

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

STREAM: Esmond Creek Middle (MC-138)
BASIN: Siuslaw River
SURVEY TYPE: Post-Tx
DATE: February 14, 2007
SURVEY CREW: Andy Lanier, Laurel Moulton
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 21.9 km²
USGS MAPS: Roman Nose Mountain
ECOREGION: Coast Range Sedimentary

GENERAL DESCRIPTION:

The Esmond Creek habitat survey extended 542 meters. The channel was alternately constrained by hillslopes and terraces in a broad valley floor. The average valley width index was 3.9 (range: 3.0-5.0). Land use for the reach was large (30-50 cm dbh) and second growth (15-30 cm dbh) trees. The average unit gradient was 0.7 percent. Scour pools (50%) and riffles (27%) dominated stream habitat. Bedrock (35%) and gravel (34%) dominated stream substrate. Wood volume was low at 18.5 m³/100m.

COMMENTS:

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

The crew noted several habitat structures during the survey.

Stream Esmond Creek Middle (MC-138)
 Basin Siuslaw River
 Treatment Boulders

	ODFW Benchmark		Pre	Post	Post	Post	
Habitat Variable	Desirable	Undesirable	3/5/02	2/10/03	2/10/04	2/14/07	
% Pool Area	>35%	<10%	35.8	71.1	20.5	65.3	
Number of Pools			7	15	7	13	
Deep Pools/km (>1.0 m)			1.9	1.9	8.5	0.0	
% Off-Channel			4.5	3.4	2.9	8.2	
LWD – Pieces/100m	>20	<10	6.6	15.2	12.9	11.1	
LWD – Volume/100m	>30	<20	6.9	18.9	18.1	18.5	
LWD – Key Pieces/100m	>3	<1	0.2	2.1	2.1	2.4	
Large Wood Jams/km			3.8	7.5	7.5		
% Riffle Fines	<10	>20	8	2	14	4	
% Riffle Gravel	>35	<15	31	17	27	11	
% Bedrock			45	47	37	35	

Bold is noticeable change

Comments: Pool area and the number of pools has been inconsistent over the last several surveys. However, the number of deep pools has reduced through time. These changes in pool habitat could be due variations in stream flow between seasons, or merely the sorting of substrate, causing pools to fill in and then scour out. What is interesting is the inverse relationship between the number and area of pools, and the number of deep pools in the 2003, 2004 and 2007 surveys. Off channel habitat is higher. Large wood pieces have decreased over time, but wood volume and key pieces has remained stable since the reach was treated. Substrate remains unchanged over time.

REACH 1

T19S-R8W-S28-NW

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	3.9	VWI Range:	3 - 5

Channel Morphology (Percent Reach Length)

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

Channel Characteristics

<u>Type</u>	<u>Length (m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary Channel	542	4,006	0
Secondary Channel	72	345	0
Off-Channel Units	6	12	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 5	<u>First Terrace</u> n = 5
Width: 6.8	Width: 11.7	15.1 (9.5 - 22)	17.4 (11.5 - 25)
Depth: 0.46	Height: 0.9	1.8 (1.6 - 2)	2.3 (2 - 2.5)

W:D ratio: 12.6
 Stream Flow Type: MF
 Average Unit Gradient: 0.7%
 Water temperature (°C): 8.0 - 8.0

Entrenchment (ACW:FPW ratio): 1.3
 Habitat Units/100m (total channel length): 4.0
 Habitat Units/100m (primary channel length): 4.6

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	LT	ST
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):	60	11.1
Volume (m ³):	100	18.5
Key pieces (>=12m x 0.60m):	13	2.4

HABITAT INVENTORY

Report Date: 4/25/2007

Survey Date:

2/14/2007

REACH 1		T19S-R8W-S28-NW					REACH 1					
HABITAT DETAIL												
Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbl	Bldr	Bdrk
POOL-DAMMED	3	82	7.7	0.60	674	0	2	13	52	4	10	19
POOL-LATERAL SCOUR	10	323	6.8	0.74	2,176	0	4	29	39	2	3	23
RIFFLE	5	161	7.3	0.20	1,194	0	0	4	11	1	8	76
STEP/BEDROCK	2	10	5.6	0.08	52	0	0	3	8	0	10	80
STEP/COBBLE	2	13	6.5	0.13	67	0	0	14	66	7	12	0
STEP/LOG	2	10	5.8	0.23	40	0	0	35	33	0	3	30
STEP/STRUCTURE	1	20	8.0	0.40	160	0	0	10	24	14	52	0
Total:	25	619	6.8	0.46	4,362	0	Avg: 2	18	34	3	8	35

HABITAT SUMMARY								
Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area		Large Boulders	
					(m ²)	Percent	Number	(# / 100m ²)
Dammed & BW Pools	3	82	7.7	0.60	674	15.45%	0	0.0
Scour Pools	10	323	6.8	0.74	2,176	49.88%	0	0.0
Glides	0	0			0	0.00%	0	0.0
Riffles	5	161	7.3	0.20	1,194	27.37%	0	0.0
Rapids	0	0			0	0.00%	0	0.0
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	7	53	6.2	0.18	319	7.30%	0	0.0
Dry	0	0			0	0.00%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

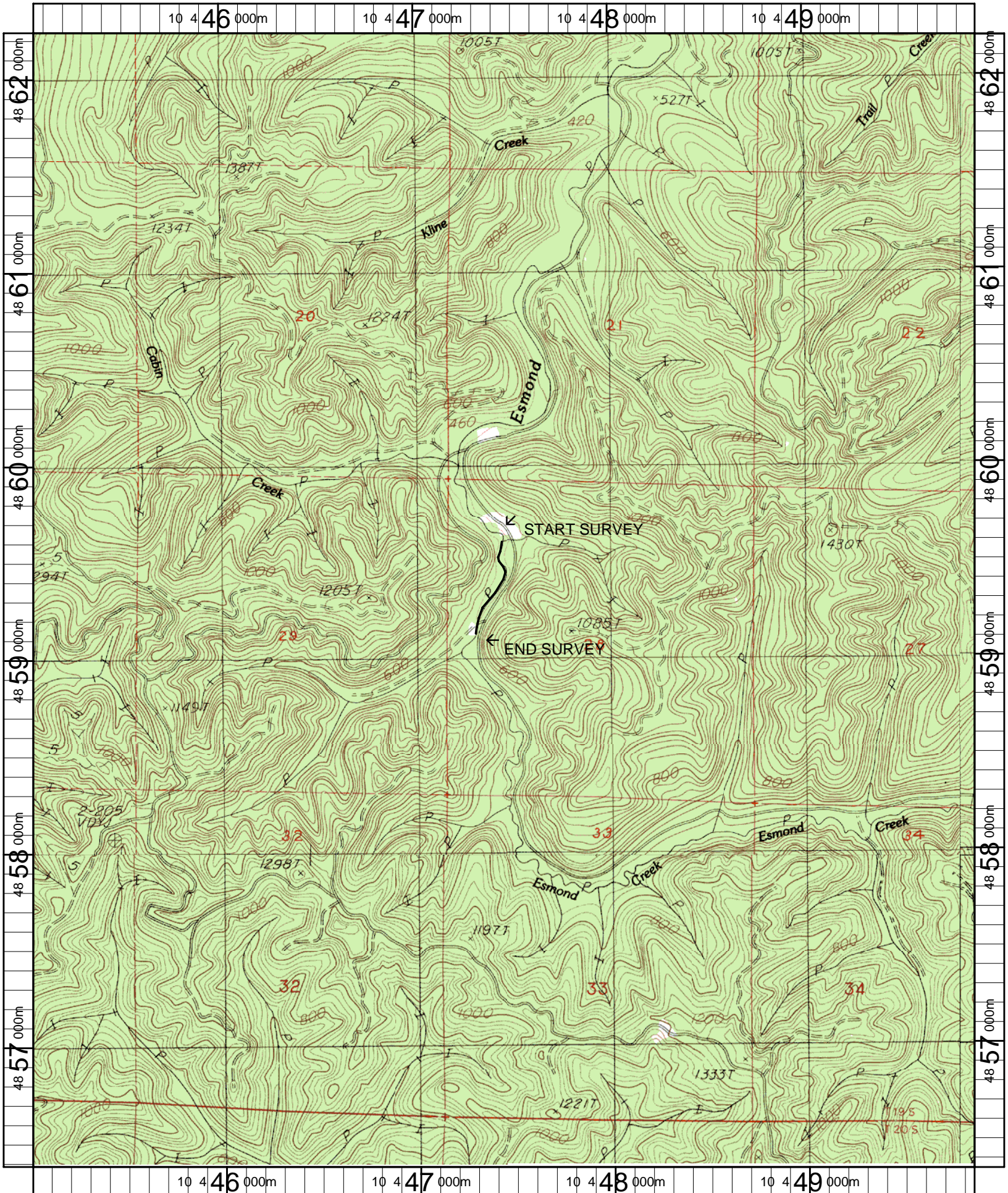
POOL SUMMARY			
	Total of all Channel Lengths		Primary Channel Length
	Total	# / Km	# / Km
All Pools:	13	21.0	24.0
Pools >=1m deep:	0	0.0	0.0
Complex pools (LWD pieces>=3):	3	4.8	5.5
Pool frequency (channel widths/pool):	4.1		
Residual pool depth (avg):	0.49		

Comment Summary

Restoration Monitoring Sites 2007

MONITORING AREA: 2-MC SITE ID: 138 ESMOND CREEK MIDDLE POST-TX

UNIT#	TYPE	CHAN	DIST. (m)	COMMENTS	NOTE ESTIMATOR
1	DP	01	19	TJ/, HS	HS
2	SR	11	19		ACW=3
4	LP	00	73	SR	SALMON REDDS
8	LP	00	166	RN	ROUGHSKIN NEWT
11	LP	01	222	SR	BIG CAT PRINTS (5IN)
13	LP	02	222	HS	BOULDERS AND LOGS
15	RI	00	310	HS	BOULDERS AND LOGS
20	LP	00	411		REDDS
22	DP	00	462	/SS	
23	SS	00	482	HS, CS/	OLD BOULDER WEIR



Name: ROMAN NOSE MT (OR)
 Date: 4/26/2007
 Scale: 1 inch equals 2000 feet

Location: 10 0447448 E 4859295 N
 Caption: ESMOND CREEK (MIDDLE) RESTORATION SITE - SIUSLAW BASIN