

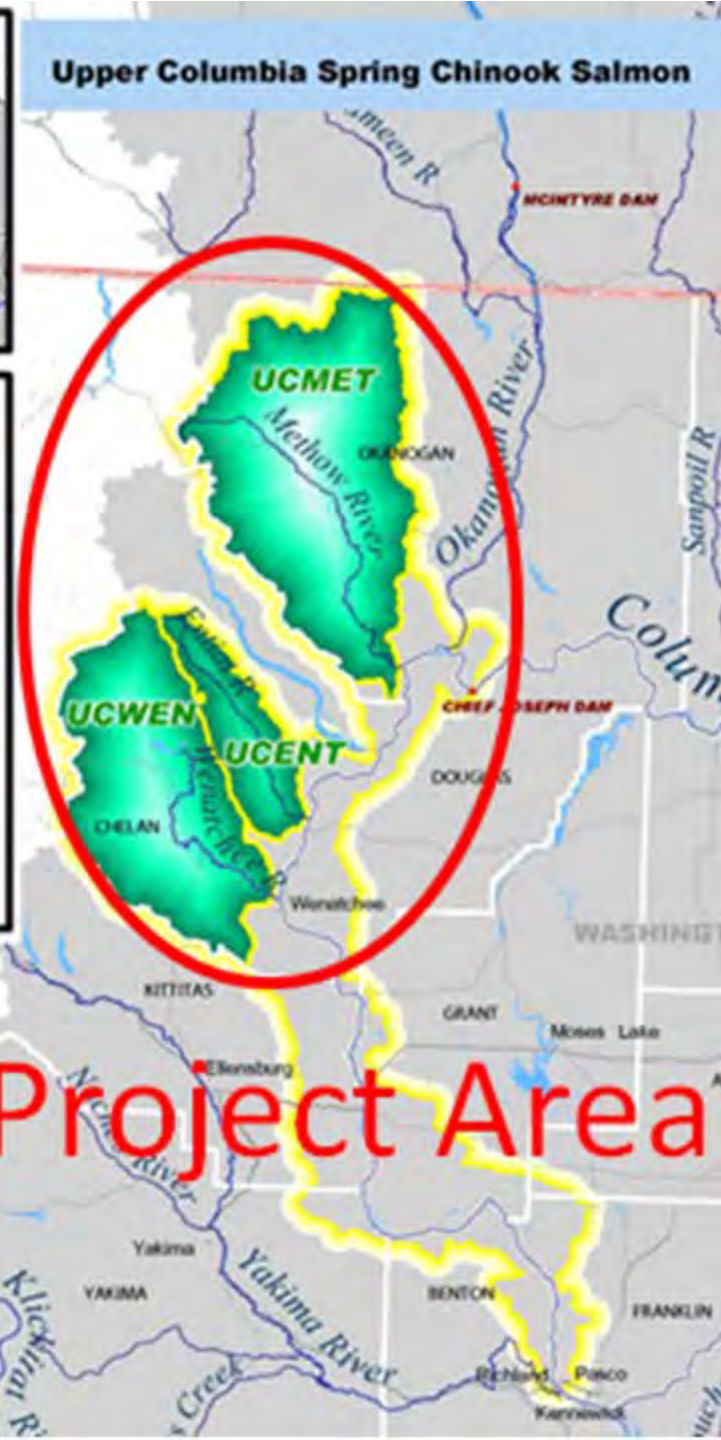
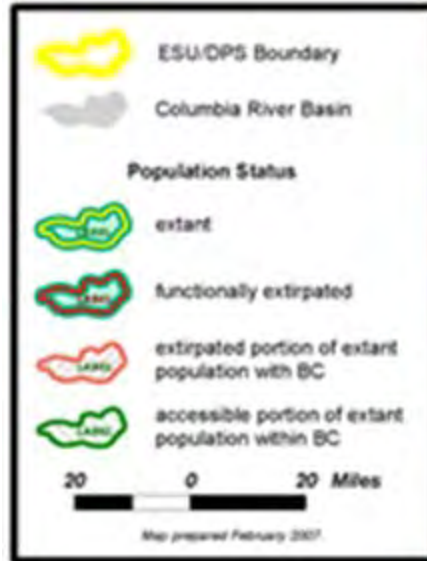



# Yakama Nation Upper Columbia Habitat Restoration Project

Program of the Yakama Nation Department of  
Fisheries Resource Management  
Funded by the 2008 BPA Fish Accords

# UCHRP Program Goal

Implement habitat restoration actions within the **Methow, Entiat, and Wenatchee** Sub-basins to help recover viable and sustainable populations of **spring Chinook salmon and steelhead**



The background image shows a river restoration project. A large excavator with 'CAT' on its arm is positioned on the left bank, working with a large log. The river flows through the center, with a rocky bed and a concrete-lined channel on the right. The surrounding landscape includes hills and trees under a cloudy sky.

# Typical Types of Habitat Restoration Actions

## **Installation of In-Stream Structures**

Placement of Woody Material

Placement of Engineered Log Structures

## **Levee Removal and Modification**

## **Side Channel/Off-Channel Habitat Restoration and Reconnection**

# Typical Types of Habitat Restoration Actions - continued

## **Fish Passage**

Culvert Replacement and Relocation

Retrofitting Culverts

Culvert Removal

Removal or Modification of Sediment Bars or  
Terraces that Block or Delay Salmonid Migrations

**Hardened Fords and Fencing for Livestock Stream  
Crossings**

**Irrigation Screen Installation and Replacement**

# Project Selection Process

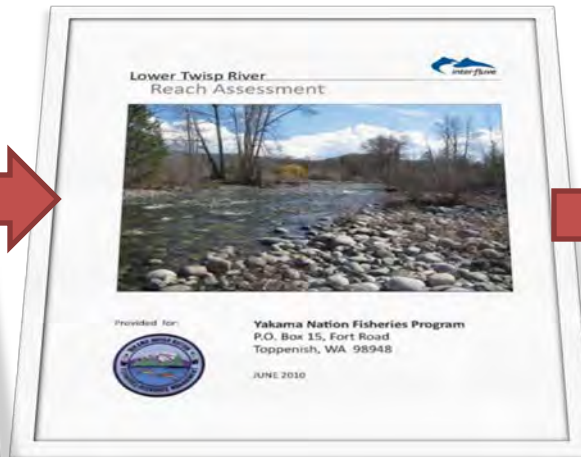
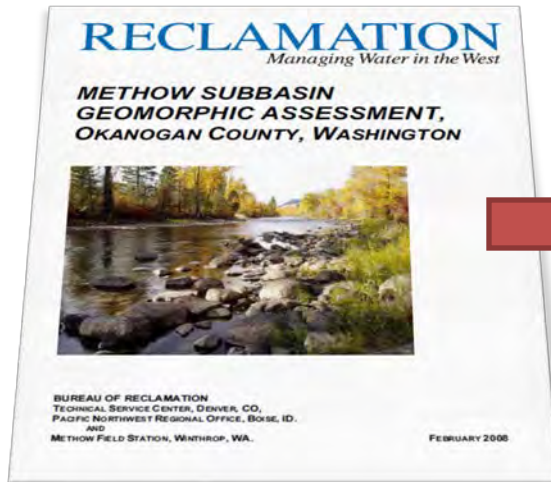
Subbasin Tributary  
Assessment



Specific River Reach  
Assessment

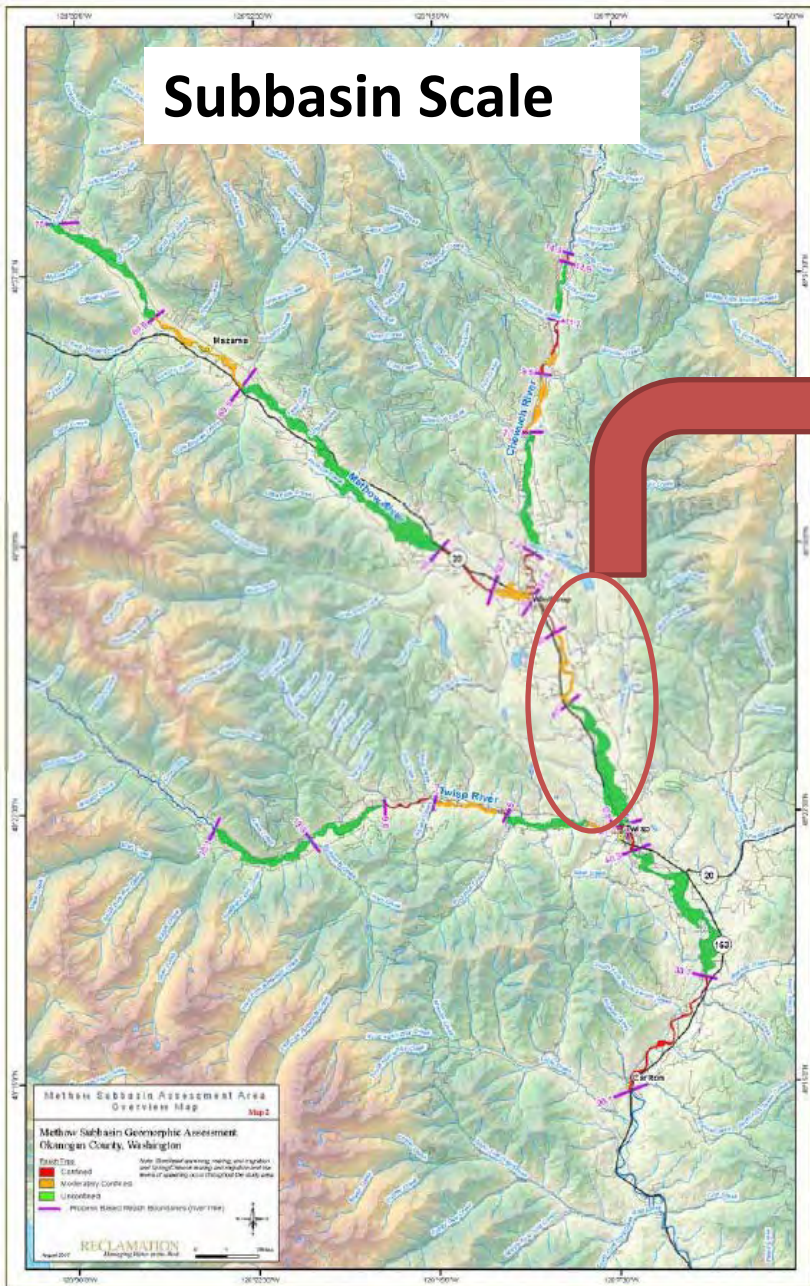


Project Level Concept  
Development

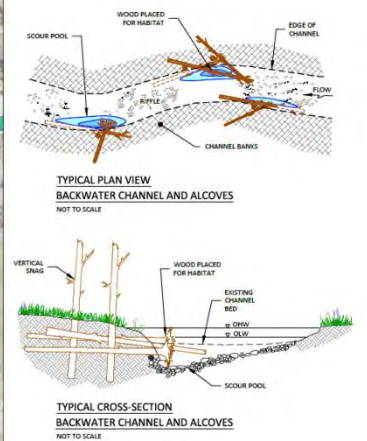
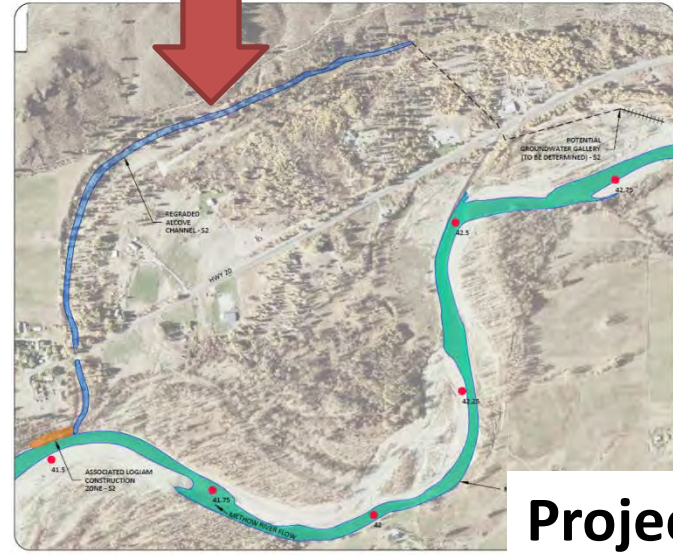
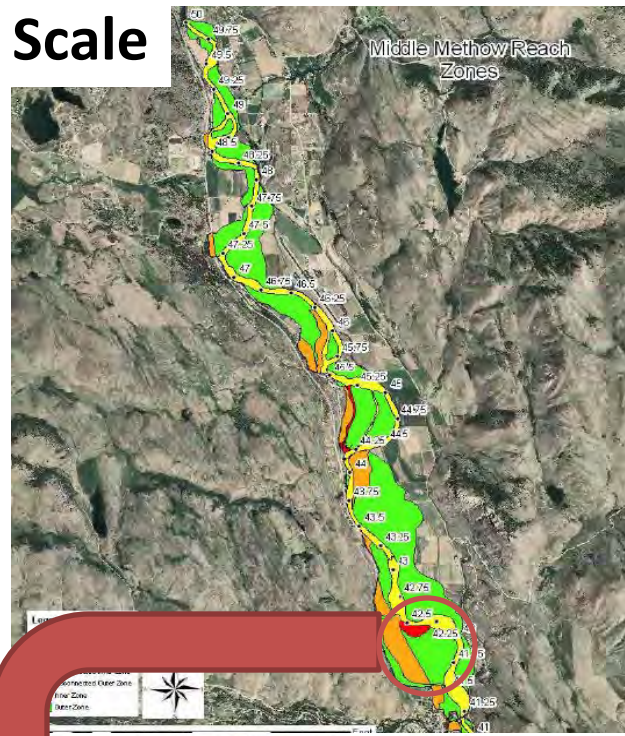


All of these stages are completed by certified professionals (licensed geologists, hydrologists, fluvial geomorphologists, fish biologists, etc...) and incorporate comments and suggestions made by peers and members involved in the Subbasin Watershed Action Teams

# Subbasin Scale



# Reach Scale



# Project Scale



# Habitat

## Limiting Factors

- Off Channel Connectivity



# Sunnyslope Side Channel Before





# Sunnyslope Side Channel After



# Sunnyslope Side Channel



# Sunnyslope Side Channel Complexity



# RM 10 Back Channel



# RM 10 Back Channel



# Habitat Limiting Factors

## Channel Complexity



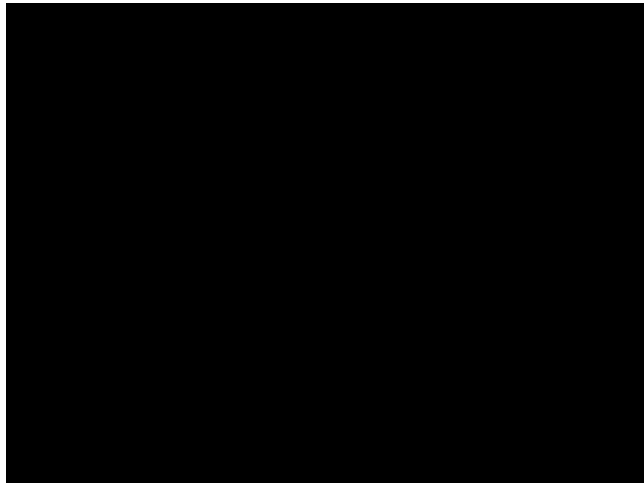
# 8 Mile Ranch Channel Complexity



# Eagle Rock ELS







# Entiat 3-D ELS



# Entiat 3-D ELS



# Habitat Limiting Factors

## Water Quantity

### MVID West

- Currently uses a surface diversion from the Twisp River
- 11 cfs diversion in reach with water quantity LF
- Plan to move the diversion to the Methow River (not water quantity impaired) and divert with pump system



Photo Courtesy U.S. Bureau of Reclamation



**HONOR. PROTECT. RESTORE.**

Yakama Nation Fisheries Resource Management