

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

STREAM: Kenusky Creek (#NC 123)
 BASIN: Nehalem River
 SURVEY TYPE: Post-Tx
 DATE: September 9, 2002
 REPORT PREPARED BY: Paul Jacobsen

The Kenusky Creek restoration project was treated in 1995, and then monitored in 1996 and again in 2001 for post-treatment conditions. There is also baseline information available from two years prior to treatment. This site has a companion reference reach located just upstream. After treatment, this reach had a substantial increase in pool area, complex pools, and the frequency of pool occurrence. Riffle gravel is higher and riffle fines have been variable but recently declining. Large wood pieces are higher in 2001, but volume and key pieces lower than in 1996.

Habitat Variable	ODFW	Benchmark	AQI	Post	Post
	Desirable	Undesirable	Survey	Project	Project
			8/20/93	7/9/96	7/11/01
Pool Area	>35%	<10%	4.2	59.9	59.7
Pool Frequency	5-8	>20%	63.4	3.0	3.9
Residual Pool Depth	.5-1m	.2-.5m	.27	.37	.33
Complex Pools/km	>2.5	<1	0.0	17.7	19.1
Width/Depth Ratio	<15	>30	11.8	11.9	17.8
Riffle Gravel % area	>35%	<15%	26	33	34
Silt-Sand-Organic %	<8%	>15%	11	33	18
Shade %	>70%	< 60%	83	91	84
LWD - pieces/100m	>20	<10	20.5	22.6	28.9
LWD - Volume/100m	>30	<20	20.7	25.6	16.4
LWD - Key pieces/ 100m	>3	<1	0.2	1.0	0.3

COMMENTS:

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

The 1996 survey crew recorded seven habitat structures while the crew in 2001 noted fifteen.

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OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT**

STREAM: Kenusky Creek (NC-123)
BASIN: Nehalem River
SURVEY TYPE: Post-Tx
DATE: July 11, 2001
SURVEY CREW: Rachel Werner Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 19.5 km²
USGS MAPS: Bacona
ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

The Kenusky Creek habitat survey extended 726 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 6.2 (range: 3.0 – 12.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.8 percent. Scour pools (60%) dominated stream habitat. Cobble (24%) and gravel (22%) dominated stream substrate. Wood volume was low at 16.4 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.

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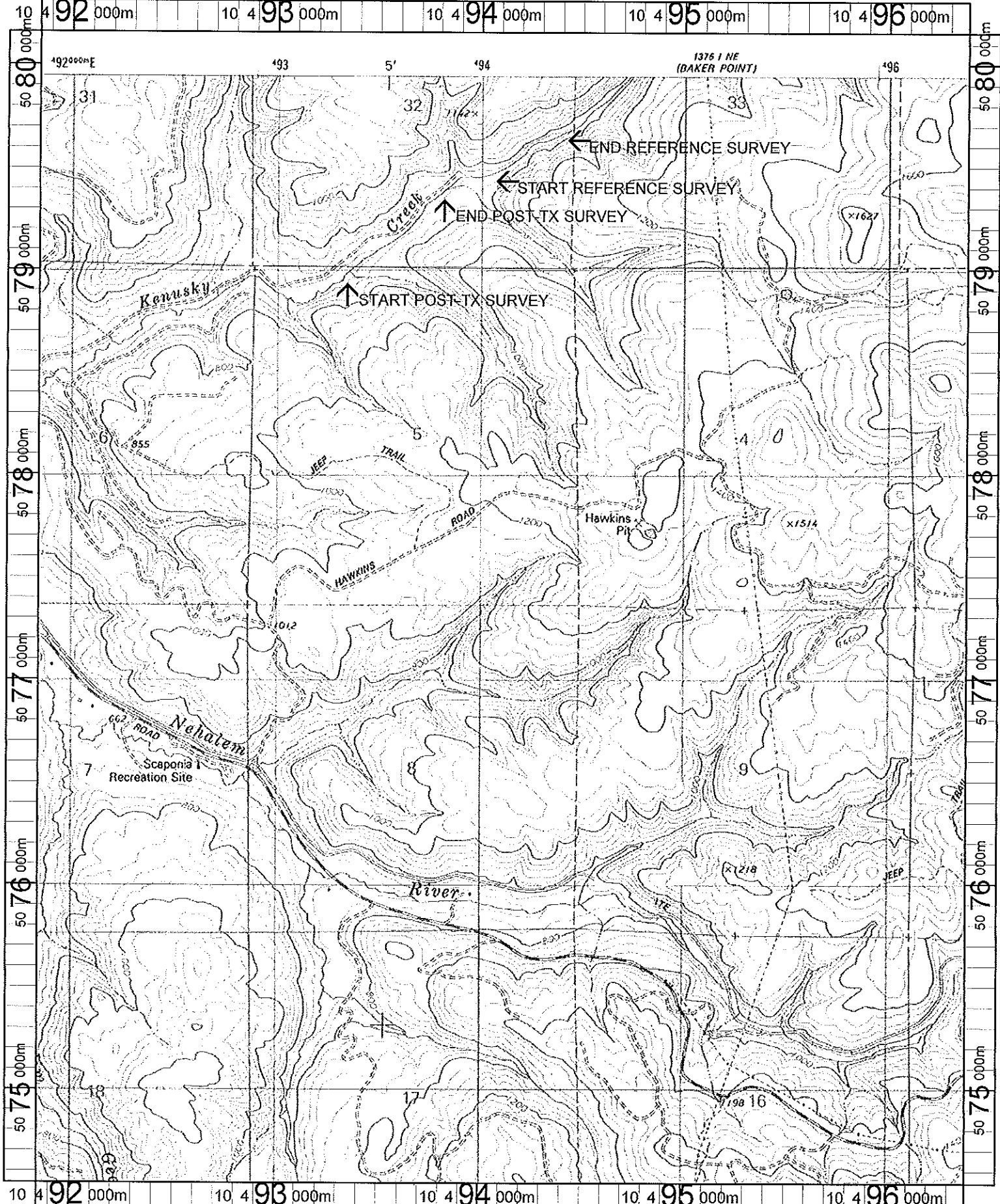
GENERAL DESCRIPTION:

The Kenusky Creek habitat survey extended 726 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 6.2 (range: 3.0-12.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.8 percent. Scour pools (60%) and riffles (19%) dominated stream habitat.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		8/20/93	7/9/96	7/11/01	2/4/02
Pool Area	>35%	<10%		4.2	59.9	59.7	79.8
Pool Frequency	5-8	>20%		63.4	3.0	3.9	3.2
Residual Pool Depth	.5-1m	.2-.5m		.27	.37	.33	.54
Complex Pools/km	>2.5	<1		0.0	17.7	19.1	17.8
Width/Depth Ratio	<15	>30		11.8	11.9	17.8	16.2
Riffle Gravel % area	>35%	<15%		26	33	34	36
Silt-Sand-Organic %	<8%	>15%		11	33	18	17
Shade %	>70%	< 60%		83	91	84	
LWD - pieces/100m	>20	<10		20.5	22.6	28.9	22.1
LWD - Volume/100m	>30	<20		20.7	25.6	16.4	12.4
LWD - Key pieces/ 100m	>3	<1		0.2	1.0	0.3	0.1

COMMENTS:

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



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

Location: 10 494115 E 5077349 N
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -
 KENUSKY CREEK - NEHALEM BASIN

REACH 1

T5N-R3W-S32SW

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: 6.2 range: 3.0-12.0

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	726	2,660	0
Secondary	61	83	2

Channel Dimensions (m)

	<u>Wetted</u>		<u>Active</u>		<u>Floodprone</u>		<u>First Terrace</u>
Width	3.6	Width	7.1		10.8		10.7
Depth	0.27	Height	0.4		0.8		1.0
		W:D ratio	17.8	Entrenchment	1.5		

Stream Flow Type: LF Water Temp: 11.0-11.0°C
 Avg. Unit Gradient: 1.8% Habitat Units/100m: 7.2

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	YT	
Riparian Vegetation:	S	D3

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	8%	Reach avg: 84%
Undercut Banks	13%	Range: 50-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ($\geq 3m \times 0.15m$)	210	28.9
Volume (m ³)	119	16.4
Key pieces ($\geq 10m \times 0.6m$)	2	0.3

REACH 1

T5N-R3W-S32SW

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
POOL-LATERAL SCOUR	23	351	4.1	0.45	1,444	0	16	16	19	16	6	26
POOL-STRAIGHT SCOUR	5	59	3.4	0.40	193	0	19	19	18	13	4	28
PUDDLED CHANNEL	2	55	1.3	0.13	75	0	16	9	12	28	35	0
RAPID/BEDROCK	1	19	2.9	0.07	54	0	1	1	8	20	30	40
RAPID/BOULDERS	12	120	3.3	0.08	381	0	0	3	25	33	34	5
RIFFLE	9	151	3.2	0.14	484	0	4	14	34	23	12	13
RIFFLE W/ POCKETS	1	14	2.5	0.15	35	0	5	20	30	30	15	0
STEP/BOULDERS	1	5	1.4	0.02	8	0	0	0	20	40	40	0
STEP/COBBLE	3	13	5.5	0.04	71	0	0	2	13	63	23	0
Total:	57	787	3.6	0.27	2,743	0	Avg: 9	12	22	24	16	17

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Boulders Number	Boulders #/100m ²
Dammed & BW Pools	0	0	-	-	0	0.00	0	0.0
Scour Pools	28	410	4.0	0.44	1,636	59.66	0	0.0
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	10	165	3.1	0.14	519	18.90	0	0.0
Rapids	13	138	3.2	0.08	435	15.86	0	0.0
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	4	18	4.5	0.04	78	2.85	0	0.0
Dry	2	55	1.3	0.13	75	2.73	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	28	35.6
Pools ≥1m deep:	0	0.0
Complex pools (LWD pieces≥3):	15	19.1
Pool Frequency (channel widths/pool):	3.9	
Residual pool depth (avg)	0.33m	

STREAM SUMMARY

KENUSKY CREEK POST-TX (#123)

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
57	787	3.6	0.27	2,743	9	12	22	24	16	17	0

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	1,636	59.7
Backwater Pools	0	0.0
Glide	0	0.0
Riffle	519	18.9
Rapid	435	15.9
Cascade	0	0.0
Step	78	2.8
Dry	75	2.7

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	406
Total conifers/1000 ft	366
Total conifers >20" dbh/1000 ft	81
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	0.7	2.3	1.0	2.0	1.7	0.7	3.3	5.0
15-30cm	0.0	0.3	0.3	0.0	0.3	0.0	0.7	0.3
30-50cm	0.0	1.3	0.0	0.0	0.7	0.0	0.7	1.3
50-90cm	0.7	0.0	0.3	0.0	0.0	0.0	1.0	0.0
>90cm	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total/100m ²	1.7	4.0	1.7	2.0	2.7	0.7	2.0	2.2

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	37		33		17	
Shrub cover	50		67		45	
Grass/forb cover	50		33		55	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	0		33		83
High terrace	100		50		0	
Low terrace	0		0		0	
Floodplain	0		0		0	
Wetland/meadow	0		0		0	
Stream channel	0		0		0	
Roadbed/Railroad	0		17		17	
Riprap	0		0		0	
Surface slope (%)	6		13		27	

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	406
Total conifers/1000 ft	366
Total conifers >20" dbh/1000 ft	81

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	3.3	5.0
15-30cm	0.7	0.3
30-50cm	0.7	1.3
50-90cm	1.0	0.0
>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	
13	LF	1	HT	4.0	65	40	60	Conifer	0	0	0	2	1	
								Hardwood	0	0	0	0	0	
13	LF	2	HT	12.0	50	80	20	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
13	LF	3	HS	48.0	0	50	50	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	ENDS AT KENUSKY CR
13	RT	1	HT	4.0	0	30	70	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
13	RT	2	HS	18.0	0	100	0	Conifer	0	0	0	0	0	
								Hardwood	1	0	0	0	0	
13	RT	3	HS	8.0	0	80	20	Conifer	1	0	0	0	0	
								Hardwood	0	0	0	0	0	
29	LF	1	HT	10.0	0	90	10	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
29	LF	2	HS	22.0	50	60	40	Conifer	3	0	0	0	0	
								Hardwood	4	0	0	0	0	
29	LF	3	RB	5.0	10	0	100	Conifer	2	0	0	0	0	
								Hardwood	0	0	0	0	0	
29	RT	1	HT	3.0	75	30	70	Conifer	0	0	0	0	0	
								Hardwood	4	0	2	0	0	
29	RT	2	HT	6.0	20	60	40	Conifer	0	0	0	0	0	
								Hardwood	1	0	0	0	0	
29	RT	3	HS	30.0	20	80	20	Conifer	0	0	0	0	0	
								Hardwood	1	0	0	0	0	
44	LF	1	HT	15.0	0	80	20	Conifer	2	0	0	0	0	
								Hardwood	0	0	0	0	0	
44	LF	2	RB	5.0	15	20	80	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
44	LF	3	HS	20.0	0	60	40	Conifer	2	0	0	0	0	
								Hardwood	1	0	0	0	0	
44	RT	1	HT	2.0	80	30	70	Conifer	0	0	0	0	0	
								Hardwood	3	1	2	0	0	
44	RT	2	HT	15.0	65	80	20	Conifer	0	1	0	1	0	
								Hardwood	0	0	0	0	0	
44	RT	3	HS	50.0	70	0	100	Conifer	0	1	2	0	0	
								Hardwood	0	0	0	0	0	