

The background image is a scenic landscape photograph. It shows a wide river with light blue water flowing through a valley. The river is flanked by dense green trees and shrubs. In the distance, there are dark, forested mountains under a clear blue sky. Some snow is visible on the mountain peaks. Bare tree branches are visible in the foreground, framing the scene.

Mainstem Cowlitz and Lower Kiona Creek Enhancement Design

**Proposal Presented by Lewis
County Public Utility District**



Upper Cowlitz & Cispus Strategy
Kiona Creek Project Area

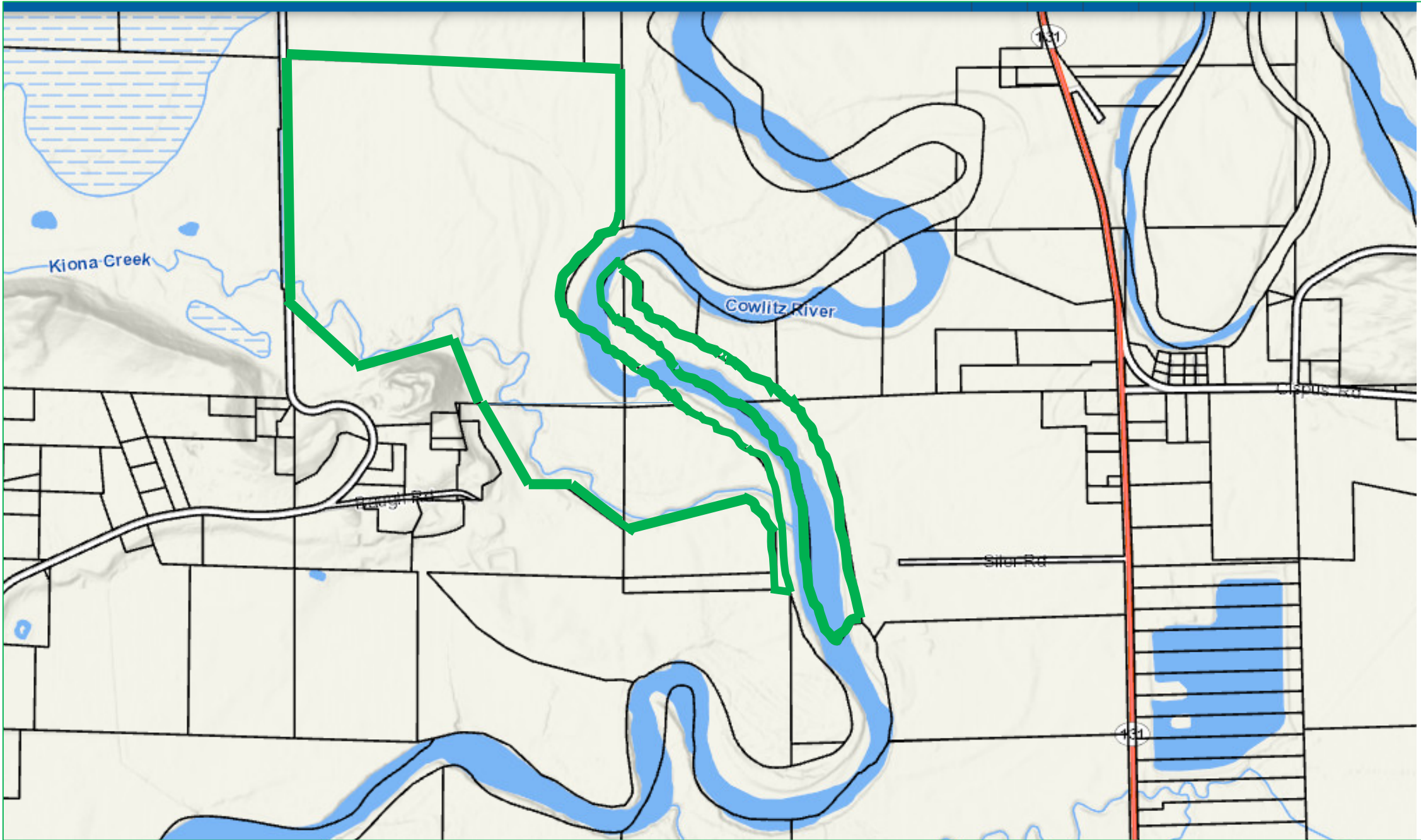
 Project Area

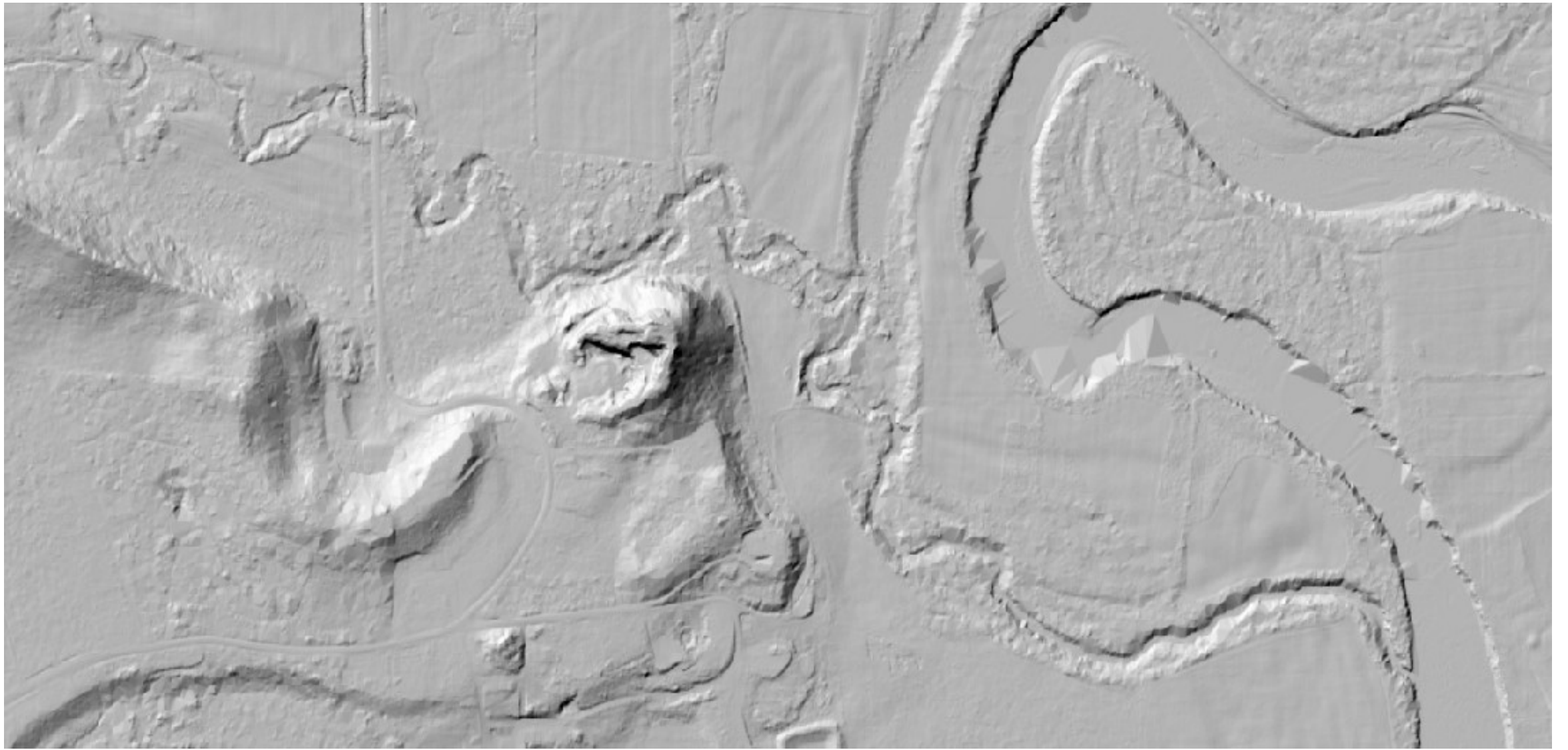


Primary Limiting Factors

Table 1. Primary limiting factors affecting life stages for Upper Cowlitz/Cispus populations of focal salmon and steelhead species (summarized from EDT results).

Species and Population	Priority	Life stage	Primary factors	Secondary factors	Tertiary factors
Upper Cowlitz/ Cispus Spring Chinook	<i>Most critical</i>	Egg incubation	channel stability, sediment		
	<i>Second</i>	0-age summer rearing	competition (hatchery), food, habitat diversity, pathogens		
	<i>Third</i>	0-age winter rearing	channel stability, flow, food, habitat diversity		
Upper Cowlitz Coho	<i>Most critical</i>	Egg incubation	Channel stability, sediment		
	<i>Second</i>	0-age summer rearing	habitat diversity	competition (hatchery), food, predation, key habitat	pathogens
	<i>Third</i>	0-age winter rearing	habitat diversity	flow, key habitat	channel stability, food
Upper Cowlitz/ Cispus Winter Steelhead	<i>Most critical</i>	1-age summer rearing	competition (hatchery), flow, pathogens	habitat diversity, predation	channel stability
	<i>Second</i>	0-age summer rearing	competition (hatchery), pathogens	habitat diversity	food, flow
	<i>Third</i>	Egg incubation	sediment	channel stability, temperature	oxygen, pathogens, key habitat





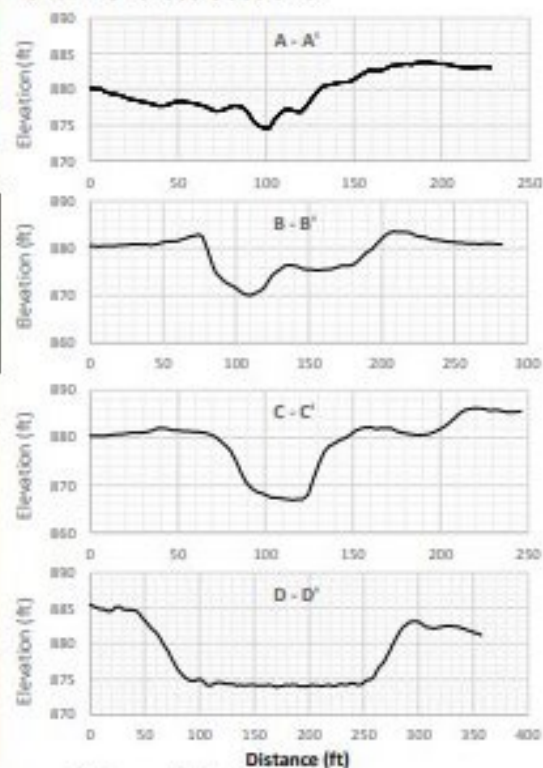
Plan View

Proposed Lower Kiona Creek Enhancements



Existing Conditions

Channel Cross Sections



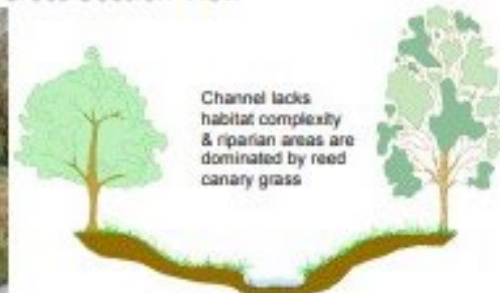
Existing Conditions

Lower Kiona Creek

Cross-Section View



Kiona Creek looking upstream from Peters Rd



Proposed Conditions

Example Restored Condition

Cross-Section View



Alternative C Lower Kiona Creek Enhancement

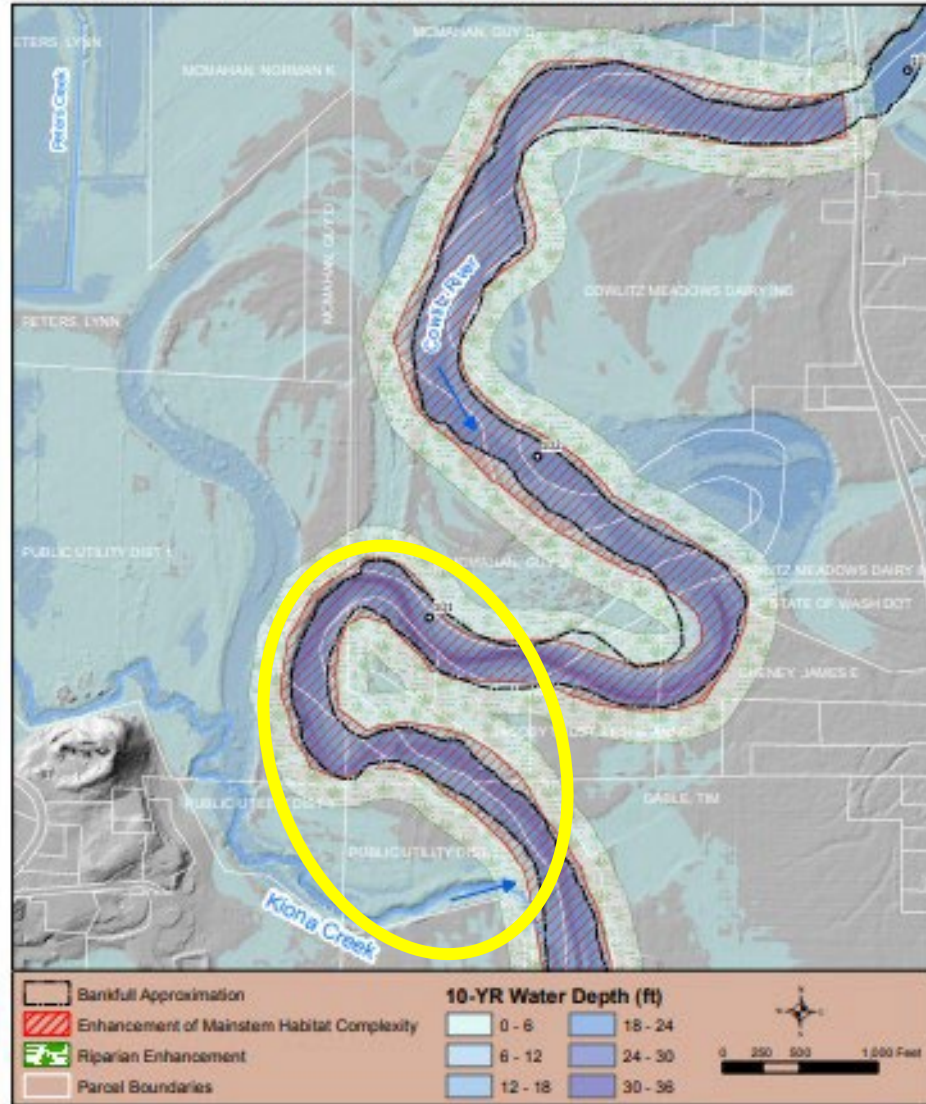
Upper Cowlitz & Cispus Strategy
Lower Columbia Fish Recovery Board
Upper Cowlitz River - Lewis County, WA



501 Portway Ave, Suite 101
Hood River, Oregon 97031
www.interfluvio.com
541.386.9003

Plan View

Location of Potential Main Channel Habitat Enhancements



Alternative A Cowlitz River Main Channel Enhancement

Existing Conditions



Proposed Conditions

Mainstem Habitat Complexity - Typical



Example of Restored Condition



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Salmonid Species and Lifestages

- Spring Chinook (Primary)
 - Adults – warm weather and high flow refugia
 - Juveniles – rearing, high flow refugia
- Coho (Primary)
 - Adults – spawning
 - Juveniles - rearing
- Winter Steelhead (Primary)
 - Adults – spawning
 - Juveniles – rearing





Offices Nationwide
501 Portway Avenue, Suite 101, Hood River, Oregon 97031
541.386.9003 www.interfluv.com

Task 1: Project Management & Coordination

1.1 - Project management (check in mtgs: 1 staff x 1hr 2x/month x 15 mos; + invoicing)	2	38			15	\$ 8,765
1.2 - OPTIONAL: Onsite meeting (2 staff x 6hrs mtg + travel, + 2hrs prep; eg, with landowners or agency staff)	-	12	14			\$ 4,320
1.3 -OPTIONAL: Web meeting (2 staff x 2hrs mtg, + 2hrs prep; eg, with landowners or agency staff)	-	2	4			\$ 970
SUB TOTAL	2	52	18	-	15	
TASK 1 TOTAL ESTIMATE	\$	14,573	Hours Total	87	Labor Total	\$ 14,055

Task 2: Site Assessment and Analyses

2.1 -Site survey (kiona, slough, mainstem cowlitz: truthing LiDAR; 3ppl x 2 days + travel)	-	22	44	8	2	\$ 12,032
2.2 - Existing & proposed conditions design 2D hydraulic model + supporting hydro analysis	-	12	60	10	-	\$ 12,720
SUB TOTAL	-	34	104	18	2	
TASK 2 TOTAL ESTIMATE	\$ 25,890		Hours Total 158	Labor Total \$ 24,752		

Task 3: Permit support

3.1 - Permit agency coordination, questions, check in		20	20			\$ 6,700
3.2 - JARPA permit application (404/401)		2	26	8		\$ 5,470
3.3 - WDFW HPA permit application		2	10			\$ 1,870
3.4 - No-rise model (40hr) and memorandum (16hr); assumes no CLOMR		12	44			\$ 8,820
3.5 - Wetland delineation and report (2pplx2 days field + 32 hrs report)		26	50			\$ 12,310
3.6 - Cultural	-			-		\$ -
SUB TOTAL	-	-	-	-	-	
TASK 3 TOTAL ESTIMATE		\$ 35,998	Hours Total	-	Labor Total	\$ 35,170

Task 4: Design

4.1 - Preliminary (30%) Design Package (drawings, BDR, cost estimate)	2	20	30	80		\$ 20,720
4.2 - Permit-level (60%) Design Package (drawings, BDR, cost estimate)	2	20	40	60		\$ 19,220
4.3 - Pre-Final (90%) Design Package (drawings, BDR, cost estimate, specs)	2	20	30	40		\$ 14,720
4.4 - Final (100%) Design Package (drawings, BDR, cost estimate, specs)	2	20	12	20		\$ 9,020
SUB TOTAL	8	80	112	200	-	
TASK 4 TOTAL ESTIMATE		\$ 63,680		Hours Total 400	Labor Total	\$ 63,680

DIRECT COSTS

BY ITEM		BY COST		
POV Mileage	Per diem	POV Mileage	Per diem	Total
\$0.585 per mile	\$155 per person/day			
-	-	\$ -	\$ -	\$ -
356	2	\$ 208	\$ 310	\$ 518
-	-	\$ -	\$ -	\$ -
356	2	\$ 208	\$ 310	
				\$ 518
356	6	\$ 208	\$ 930	\$ 1,138
-	-	\$ -	\$ -	\$ -
356	6	\$ 208	\$ 930	
				\$ 1,138
356	4	\$ 208	\$ 620	
-	-	\$ -	\$ -	\$ -
356	4	\$ 208	\$ 620	
				\$ 828
-	-	\$ -	\$ -	\$ -
-	-	\$ -	\$ -	\$ -
-	-	\$ -	\$ -	\$ -
-	-	\$ -	\$ -	\$ -
-	-	\$ -	\$ -	\$ -
				\$ -

A photograph of a small, clear stream flowing through a dense forest. The water is cascading over several large, dark rocks that are heavily covered in bright green moss. The surrounding forest is thick with various green plants and trees, creating a vibrant, natural setting. A dark green, semi-transparent banner is overlaid across the upper portion of the image, containing the word "Questions?" in a white, serif font.

Questions?