

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

STREAM: Klotchie Creek (#NC 118)
 BASIN: Necanicum River
 SURVEY TYPE: Reference
 DATE: October 30, 2003
 REPORT PREPARED BY: Paul Jacobsen

The Klotchie Creek reference site is located just downstream of the companion Klotchie Creek treatment site. This site was surveyed for reference conditions in 1992, 1996 and 2001. Pool area and complex pools have increased at this site as has the frequency of pools. Both riffle gravel and fines have dropped to very low levels. Large wood pieces and volume are higher, while key wood pieces have remained stable.

Habitat Variable	ODFW Benchmark		AQI Survey	Post Project	Post Project
	Desirable	Undesirable	8/4/92	7/29/96	7/18/01
Pool Area	>35%	<10%	28.7	24.8	41.2
Pool Frequency	5-8	>20%	4.2	3.3	3.2
Residual Pool Depth	.5-1m	.2-.5m	.46	.52	.54
Complex Pools/km	>2.5	<1	0.0	8.0	10.1
Width/Depth Ratio	<15	>30	11.3	16.4	16.7
Riffle Gravel % area	>35%	<15%	40	26	15
Silt-Sand-Organic %	<8%	>15%	20	16	0
Shade %	>70%	< 60%	89	99	99
LWD - pieces/100m	>20	<10	6.7	7.5	14.5
LWD - Volume/100m	>30	<20	13.3	12.4	18.7
LWD - Key pieces/ 100m	>3	<1	0.4	0.2	0.2

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: Klotchie Creek (NC-118)
BASIN: Necanicum River
SURVEY TYPE: Reference
DATE: July 18, 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 13.0 km²
USGS MAPS: Necanicum Junction
ECOREGION: Coast Range Sitka Spruce

GENERAL DESCRIPTION:

The Klotchie Creek habitat survey extended 537 meters. The channel was unconstrained in a broad valley floor. The average valley width index was 17.4 (range: 10.0 – 30.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 2.3 percent. Scour pools (40%) and rapids (37%) dominated stream habitat. Cobble (44%) and boulders (27%) dominated stream substrate. Wood volume was low at 18.7 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: Klotchie Creek (#NC 118)
 BASIN: Necanicum River
 SURVEY TYPE: Reference
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 13.0 km²
 USGS MAPS: Necanicum Junction
 ECOREGION: Coast Range Sitka Spruce

GENERAL DESCRIPTION:

The Klotchie Creek habitat survey extended 537 meters. The channel was unconstrained in a broad valley floor. The average valley width index was 17.4 (range: 10.0-30.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 2.3 percent. Scour pools (40%) and rapids (37%) dominated stream habitat.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		8/4/92	7/29/96	7/18/01	1/30/02
Pool Area	>35%	<10%		28.7	24.8	41.2	36.2
Pool Frequency	5-8	>20%		4.2	3.3	3.2	4.1
Residual Pool Depth	.5-1m	.2-.5m		.46	.52	.54	.51
Complex Pools/km	>2.5	<1		0.0	8.0	10.1	3.8
Width/Depth Ratio	<15	>30		11.3	16.4	16.7	17.3
Riffle Gravel % area	>35%	<15%		40	26	15	39
Silt-Sand-Organic %	<8%	>15%		20	16	0	22
Shade %	>70%	< 60%		89	99	99	
LWD - pieces/100m	>20	<10		6.7	7.5	14.5	12.6
LWD - Volume/100m	>30	<20		13.3	12.4	18.7	11.1
LWD - Key pieces/ 100m	>3	<1		0.4	0.2	0.2	0.0

COMMENTS:

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

REACH 1

T5N-R10W-S13SE

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 avg: 17.4 range: 10.0-30.0

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0	Single Channel	100
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	537	2,789	0
Secondary	154	426	4

Channel Dimensions (m)

<u>Wetted</u>		<u>Active</u>	<u>Floodprone</u>	<u>First Terrace</u>
Width 4.7	Width	11.8	27.9	0.0
Depth 0.35	Height	0.7	1.4	0.0
	W:D ratio	16.7	Entrenchment	2.4

Stream Flow Type: LF Water Temp: 12.0-12.0°C
 Avg. Unit Gradient: 2.3% Habitat Units/100m: 5.9

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	
Riparian Vegetation:	C15	C50

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	15%	Reach avg: 99%
Undercut Banks	10%	Range: 75-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces (≥3m x 0.15m)	78	14.5
Volume (m ³)	100	18.7
Key pieces (≥10m x 0.6m)	1	0.2

REACH 1

T5N-R10W-S13SE

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	2	39	3.7	0.20	143	7	0	0	18	55	28	0
DRY CHANNEL	1	46	2.6	0.00	120	0	0	10	40	45	5	0
DRY UNITS	1	13	4.0	0.00	52	1	0	5	25	55	15	0
POOL-ALCOVE	1	8	2.3	0.10	19	1	10	15	30	35	10	0
POOL-ISOLATED	1	2	2.0	0.10	5	0	30	70	0	0	0	0
POOL-LATERAL SCOUR	12	195	4.6	0.63	959	5	3	7	18	46	26	0
POOL-PLUNGE	1	8	9.2	1.00	73	0	0	14	14	43	29	0
POOL-STRAIGHT SCOUR	3	40	6.6	0.78	270	6	5	10	17	38	30	0
PUDDLED CHANNEL	2	63	2.9	0.25	181	2	12	40	19	17	12	0
RAPID/BOULDERS	12	238	4.8	0.13	1,189	17	1	2	16	49	33	0
RIFFLE	1	13	7.6	0.10	99	0	0	0	15	65	20	0
RIFFLE W/ POCKETS	1	15	4.6	0.25	68	8	0	5	20	35	40	0
STEP/BOULDERS	1	5	3.2	0.15	15	1	0	0	5	25	70	0
STEP/COBBLE	2	5	5.5	0.08	24	0	3	5	18	50	25	0
Total:	41	690	4.7	0.35	3,215	48	Avg: 3	8	17	44	27	0

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Number	Boulders #/100m ²
Dammed & BW Pools	2	11	2.2	0.10	24	0.74	1	4.2
Scour Pools	16	243	5.3	0.68	1,302	40.49	11	0.8
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	2	28	6.1	0.18	166	5.18	8	4.8
Rapids	12	238	4.8	0.13	1,189	37.00	17	1.4
Cascades	2	39	3.7	0.20	143	4.45	7	4.9
Step/Falls	3	10	4.7	0.10	38	1.19	1	2.6
Dry	4	122	3.1	0.13	352	10.96	3	0.9

POOL SUMMARY

All Pools	<u>Total</u>	18	<u>#/Km</u>	26.1
Pools ≥1m deep:		2		2.9
Complex pools (LWD pieces ≥3):		7		10.1
Pool Frequency (channel widths/pool):		3.2		
Residual pool depth (avg)		0.54m		

STREAM SUMMARY

KLOOTCHIE CR REFERENCE (#118)

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	
41	690	4.7	0.35	3,215	3	8	17	44	27	0	48

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	1,302	40.5
Backwater Pools	24	0.7
Glide	0	0.0
Riffle	166	5.2
Rapid	1,189	37.0
Cascade	143	4.4
Step	38	1.2
Dry	352	11.0

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	488
Total conifers/1000 ft	1,544
Total conifers >20" dbh/1000 ft	142
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	2.7	2.0	1.3	0.0	3.0	1.3	7.0	3.3
15-30cm	2.0	4.0	3.3	0.0	4.0	0.0	9.3	4.0
30-50cm	1.3	0.3	1.3	0.0	4.0	0.0	6.7	0.3
50-90cm	1.7	0.3	0.3	0.0	0.0	0.0	2.0	0.3
>90cm	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0
Total/100m ²	7.7	6.7	6.7	0.0	11.0	1.3	8.4	2.7

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	92		82		93	
Shrub cover	5		3		3	
Grass/forb cover	71		67		44	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	0		17		17
High terrace	67		83		83	
Low terrace	33		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		0		0	
Riprap	0		0		0	
Surface slope (%)	7		5		3	

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	488
Total conifers/1000 ft	1,544
Total conifers >20" dbh/1000 ft	142

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	7.0	3.3
15-30cm	9.3	4.0
30-50cm	6.7	0.3
50-90cm	2.0	0.3
>90cm	0.3	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	
12	LF	1	LT	4.0	90	5	90	Conifer	1	0	0	0	0	
								Hardwood	1	7	0	1	0	
12	LF	2	HT	0.0	95	0	90	Conifer	2	2	0	0	0	
								Hardwood	0	0	0	0	0	
12	LF	3	HT	6.0	95	0	50	Conifer	0	1	3	0	0	
								Hardwood	0	0	0	0	0	
12	RT	1	HT	10.0	80	25	45	Conifer	0	1	2	1	0	
								Hardwood	0	0	0	0	0	
12	RT	2	HS	15.0	95	5	60	Conifer	0	1	1	0	0	
								Hardwood	0	0	0	0	0	
12	RT	3	HS	5.0	95	0	10	Conifer	2	2	3	0	0	
								Hardwood	0	0	0	0	0	LARGE CONIFER STUMP
19	LF	1	LT	4.0	95	0	85	Conifer	2	2	0	0	0	
								Hardwood	4	0	0	0	0	
19	LF	2	HT	4.0	95	0	70	Conifer	0	0	1	1	1	
								Hardwood	0	0	0	0	0	
19	LF	3	HT	5.0	95	0	10	Conifer	4	3	2	0	0	
								Hardwood	1	0	0	0	0	
19	RT	1	HT	2.0	95	0	60	Conifer	2	1	1	1	0	
								Hardwood	0	3	0	0	0	
19	RT	2	HT	2.0	30	10	85	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
19	RT	3	HT	2.0	90	5	40	Conifer	1	2	1	0	0	
								Hardwood	3	0	0	0	0	
31	LF	1	HT	3.0	95	0	90	Conifer	1	2	1	2	0	
								Hardwood	0	0	0	0	0	
31	LF	2	HT	5.0	95	0	90	Conifer	1	6	1	0	0	
								Hardwood	0	0	0	0	0	
31	LF	3	HT	0.0	95	0	85	Conifer	2	2	1	0	0	
								Hardwood	0	0	0	0	0	ROAD IS 20 METERS A
31	RT	1	HT	20.0	95	0	55	Conifer	2	0	0	1	0	
								Hardwood	1	2	1	0	0	
31	RT	2	HT	1.0	80	5	5	Conifer	1	1	1	0	0	
								Hardwood	0	0	0	0	0	
31	RT	3	HT	2.0	85	10	70	Conifer	0	2	2	0	0	
								Hardwood	0	0	0	0	0	