

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

STREAM: Deer Creek (#NC 120)
 BASIN: Nehalem River
 SURVEY TYPE: Reference
 DATE: October 30, 2003
 REPORT PREPARED BY: Paul Jacobsen

The Deer Creek reference site is located just upstream of the companion Deer Creek treatment site. This surveyed for reference conditions in 1993, 1996, and 2001. In comparing the surveys of this reference site through time, it is notable that pool area has increased dramatically as have complex pools, and pools occur more frequently. However, the real increases were between 1993 and 1996, and decreases have occurred between 1996 and 2001. Riffle has stayed stable while riffle fines have decreased. Large wood pieces volume, and key pieces have all decreased through time. The same trend for wood is seen in the treated segment of Deer Creek.

Habitat Variable	ODFW Benchmark		AOI Survey	Post Project	Post Project
	Desirable	Undesirable	8/12/93	7/8/96	7/31/01
Pool Area	>35%	<10%	23.2	71.8	63.6
Pool Frequency	5-8	>20%	10.8	2.6	7.1
Residual Pool Depth	.5-1m	.2-.5m	.51	.39	.45
Complex Pools/km	>2.5	<1	0.0	40.1	27.7
Width/Depth Ratio	<15	>30	8.1	9.8	6.1
Riffle Gravel % area	>35%	<15%	56	57	60
Silt-Sand-Organic %	<8%	>15%	43	43	28
Shade %	>70%	< 60%	95	99	100
LWD - pieces/100m	>20	<10	40.9	27.8	25.4
LWD - Volume/100m	>30	<20	56.2	75.3	25.6
LWD - Key pieces/ 100m	>3	<1	1.9	3.1	0.4

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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OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT

STREAM: Deer Creek (NC-120)
BASIN: Nehalem River
SURVEY TYPE: Reference
DATE: July 31, 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 32.8 km²
USGS MAPS: Birkenfeld
ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

The Deer Creek habitat survey extended 464 meters. The channel was constrained by hillslopes in a moderate V-shaped valley. The average valley width index was 2.6 (range: 1.0 – 6.0). Land use for the reach was young (3-15 cm dbh) and second growth (15-30 cm dbh) trees. The average unit gradient was 2.2 percent. Scour pools (64%) and riffles (34%) dominated stream habitat. Gravel (51%) and sand (38%) dominated stream substrate. Wood volume was moderate at 25.6 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: Deer Creek (#NC 120)
 BASIN: Nehalem River
 SURVEY TYPE: Reference
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 32.8 km²
 USGS MAPS: Birkenfeld
 ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

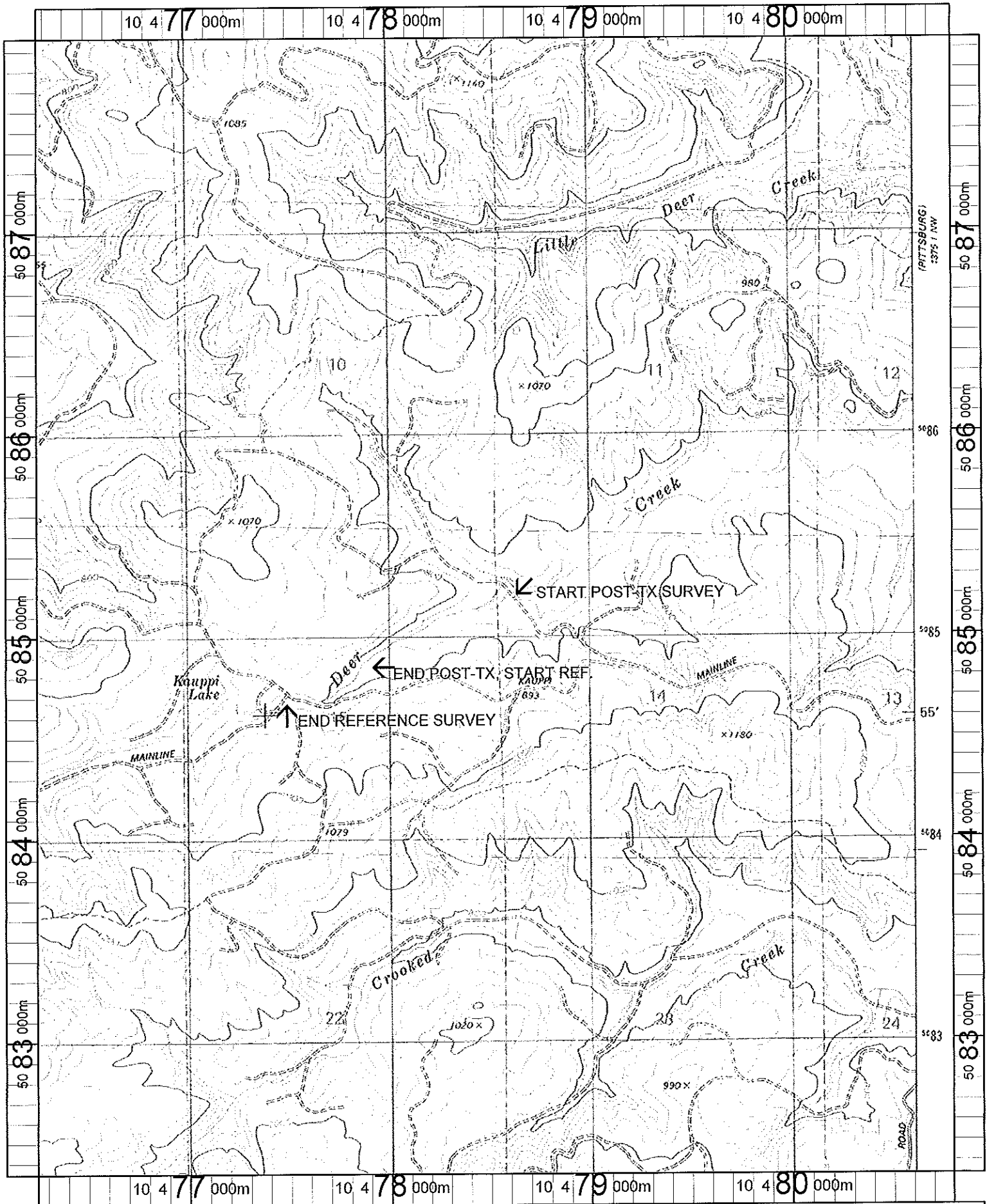
The Deer Creek habitat survey extended 464 meters. The channel was constrained by hillslopes in a moderate V-shaped valley. The average valley width index was 2.6 (range: 1.0-6.0). Land uses for the reach were young (3-15 cm dbh) and second growth (15-30 cm dbh) trees. The average unit gradient was 2.2 percent. Scour pools (64%) and riffles (34%) dominated stream habitat.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		8/12/93	7/8/96	7/31/01	2/5/02
Pool Area	>35%	<10%		23.2	71.8	63.6	69.4
Pool Frequency	5-8	>20%		10.8	2.6	7.1	3.4
Residual Pool Depth	.5-1m	.2-.5m		.51	.39	.45	.67
Complex Pools/km	>2.5	<1		0.0	40.1	27.7	29.2
Width/Depth Ratio	<15	>30		8.1	9.8	6.1	9.6
Riffle Gravel % area	>35%	<15%		56	57	60	69
Silt-Sand-Organic %	<8%	>15%		43	43	28	14
Shade %	>70%	< 60%		95	99	100	
LWD - pieces/100m	>20	<10		40.9	27.8	25.4	25.1
LWD - Volume/100m	>30	<20		56.2	75.3	25.6	31.3
LWD - Key pieces/ 100m	>3	<1		1.9	3.1	0.4	1.1

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: BIRKENFELD
 Date: 1/10/2002
 Scale: 1 inch equals 2000 feet

Location: 10 478533 E 5085147 N
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -
 DEER CREEK - NEHALEM BASIN

REACH 1

T5N-R5W-S15NE

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

Valley Width Index avg: 2.6 range: 1.0-6.0

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	100	Single Channel	0
Bedrock	0	Multiple Channel	0
Terrace	0	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	464	771	0
Secondary	6	5	0

Channel Dimensions (m)

<u>Wetted</u>		<u>Active</u>		<u>Floodprone</u>	<u>First Terrace</u>
Width	1.8	Width	3.5	5.9	6.3
Depth	0.29	Height	0.6	1.1	1.3
		W:D ratio	6.1	Entrenchment	1.6

Stream Flow Type: LF Water Temp: 13.0-13.0°C
 Avg. Unit Gradient: 2.2% Habitat Units/100m: 7.7

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	YT	ST
Riparian Vegetation:	D15	C50

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	26%	Reach avg: 100%
Undercut Banks	10%	Range: 94-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ($\geq 3m \times 0.15m$)	118	25.4
Volume (m ³)	119	25.6
Key pieces ($\geq 10m \times 0.6m$)	2	0.4

REACH 1 T5N-R5W-S15NE 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
CASCADE/BOULDERS	1	14	0.5	0.10	7	6	0	45	40	10	5	0
POOL-LATERAL SCOUR	17	200	2.4	0.50	474	0	2	49	43	5	0	0
POOL-STRAIGHT SCOUR	2	9	2.3	0.45	19	0	0	23	53	23	3	0
RIFFLE	13	223	1.0	0.05	225	0	0	28	60	12	0	0
RIFFLE W/ POCKETS	1	17	2.3	0.10	39	0	0	40	60	0	0	0
STEP/LOG	2	7	1.9	0.02	12	0	0	25	60	15	0	0
Total:	36	470	1.8	0.29	776	6	Avg: 1	38	51	9	0	0

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	19	209	2.4	0.49	493	63.57	0	0.0
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	14	240	1.1	0.06	264	33.99	0	0.0
Rapids	0	0	-	-	0	0.00	0	0.0
Cascades	1	14	0.5	0.10	7	0.93	6	83.3
Step/Falls	2	7	1.9	0.02	12	1.51	0	0.0
Dry	0	0	-	-	0	0.00	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	19	#/Km	40.4
Pools ≥1m deep:		0		0.0
Complex pools (LWD pieces ≥3):		13		27.7
Pool Frequency (channel widths/pool):		7.1		
Residual pool depth (avg)		0.45m		

STREAM SUMMARY

DEER CREEK REFERENCE (#120)

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	
36	470	1.8	0.29	776	1	38	51	9	0	0	6

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	493	63.6
Backwater Pools	0	0.0
Glide	0	0.0
Riffle	264	34.0
Rapid	0	0.0
Cascade	7	0.9
Step	12	1.5
Dry	0	0.0

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft 1,300
 Total conifers/1000 ft 813
 Total conifers >20" dbh/1000 ft 20
 Total conifers >35" dbh/1000 ft 0

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	0.7	4.0	2.0	9.0	6.0	3.3	8.7	16.3
15-30cm	0.3	2.0	2.0	1.0	1.3	0.0	3.7	3.0
30-50cm	0.0	1.0	0.7	0.0	0.0	0.0	0.7	1.0
50-90cm	0.3	1.0	0.0	0.0	0.0	0.0	0.3	1.0
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m ²	1.3	8.0	4.7	10.0	7.3	3.3	4.4	7.1

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	88		87		65	
Shrub cover	8		21		12	
Grass/forb cover	77		68		73	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	83		100		83
High terrace	17		0		0	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		17	
Riprap	0		0		0	
Surface slope (%)	56		48		13	

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	1,300
Total conifers/1000 ft	813
Total conifers >20" dbh/1000 ft	20

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	8.7	16.3
15-30cm	3.7	3.0
30-50cm	0.7	1.0
50-90cm	0.3	1.0
>90cm	0.0	0.0

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	
8	LF	1	HS	70.0	95	5	80	Conifer	1	0	0	0	0	
								Hardwood	0	1	0	0	0	
8	LF	2	HS	40.0	95	20	75	Conifer	2	0	0	0	0	
								Hardwood	4	0	0	0	0	
8	LF	3	HS	25.0	60	10	85	Conifer	8	0	0	0	0	
								Hardwood	0	0	0	0	0	
8	RT	1	HS	50.0	90	15	85	Conifer	0	0	0	0	0	
								Hardwood	2	3	0	0	0	
8	RT	2	HS	25.0	80	20	80	Conifer	1	3	1	0	0	
								Hardwood	7	0	0	0	0	
8	RT	3	HS	0.0	70	10	70	Conifer	1	2	0	0	0	
								Hardwood	0	0	0	0	0	
14	LF	1	HS	75.0	90	5	85	Conifer	1	0	0	1	0	
								Hardwood	1	0	0	0	0	
14	LF	2	HS	75.0	90	15	80	Conifer	0	0	0	0	0	
								Hardwood	3	0	0	0	0	
14	LF	3	HS	25.0	85	15	80	Conifer	3	0	0	0	0	
								Hardwood	0	0	0	0	0	
14	RT	1	HT	20.0	90	15	55	Conifer	0	0	0	0	0	
								Hardwood	2	0	1	1	0	
14	RT	2	HS	50.0	70	5	85	Conifer	0	2	1	0	0	
								Hardwood	0	0	0	0	0	
14	RT	3	HS	0.0	65	25	70	Conifer	0	2	0	0	0	
								Hardwood	8	0	0	0	0	
24	LF	1	HS	35.0	85	5	70	Conifer	0	1	0	0	0	
								Hardwood	3	1	2	2	0	
24	LF	2	HS	60.0	95	5	60	Conifer	1	1	0	0	0	
								Hardwood	6	0	0	0	0	
24	LF	3	RB	30.0	25	0	70	Conifer	2	0	0	0	0	
								Hardwood	0	0	0	0	0	
24	RT	1	HS	85.0	80	0	85	Conifer	0	0	0	0	0	
								Hardwood	4	1	0	0	0	
24	RT	2	HS	40.0	90	60	30	Conifer	2	0	0	0	0	
								Hardwood	7	3	0	0	0	
24	RT	3	HS	0.0	85	10	65	Conifer	4	0	0	0	0	
								Hardwood	2	0	0	0	0	