

**ODFW AQUATIC INVENTORY PROJECT  
OREGON PLAN FOR SALMON & WATERSHEDS  
STREAM RESTORATION HABITAT REPORT**

STREAM: Coal Creek (N-16)  
BASIN: Nehalem River  
SURVEY TYPE: Post-Tx  
DATE: February 21, 2007  
SURVEY CREW: Jeff O'Leary, Sheri Etchemendy  
REPORT PREPARED BY: Paul Jacobsen  
BASIN AREA: 9.5 km<sup>2</sup>  
USGS MAPS: Vernonia  
ECOREGION: Coast Range Willapa Hills

**GENERAL DESCRIPTION:**

The Coal Creek habitat survey extended 513 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 14.0 (range: 10.0-15.0). Land use for the reach was timber harvest. The average unit gradient was 1.6 percent. Scour pools (45%) and riffles (31%) dominated stream habitat. Cobble (37%) and gravel (24%) dominated stream substrate. Wood volume was moderate at 24.7 m<sup>3</sup>/100m.

**COMMENTS:**

There were no potential barriers to upstream fish migration in the surveyed length.

Stream Coal Creek (N-16)  
 Basin Nehalem River  
 Treatment Large Wood

	ODFW Benchmark		Pre	Post	Post		
Habitat Variable	Desirable	Undesirable	3/6/00	2/21/01	2/21/07		
% Pool Area	>35%	<10%	51.7	38.1	48.5		
Number of Pools			26	23	22		
Deep Pools/km (>1.0 m)			4.9	1.5	1.8		
% Off-Channel			10.3	13.4	<b>5.6</b>		
LWD – Pieces/100m	>20	<10	28.3	36.4	<b>21.8</b>		
LWD – Volume/100m	>30	<20	46.3	36.6	<b>24.7</b>		
LWD – Key Pieces/100m	>3	<1	3.3	1.1	<b>0.4</b>		
Large Wood Jams/km			3.8	30.8			
% Riffle Fines	<10	>20	21	14	19		
% Riffle Gravel	>35	<15	67	54	35		
% Bedrock			1	0	0		

**Bold** is noticeable change

Comments: Pool area and the number of pools has remained stable through time. The number of deep pools is lower than pre-treatment conditions, but this may be a symptom of stream flow rather than a real change. Off channel habitat appears to be lower, and the amount of wood in the reach has decreased since treatment. The reduced wood numbers may be due to wood leaving the reach without additional recruitment from the riparian area. Substrate values remain unchanged.

REACH 1

T4N-R4W-S23SE

REACH 1

**Valley and Channel Summary**

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	0%
Moderate V-shape	0%	Multiple Terraces	100%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	14.0	VWI Range:	10 - 15

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0%	Single Channel	0%
Bedrock	0%	Multiple Channel	0%
Terrace	100%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary Channel	513	2,631	0
Secondary Channel	27	118	0
Off-Channel Units	18	38	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 5	<u>First Terrace</u> n = 5
Width: 5.3	Width: 8.3	10.0 ( 7.6 - 15.8 )	12.1 ( 8.5 - 16.5 )
Depth: 0.49	Height: 0.5	1.1 ( 1 - 1.2 )	1.2 ( 1.1 - 1.5 )

W:D ratio: 15.2  
 Stream Flow Type: MF  
 Average Unit Gradient: 1.6%  
 Water temperature (°C): 5.0 - 5.0

Entrenchment (ACW:FPW ratio): 1.2  
 Habitat Units/100m (total channel length): 7.0  
 Habitat Units/100m (primary channel length): 7.6

**Riparian, Bank, and Wood Summary**

	<u>Primary</u>	<u>Secondary</u>
Land Use:	TH	
Riparian Vegetation:	D30	S

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding:		Reach avg:
Undercut Banks:		Range: -

Large Wood Debris

	<u>Total</u>	<u>Total / 100m primary channel</u>
All pieces (>=3m x 0.15m):	112	21.8
Volume (m <sup>3</sup> ):	127	24.7
Key pieces (>=12m x 0.60m):	2	0.4

OREGON DEPT OF FISH AND WILDLIFE

COAL CREEK POST-TX (1-NC, 16)

HABITAT INVENTORY

Report Date: 4/25/2007

Survey Date:

2/21/2007

REACH 1		T4N-R4W-S23SE					REACH 1					
HABITAT DETAIL												
Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m <sup>2</sup> )	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
POOL-BACKWATER	2	6	3.1	0.35	16	0	55	35	8	3	0	0
POOL-DAMMED	1	15	5.0	0.80	73	0	30	30	25	10	5	0
POOL-LATERAL SCOUR	17	211	5.7	0.73	1,196	0	14	21	26	35	2	0
POOL-PLUNGE	2	11	6.3	0.65	66	0	15	26	13	46	0	0
RAPID/BOULDERS	5	102	4.9	0.23	484	0	1	8	18	52	21	0
RIFFLE	8	200	4.1	0.26	854	0	5	14	35	43	3	0
STEP/COBBLE	2	13	7.2	0.23	87	0	0	10	18	70	3	0
STEP/LOG	2	2	6.5	0.20	12	0	60	40	0	0	0	0
<b>Total:</b>	<b>39</b>	<b>558</b>	<b>5.3</b>	<b>0.49</b>	<b>2,786</b>	<b>0</b>	<b>Avg: 15</b>	<b>20</b>	<b>24</b>	<b>37</b>	<b>4</b>	<b>0</b>

HABITAT SUMMARY									
Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders		
					(m <sup>2</sup> )	Percent	Number	(# / 100m <sup>2</sup> )	
Dammed & BW Pools	3	20	3.7	0.50	89	3.18%	0	0.0	
Scour Pools	19	222	5.8	0.72	1,262	45.29%	0	0.0	
Glides	0	0			0	0.00%	0	0.0	
Riffles	8	200	4.1	0.26	854	30.63%	0	0.0	
Rapids	5	102	4.9	0.23	484	17.35%	0	0.0	
Cascades	0	0			0	0.00%	0	0.0	
Step/Falls	4	15	6.8	0.21	99	3.55%	0	0.0	
Dry	0	0			0	0.00%	0	0.0	
Culverts	0	0			0	0.00%	0	0.0	

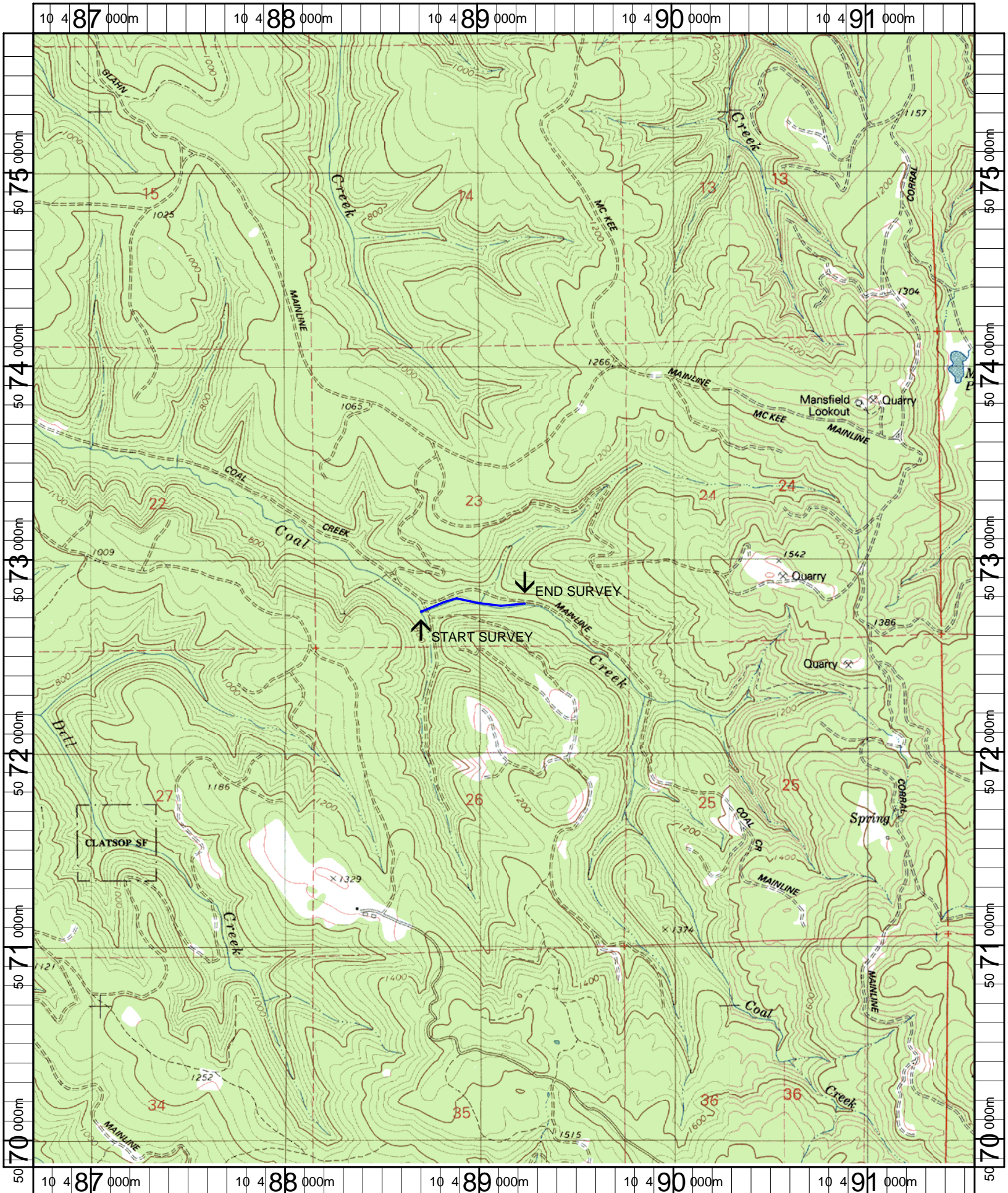
POOL SUMMARY			
	<u>Total</u>	Total of all Channel Lengths	
		<u># / Km</u>	Primary Channel Length <u># / Km</u>
All Pools:	22	39.4	42.9
Pools >=1m deep:	1	1.8	2.0
Complex pools (LWD pieces>=3):	10	17.9	19.5
Pool frequency (channel widths/pool):	3.1		
Residual pool depth (avg):	0.49		

# Comment Summary

## Restoration Monitoring Sites 2007

MONITORING AREA: 1-NC      SITE ID: 16      COAL CREEK POST-TX

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTE ESTIMATOR
8	LP	00	139.4		SITE 2, HAB WOOD
17	LP	00	238.5	/SS	
20	RI	11	276.4		ACW = 2.5M, T = 5.5°C
25	RI	00	326.2	/SS	
35	RI	01	481	BV	



Name: VERNONIA  
 Date: 5/9/2007  
 Scale: 1 inch equals 2000 feet

Location: 10 489132 E 5072789 N  
 Caption: COAL CREEK RESTORATION SITE - NEHALEM BASIN