERATION:

The project is consistent with the rebuilding directives in the Northwest Power Act (Measure 7.3B), U.S. versus Oregon Management Agreement (Section III.D.4 of the Columbia River Fish Management Plan), and the Yakima River Sub-basin Plan. It has been coordinated with the YKFP for consistency of goals and has full support of the Washington Department of Fish and Wildlife.

COSTS AND FTE

1997 Planned: \$660,800

FUTURE FUNDING NEEDS:

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>
1998	\$650,000	20%	60%	20%
1999	\$739,200	20%	60%	20%
2000	\$790,720	10%	50%	40%
2001	\$838,880	5%	30%	65%
2002	\$820,000	5%	30%	65%

PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	<u>OBLIGATED</u>
1996	\$317,219
TOTAL:	\$317,219

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	Mitchell Act YIN	\$99,000	
1999	Mitchell Act YIN	\$99,000	
2000	Mitchell Act YIN	\$99,000	
2001	Mitchell Act YIN	\$99,000	
2002	Mitchell Act YIN	\$99,000	

OTHER NON-FINANCIAL SUPPORTERS:

BOR, WDFW

LONGER TERM COSTS: \$820,000

This will mainly be used for operation and maintenance.

1997 OVERHEAD PERCENT: 26.6% of base

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

Applies to all direct costs.

CONTRACTOR FTE: 10

SUBCONTRACTOR FTE: 2
