

TEANAWAY RIVER INSTREAM FLOW RESTORATION

9704900

SHORT DESCRIPTION:

Improve instream flows in the Teanaway River through purchase of land and water rights, and through funding water conservation projects.

SPONSOR/CONTRACTOR: YIN

Yakama Indian Nation

Lynn Hatcher, Program manager

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SUB-CONTRACTORS:

TBD

GOALS

GENERAL:

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

ANADROMOUS FISH:

Habitat or tributary passage

NPPC PROGRAM MEASURE:

no response

RELATION TO MEASURE:

7.11C; 7.7;7.8G;7.8H; 7.1.. The project is aimed at providing adequate upstream passage for spring chinook salmon and improved rearing habitat for steelhead, and spring chinook in the Teanaway River, a major tributary to the Yakima River. The Yakima Fisheries Project includes acclimation and release of spring chinook into the Teanaway. Instream flows will be improved through a combination of water purchases and improved irrigation diversion and transportation systems.

TARGET STOCK

Steelhead

Spring chinook salmon

LIFE STAGE

Fry through fall parr, smolt to smolt

Adult migrant, spawning, early incubation, fry through fall parr , smolt to smolt

MGMT CODE (see below)

N

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AFFECTED STOCK

Westslope cutthroat

Resident rainbow trout

BENEFIT OR DETRIMENT

Beneficial

Beneficial

BACKGROUND

Stream name:

Teanaway River

Subbasin:

Yakima

Land ownership:

Private

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

The project objective is to reestablish a Teanaway River spring chinook run of up to 4,000 adults, which was the estimated run size before 1910. The planned Teanaway spring chinook acclimation facility would help accelerate achievement of this goal. Specifically, the project would remove the major transportation obstacle for spring chinook, and increase the quantity and quality of juvenile spring chinook and summer steelhead rearing habitat. The sub-objective of the project is to increase flows in the lower Teanaway River by up to 20 cubic feet per second

CRITICAL UNCERTAINTIES:

Two risks have been identified, however neither is thought to be significant.. The first risk is that we will not be able to entice enough water right holders to participate in the program to sufficiently improve flows. Given the interest already shown by water right holders, it does not appear that this risk will materialize. The second risk is that fish populations will respond neither to the increased rearing habitat nor the improved migration flows. This risk too is thought to be remote as experience has shown that fish are sufficiently opportunistic to attempt to exploit any available suitable habitat. In 1996, in spite of a lower than average spring chinook escapement, three spring chinook redds were constructed in the Teanaway. higher than average flows in 1996 made this unusual event possible.

BIOLOGICAL NEED:

The Teanaway River was once a significant production area for Yakima spring chinook, steelhead and coho salmon. Low summer and fall flows in the lower mainstem block access to good spawning and rearing habitat upstream from the irrigated area, and render rearing habitat within the affected reach essentially useless. The Yakima Fisheries Project objective of increased natural production of spring chinook will be less difficult to meet when obstacles to utilization of spawning and rearing habitat are removed. Moreover, irrigation withdrawals significantly reduce summer rearing habitat conditions in the lower ten miles of the river. The proposed measures will substantially increase habitat connectivity in the upper Yakima river basin.

ALTERNATIVE APPROACHES:

The Yakama Indian Nation could assert that its reserved water rights for instream flows supersede all state issued rights. If that effort were successful, diversions occurring pursuant to state issued rights would be ceased, thereby increasing stream flows by a greater amount than the subject proposal. However, it would take years and enormous litigation costs to get that matter resolved. Other legal, and equally dubious and expensive approaches are also possible. The subject proposal was selected as it offers swiftest and most probable means of achieving the desired flow improvement.

METHODS:

The project consists of implementing several different approaches to water conservation. Funds will be used to buy land with associated water rights, buy water rights, and pressurize and/or pipe existing inefficient gravity delivery systems. Few of the landowners contacted are willing to sell their land at the present time. Several land owners are willing to sell their water rights, however and negotiations are under way with them currently. One of the projects identified involves constructing a pumping plant at river mile 1.1 to replace an existing gravity diversion (approximately 10 cfs) and cal at river mile 4. That project will eliminate leakage losses and leave the saved water in stream for an additional 3 miles. Other similar projects are also being developed.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase	Start a. begun; b. begun; c. june 97d. October 97	End a. Sept. 97; b. Apr. 98; c. Dec. 97; d.. Sept. 98	Subcontractor CH2MHill, TBD
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Task a. 1997: Map irrigation systems and irrigated lands. Begin appraisal process, and begin acquiring land and water rights. b. 1998- Conclude acquisition process. c. 1997: Finalize design for Masterson pumping plant d. 1998 - Finalize design for other pumping plants

Implementation Phase	Start a. Oct. 97; b. Oct. 98	End a. Apr. 98; Apr. 99	Subcontractor TBD
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Task a. Construct Masterson pumping; b. Construct other conservation projects

PROJECT COMPLETION DATE:

May 1999

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

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

We expect a return of up to 4,000 adult spring chinook, including the contribution from the Teanaway acclimation site. The flow acquisition program is expected to yield up to 20 cfs in stream flow improvement. The project will also end the practice of annual in-channel dozer work.

Present utilization and conservation potential of target population or area:

Spring chinook currently use the Teanaway River only in better water years. The Teanaway currently contributes insignificantly to Yakima River Basin spring chinook production.

Assumed historic status of utilization and conservation potential:

It is believed that the Teanaway produced at least 4,000 spring chinook as well as several thousand coho and steelhead prior to European settlement.

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

4,000 spring chinook. management objectives for steelhead and coho have not been developed.

Indirect biological or environmental changes:

The project will contribute toward a healthier benthos and aquatic community. It should also help restore nearer normal surface and ground water pathways.

Physical products:

Flows in the lower 10 miles of the Teanaway River will be improved by up to 20 cfs over existing conditions.

Environmental attributes affected by the project:

Water quality and quantity will both improve. Water temperatures currently exceed 22 C during the summer months. Flow improvements are expected to lower summer temperatures to less than 19 C.

Changes assumed or expected for affected environmental attributes:

Flow improvements are expected to be immediate. Ecosystem-level recovery to a new state of dynamic equilibrium will take much longer. Macroinvertebrate populations should recover significantly within three to four years and should expand further in response to increasing salmon carcass availability. Fish habitat will increase immediately and productivity levels will follow recovery of lower trophic levels.

Measure of attribute changes:

Flow increase of up to 20 cfs by the end of the 1999 irrigation season.

Assessment of effects on project outcomes of critical uncertainty:

Spring chinook smolt production will be monitored at the Chandler juvenile trap. Spawner surveys will track adult escapements into the Teanaway.

Information products:

The project will result in the dedication, through the state Trust Water Rights Program, certificated instream flow rights of up to 20 cfs. Project efficacy will be indirectly determined through various sub-tasks of the YFP.

MONITORING APPROACH

It will be possible to measure flow increases resulting from the project. The more difficult measures of success will be measured indirectly. Spawner surveys will reveal changes in spawner abundance in the Teanaway, however, it would not be possible to establish a direct correlation between the project and increased fish production. Similarly, smolt production will be monitored at

the Chandler juvenile facility, but it would be extremely difficult to tease out the contribution of the Teanaway to the total. However, if the multiple habitat projects implemented in the Yakima Basin fail to yield detectable increases in smolt production and adult escapements, then we will be forced to rethink our habitat management paradigm.

Provisions to monitor population status or habitat quality:

The Chandler juvenile trap and spawner surveys will provide adequate biological monitoring. Stream flow measurements and diversion metering will monitor water use and flow improvements.

Data analysis and evaluation:

Smolt monitoring and spawner surveys are presented in annual reports prepared by YIN fisheries staff.

Information feed back to management decisions:

If sufficient flow is not provided to allow adult migration in the Teanaway, then additional measures will be required or the acclimation may have to be abandoned. If the flow improvements do not contribute to increased spawner escapements then other habitat restoration tools will have to be implemented, or the Teanaway may have to be dropped from our restoration candidate site list.

Critical uncertainties affecting project's outcomes:

There are a myriad of factors affecting the number of salmon entering the Yakima River Basin. Identifying and gaining a better understanding of the relative importance of all contributing factors would help predict project outcomes.

EVALUATION

The project will increase stream flows. This and other proposed projects should increase spring chinook production in the Yakima River Basin. The subject project further embodies one of the significant challenges confronting salmon managers in the Columbia Basin; reconciling conflict between instream and out of stream water uses. If the project simply clears that hurdle, it will at many scales be successful.

Incorporating new information regarding uncertainties:

If the irrigator's demands get unreasonable then the project will be terminated.

Increasing public awareness of F&W activities:

The project has already received considerable attention in the local press. This is likely to continue.

RELATIONSHIPS

RELATED BPA PROJECT

8812000

RELATIONSHIP

Yakima Natural Production and Enhancement: The proposal would increase the effectiveness of the Yakima Fisheries Project by providing additional passage and rearing habitat for spring chinook and summer steelhead. A spring chinook acclimation facility is already planned for the Teanaway River.

RELATED NON-BPA PROJECT

USBOR, Yakima River Basin Water Enhancement Program

RELATIONSHIP

USBOR has leased water rights from some water right holders to help improve Teanaway River Flows. Additional money may be available to secure additional water rights

OPPORTUNITIES FOR COOPERATION:

As mentioned in previous table, YRBWEP money may be available to increase the magnitude of the effort.

COSTS AND FTE

1997 Planned: \$1,700,000

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>
1998	\$1,680,000			
1999	\$775,000			

<u>FY</u>	<u>OTHER FUNDING SOURCE</u>	<u>AMOUNT</u>	<u>IN-KIND</u>	<u>VALUE</u>
1998	USBOR	100,000	40,000	

OTHER NON-FINANCIAL SUPPORTERS:

USBOR, Washington Department of Fish and Wildlife, Washington Department of Ecology.

1997 OVERHEAD PERCENT: 26.8%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

Percentage applies to contract oversight costs, excluding capital equipment

CONTRACTOR FTE: none

SUBCONTRACTOR FTE:

TBD. Contractor will provide approximately 0.5 engineer fte with office support staff, and a temporary labor force of two or three heavy equipment operators and three laborers.