

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

STREAM: Hamilton Creek (#NC 106)
 BASIN: Nehalem River
 SURVEY TYPE: Reference
 DATE: October 30, 2003
 REPORT PREPARED BY: Paul Jacobsen

The Hamilton Creek reference site is located just downstream of the companion Hamilton Creek treatment site. This site was surveyed for reference conditions in 1993, 1996, and 2001. Pool area increased, as did complex pools, and pools occur more frequently in the most recent survey. Riffle gravel is higher and riffle fines are very low. Large wood pieces and volume have decreased, but key pieces are slightly higher. This may be due to the upstream structures retaining much of the large wood.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	
Habitat Variable	Desirable	Undesirable		9/14/93	7/2/96	8/1/01	
Pool Area	>35%	<10%		36.4	56.6	66.0	
Pool Frequency	5-8	>20%		4.9	2.9	3.5	
Residual Pool Depth	.5-1m	.2-.5m		.52	.62	.58	
Complex Pools/km	>2.5	<1		1.5	10.5	8.3	
Width/Depth Ratio	<15	>30		19.2	18.8	18.4	
Riffle Gravel % area	>35%	<15%		10	24	33	
Silt-Sand-Organic %	<8%	>15%		8	0	2	
Shade %	>70%	< 60%		86	81	85	
LWD - pieces/100m	>20	<10		12.5	9.8	9.9	
LWD - Volume/100m	>30	<20		15.8	11.9	7.8	
LWD - Key pieces/ 100m	>3	<1		0.4	0.2	0.7	

COMMENTS:

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

The crew noted evidence of beaver activity during the survey.

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STREAM RESTORATION HABITAT REPORT

STREAM: Hamilton Creek (NC-106)
BASIN: Nehalem River
SURVEY TYPE: Reference
DATE: August 1, 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 16.8 km²
USGS MAPS: Vinemaple
ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

The Hamilton Creek habitat survey extended 594 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 31.7 (range: 2.5 – 50.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 1.4 percent. Scour pools (66%) and rapids (23%) dominated stream habitat. Cobble (36%), bedrock (24%) and gravel (21%) dominated stream substrate. Wood volume was low at 7.8 m³/100m.

COMMENTS:

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

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

STREAM: Hamilton Creek (#NC 106)
 BASIN: Nehalem River
 SURVEY TYPE: Reference
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 16.8 km²
 USGS MAPS: Vinemaple
 ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

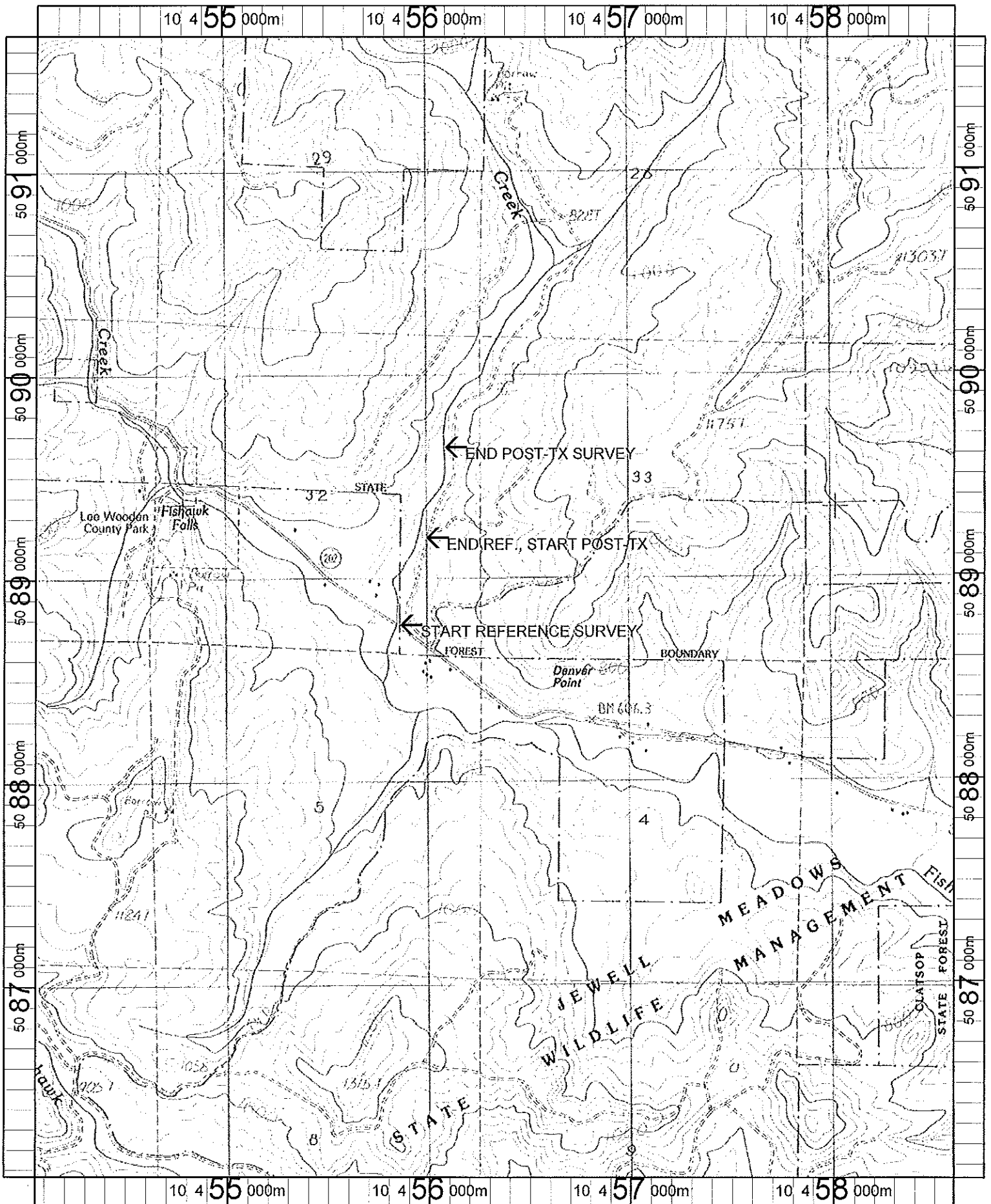
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	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		9/14/93	2005	8/1/01	2/6/02
Pool Area	>35%	<10%		36.4	56.6	66.0	66.5
Pool Frequency	5-8	>20%		4.9	2.9	3.5	3.0
Residual Pool Depth	.5-1m	.2-.5m		.52	.62	.58	.86
Complex Pools/km	>2.5	<1		1.5	10.5	8.3	11.4
Width/Depth Ratio	<15	>30		19.2	18.8	18.4	19.2
Riffle Gravel % area	>35%	<15%		10	24	33	31
Silt-Sand-Organic %	<8%	>15%		8	0	2	2
Shade %	>70%	< 60%		86	81	85	
LWD - pieces/100m	>20	<10		12.5	9.8	9.9	9.1
LWD - Volume/100m	>30	<20		15.8	11.9	7.8	6.3
LWD - Key pieces/ 100m	>3	<1		0.4	0.2	0.7	0.2

COMMENTS:

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

The crew noted evidence of beaver activity during the survey.



Name: VINEMAPLE
 Date: 1/10/2002
 Scale: 1 inch equals 2000 feet

Location: 10 456342 E 5088855 N
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -
 HAMILTON CREEK - NEHALEM BASIN

REACH 1

T7N-R6W-S32SE

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	100
Moderate V-shape	0	Multiple Terraces	0
Open V-shape	0	Wide Floodplain	0

Valley Width Index avg: 31.7 range: 2.5-50.0

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	594	3,273	0
Secondary	9	9	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u>	<u>First Terrace</u>
Width 5.2	Width 10.9	16.0	17.1
Depth 0.40	Height 0.6	1.1	1.4
	W:D ratio 18.4	Entrenchment 1.5	

Stream Flow Type: LF Water Temp: 11.0-11.0°C
 Avg. Unit Gradient: 1.4% Habitat Units/100m: 5.3

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	
Riparian Vegetation:	D3	D30

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	21%	Reach avg: 85%
Undercut Banks	7%	Range: 56-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces (≥3m x 0.15m)	59	9.9
Volume (m ³)	47	7.8
Key pieces (≥10m x 0.6m)	4	0.7

REACH 1

T7N-R6W-S32SE

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	Cbbl	Bldr	Bdrk
GLIDE	1	27	3.8	0.20	102	0	0	0	10	10	0	80
POOL-LATERAL SCOUR	10	197	6.1	0.71	1,256	0	1	6	26	27	16	23
POOL-STRAIGHT SCOUR	6	163	5.3	0.65	911	0	6	3	15	19	10	47
RAPID/BOULDERS	11	150	4.9	0.10	757	0	0	0	18	54	22	6
RIFFLE	3	60	4.1	0.13	246	0	0	2	33	30	5	30
STEP/BEDROCK	1	6	1.8	0.10	10	0	0	0	13	75	13	0
Total:	32	602	5.2	0.40	3,281	0	Avg: 2	3	21	36	15	24

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Boulders Number	#/100m ²
Dammed & BW Pools	0	0	-	-	0	0.00	0	0.0
Scour Pools	16	360	5.8	0.68	2,167	66.03	0	0.0
Glides	1	27	3.8	0.20	102	3.10	0	0.0
Riffles	3	60	4.1	0.13	246	7.48	0	0.0
Rapids	11	150	4.9	0.10	757	23.07	0	0.0
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	1	6	1.8	0.10	10	0.31	0	0.0
Dry	0	0	-	-	0	0.00	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	16	<u>#/Km</u>	26.6
Pools ≥1m deep:		1		1.7
Complex pools (LWD pieces ≥3):		5		8.3
Pool Frequency (channel widths/pool):		3.5		
Residual pool depth (avg)		0.58m		

STREAM SUMMARY

HAMILTON CR REFERENCE (#106)

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Substrate Percent Wetted Area						Total Large Boulder
					S/O	Sand	Grvl	Cbbl	Bldr	Bdrk	
32	602	5.2	0.40	3,281	2	3	21	36	15	24	0

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	2,167	66.0
Backwater Pools	0	0.0
Glide	102	3.1
Riffle	246	7.5
Rapid	757	23.1
Cascade	0	0.0
Step	10	0.3
Dry	0	0.0

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) (3 transects)

Total hardwoods/1000 ft	1,565
Total conifers/1000 ft	630
Total conifers >20" dbh/1000 ft	41
Total conifers >35" dbh/1000 ft	20

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	1.7	10.0	4.7	5.0	1.3	5.7	7.7	20.7
15-30cm	0.0	2.3	1.3	0.7	0.7	1.0	2.0	4.0
30-50cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50-90cm	0.0	0.7	0.0	0.0	0.3	0.0	0.3	0.7
>90cm	0.0	0.3	0.0	0.0	0.3	0.0	0.3	0.3
Total/100m ²	1.7	13.3	6.0	5.7	2.7	6.7	3.4	8.6

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	45		63		53	
Shrub cover	58		45		26	
Grass/forb cover	38		36		33	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	17		33		33
High terrace	83		67		33	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		33	
Riprap	0		0		0	
Surface slope (%)	18		10		10	

Summary of Riparian Zone (0-30m) for all reaches (3 transects)

Summary of riparian zone (0-100ft) extrapolated to 1,000 feet along stream

Total hardwoods/1000 ft	1,565
Total conifers/1000 ft	630
Total conifers >20" dbh/1000 ft	41

Average number of trees in a 5-meter wide band

<u>Diameter</u> <u>class (cm)</u>	<u>Zones 1-3</u>	
	<u>Conifer</u>	<u>Hardwood</u>
3-15cm	7.7	20.7
15-30cm	2.0	4.0
30-50cm	0.0	0.0
50-90cm	0.3	0.7
>90cm	0.3	0.3

RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

VEGETATION DETAIL

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90	
10	LF	1	HT	3.0	60	55	40	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	2	1	ALDER, MAPLE
10	LF	2	HT	0.0	70	65	30	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
10	LF	3	HT	6.0	45	15	80	Conifer	0	0	0	0	1	
								Hardwood	10	0	0	0	0	1.7M DBH CEDAR
10	RT	1	HT	30.0	60	70	15	Conifer	5	0	0	0	0	
								Hardwood	7	0	0	0	0	
10	RT	2	HS	25.0	60	40	60	Conifer	5	0	0	0	0	
								Hardwood	3	0	0	0	0	
10	RT	3	RB	15.0	20	20	5	Conifer	1	0	0	0	0	
								Hardwood	0	0	0	0	0	
16	LF	1	HT	5.0	25	50	50	Conifer	0	0	0	0	0	
								Hardwood	0	3	0	0	0	
16	LF	2	HT	5.0	10	70	30	Conifer	0	1	0	0	0	
								Hardwood	1	0	0	0	0	TRUMPET VINE & SALM
16	LF	3	HS	15.0	75	5	10	Conifer	3	2	0	0	0	
								Hardwood	0	1	0	0	0	
16	RT	1	HT	5.0	40	50	50	Conifer	0	0	0	0	0	
								Hardwood	15	0	0	0	0	VINE MAPLE, LARGE C
16	RT	2	HT	1.0	80	70	10	Conifer	0	0	0	0	0	
								Hardwood	6	0	0	0	0	
16	RT	3	HT	1.0	70	80	10	Conifer	0	0	0	1	0	
								Hardwood	4	0	0	0	0	CHITIM & VINE MAPLE
24	LF	1	HT	5.0	15	100	0	Conifer	0	0	0	0	0	
								Hardwood	0	2	0	0	0	
24	LF	2	HT	0.0	75	20	80	Conifer	0	0	0	0	0	
								Hardwood	2	2	0	0	0	
24	LF	3	HS	15.0	80	30	70	Conifer	0	0	0	0	0	
								Hardwood	3	2	0	0	0	ALDER
24	RT	1	HS	60.0	70	25	75	Conifer	0	0	0	0	0	
								Hardwood	8	2	0	0	0	
24	RT	2	HS	30.0	80	5	5	Conifer	9	3	0	0	0	
								Hardwood	3	0	0	0	0	
24	RT	3	RB	8.0	25	5	20	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	