

# UPPER KLICKITAT MEADOW AND CROSSING REHABILITATION.

9705400

## SHORT DESCRIPTION:

This project will increase fish habitat by restoring the function of riparian meadows and restoring accessibility of fish habitat above road crossings. This project will increase fish habitat by restoring the function of the meadow habitat. Riparian bank stabilization and cattle exclusion fencing will create better pool/riffle habitat, and reduce degradation of the channel. Restoration of fish habitat in the upper Klickitat River will be done by creating pools and providing bank cover in meadow areas mostly by allowing natural processes to take place. Rehabilitation of the upper Klickitat must entail (1) exclusion of cattle, (2) stabilization of streambanks, and (3) making the channel narrower and higher (aggradation) by trapping sediment from upstream. The Yakama Nation has recently adopted a new grazing policy which discontinues grazing within the Klickitat River valley above

## SPONSOR/CONTRACTOR: YIN

Yakama Indian Nation  
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## SUB-CONTRACTORS:

No sub-contractors are currently identified. During the implementation phase, local heavy equipment contractors will be employed to rehabilitate road crossings.

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## GOALS

### GENERAL:

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

### ANADROMOUS FISH:

Habitat or tributary passage

### NPPC PROGRAM MEASURE:

no response

### OTHER PLANNING DOCUMENTS:

Wy Kan Ush Me Wa Kush Wit Vol

### TARGET STOCK

Klickitat River Bull Trout

Klickitat River Resident Rainbow Trout

Klickitat River Steelhead

Klickitat River Spring Chinook

Klickitat River Bull Trout

Klickitat River Resident Rainbow Trout

Klickitat River Spring Chinook

### LIFE STAGE

All

All

Pre-spawning adult through smolt

Pre-spawning adult through smolt

All

All

Pre-spawning adult through smolt

### MGMT CODE (see below)

N,W

N

N,W

S,W

N,W

N

S,W

### AFFECTED STOCK

Klickitat River Westslope Cutthroat Trout

### BENEFIT OR DETRIMENT

Beneficial

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## BACKGROUND

### Stream name:

upper Klickitat mainstem and selected tributaries

### Subbasin:

Klickitat River

### Stream miles affected:

25.4

### Land ownership:

Tribal

### Habitat types:

Riparian, Instream, wet meadow

## HISTORY:

This is considered an ongoing project, although initial funding was postponed until 1998.

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## PURPOSE AND METHODS

### SPECIFIC MEASUREABLE OBJECTIVES:

The project intends to increase population size and productivity (returns or recruits per spawner) of the target species identified above by restoring juvenile rearing habitat in meadow systems and above impassable road crossings. Riparian regrowth will be measured using standardized vegetation surveys, and through photo documentation. The increased pool-riffle ratio can be measured using standardized habitat inventory technique. Aerial photo documentation will also be used to measure the success of the project.

### CRITICAL UNCERTAINTIES:

We anticipate short- and long-term gains in fish production from this project, but the percentage gain and time frame cannot be accurately predicted. The future rate of channel aggradation is unknown, although natural meadow revegetation since cattle were removed from the area is encouraging.

### BIOLOGICAL NEED:

This project will result in better habitat for resident trout (bull, rainbow, ) as well as provide better rearing habitat for outplanted spring chinook and coho, and naturally-produced steelhead. This project is commensurate with BPA's goal of achieving enhancement through off-site mitigation and with salmon recovery for the Columbia River. And its tributaries.

### HYPOTHESIS TO BE TESTED:

(1) Exclusion of cattle, riparian restoration, and instream erosion control measures will arrest channel and riparian degradation, raise the water table and restore function to the wet meadow habitat. (2) Functional and economical stream crossings can be designed that will pass juvenile and adult fish effectively over a wide range of flows.

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## PLANNED ACTIVITIES

### SCHEDULE:

<b>Planning Phase</b>	<b>Start</b> start of 1998 period	<b>End</b> end of 1998 period	<b>Subcontractor</b> may require design assistance for any instream work
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**Task** Site a permanent exclosure fence and cattle guard across the lower end of the valley (mainstem above Diamond Fork), and determine other points where cattle entry must be permanently blocked. Prioritize all crossings in current inventory according to impacts, and begin crossing design for highest-priority crossings in cooperation with BIA Forest Engineer. Create meadow restoration plan.

<b>Implementation Phase</b>	<b>Start</b> middle of 1998 period	<b>End</b> end of 2000 period	<b>Subcontractor</b> Local subcontractor(s) will perform all crossing construction.
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**Task** Install permanent cattle exclosure above the Diamond Fork confluence. Plant local riparian vegetation in meadow reaches to supplement natural propagation, and utilize local materials to trap sediment and slow flow in erosion-prone sections. Install road crossings, beginning with highest-priority crossings.

<b>O&amp;M Phase</b>	<b>Start</b> start of 1999 period	<b>End</b> end of 2000 period	<b>Subcontractor</b>
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**Task** Monitor changes in channel and riparian vegetation, cattle trespass. (Project #9506800 will conduct fish population monitoring and habitat inventory in restored meadows and in vicinity of rehabilitated road crossings beyond the 2001 period.)

### PROJECT COMPLETION DATE:

2000

**CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:**

NEPA and tribal hydraulic code compliance will be coordinated with the Yakama Nation/Yakama Agency interdisciplinary team, and is not expected to cause delays. Adverse weather could alter the implementation schedule.

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**OUTCOMES, MONITORING AND EVALUATION**

**SUMMARY OF EXPECTED OUTCOMES**

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

Increased riparian health and vigor along with more pools will provide an increase in quantity and quality of available rearing habitat. additional spawning habitat for coho and steelhead will also be a result of this project.

**Present utilization and conservation potential of target population or area:**

At present the utilization of Klickitat River spring chinook and steelhead is sport, commercial, ceremonial, and subsistence fisheries. Present utilization of resident fish is recreational fisheries within the Closed Area of the reservation. The conservation potential for all stocks identified is high.

**Assumed historic status of utilization and conservation potential:**

The assumed historic utilization of Klickitat River spring chinook, steelhead and resident fish is ceremonial and subsistence fisheries.

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

Increase natural production of salmonids commensurate with YKFP goals through reconnection, stabilization and restoration of juvenile rearing and adult spawning habitat.

**Contribution toward long-term goal:**

Utilization of the upper Klickitat meadow reaches and tributaries is the basis for a major ongoing adult passage project downstream (Castile Falls)

**Indirect biological or environmental changes:**

The restoration of wet meadow habitat will benefit a variety of wildlife species.

**Physical products:**

Approximately 2 miles of fencing. One cattle guard on the Klickitat River Road. New crossing structures for highest-priority tributary crossings. Local instream materials as needed in 5.4 miles of the upper Klickitat River. Revegetated streambanks in the same reach, and in vicinity of crossing construction.

**Environmental attributes affected by the project:**

Water temperature, downstream flow, downstream sedimentation.

**Changes assumed or expected for affected environmental attributes:**

A rowler channel with overhanging vegetation will be less vulnerable to wide fluctuations in temperature, creating better fish habitat. Flow conditions downstream should improve as flow is slowed in project reaches. Any increase in hydraulic capacities of road crossings should decrease scouring and downstream sediment deposition.

**Measure of attribute changes:**

Parameters in "H" above are significant but difficult to quantify in a project of this scope.

**Assessment of effects on project outcomes of critical uncertainty:**

The ongoing Klickitat Passage/Habitat Preliminary Design Project (#9506800) has a monitoring and evaluation component that is already collecting baseline data and will assess the biological responses to this project.

**Information products:**

(See above)

**MONITORING APPROACH**

**Provisions to monitor population status or habitat quality:**

(See above)

**Data analysis and evaluation:**

(See above)

**Information feed back to management decisions:**

This project has a short duration whereas monitoring may result in conclusions only over the long term. Such conclusions would influence other projects.

**Critical uncertainties affecting project's outcomes:**

Only through monitoring beyond the life of the project (which is anticipated).

**EVALUATION**

The condition of riparian vegetation will be easy to assess. Standard protocols are in use for making inventories of stream features usable to fish. The monitoring program envisioned under YKFP will be capable of assessing changes in size and productivity of target fish populations.

**Incorporating new information regarding uncertainties:**

Adaptive management is the cornerstone of the overall fisheries enhancement program for the Klickitat Subbasin.

**Increasing public awareness of F&W activities:**

Although the project is located in an area closed to the public, it is expected to contribute to fisheries resources used by people from a wide area of the Northwest. The Yakama Indian Nation has been successful in publicizing its fisheries restoration efforts in a variety of media.

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**RELATIONSHIPS**

**RELATED BPA PROJECT**

**RELATIONSHIP**

5512800 Lower Klickitat River habitat improvement project

Similar restoration techniques will be used in the lower Klickitat River basin. Technical and biological information will be shared between projects.

9506800 Preliminary Design for Passage and Habitat Improvement in the Klickitat River

Project # 95-68 will guide future habitat restoration projects. Outcomes from project # 5512600 meadow restoration can be used to identify successful restoration techniques.

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**OPPORTUNITIES FOR COOPERATION:**

YIN project personnel will coordinate the Americorps Volunteer Program for contribution of manpower. Equipment will be shared with the lower Klickitat River project (5512800) . The Yakama Agency Forest Engineer will assist with road crossing design.

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**COSTS AND FTE**

**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	\$151,690	25%	75%	
1999	\$155,000	0%	90%	10%
2000	\$80,000	0%	50%	50%
2001	\$0			
2002	\$0			

**1997 OVERHEAD PERCENT:** 26.6%

**HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:**

to total direct project costs, excluding capital equipment and construction subcontracts

**SUBCONTRACTOR FTE:** Unknown