

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

STREAM: Kenusky Creek (#NC 122))  
 BASIN: Nehalem River  
 SURVEY TYPE: Reference  
 DATE: October 30, 2003  
 REPORT PREPARED BY: Paul Jacobsen

The Kenusky Creek reference site is located just upstream of the companion Kenusky Creek treatment site. This site was surveyed for reference conditions in 1993, 1996 and 2001. This reach is much higher in pool area, complex pools and the frequency of pools than in 1993. In addition, riffle gravel has increased in that same period. This may be due to the channel process of the 1996 flood. Similar changes were noted in the treated segment just downstream. Large wood pieces were higher in 2001 than in earlier surveys, but wood volume and key pieces are both lower.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	
Habitat Variable	Desirable	Undesirable		8/20/93	7/9/96	7/11/01	
Pool Area	>35%	<10%		4.2	43.0	47.9	
Pool Frequency	5-8	>20%		63.4	4.4	5.7	
Residual Pool Depth	.5-1m	.2-.5m		.27	.31	.29	
Complex Pools/km	>2.5	<1		0	14.9	19.6	
Width/Depth Ratio	<15	>30		11.8	12.0	14.7	
Riffle Gravel % area	>35%	<15%		26	35	33	
Silt-Sand-Organic %	<8%	>15%		11	27	13	
Shade %	>70%	< 60%		83	92	85	
LWD - pieces/100m	>20	<10		20.5	22.7	33.8	
LWD - Volume/100m	>30	<20		20.7	32.2	16.0	
LWD - Key pieces/ 100m	>3	<1		0.2	0.7	0.0	

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: Kenusky Creek (NC-122)  
BASIN: Nehalem River  
SURVEY TYPE: Reference  
DATE: July 11, 2001  
SURVEY CREW: Rachel Werner, Sean Allen  
REPORT PREPARED BY: Paul Jacobsen  
BASIN AREA: 19.5 km<sup>2</sup>  
USGS MAPS: Bacona  
ECOREGION: Coast Range Astoria Willapa

**GENERAL DESCRIPTION:**

The Kenusky Creek habitat survey extended 273 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 3.8 (range: 2.0 – 5.0). Land use for the reach was young (3-15 cm dbh) trees. The average unit gradient was 1.6 percent. Scour pools (48%) and riffles (28%) dominated stream habitat. Sand (28%) and gravel (22%) dominated stream substrate. Wood volume was low at 16.0 m<sup>3</sup>/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: Kenusky Creek (#NC 122)  
 BASIN: Nehalem River  
 SURVEY TYPE: Reference  
 DATE: September 9, 2002  
 SURVEY CREW: Sean Allen, Rachel Werner  
 REPORT PREPARED BY: Paul Jacobsen  
 BASIN AREA: 19.5 km<sup>2</sup>  
 USGS MAPS: Bacona  
 ECOREGION: Coast Range Astoria Willapa

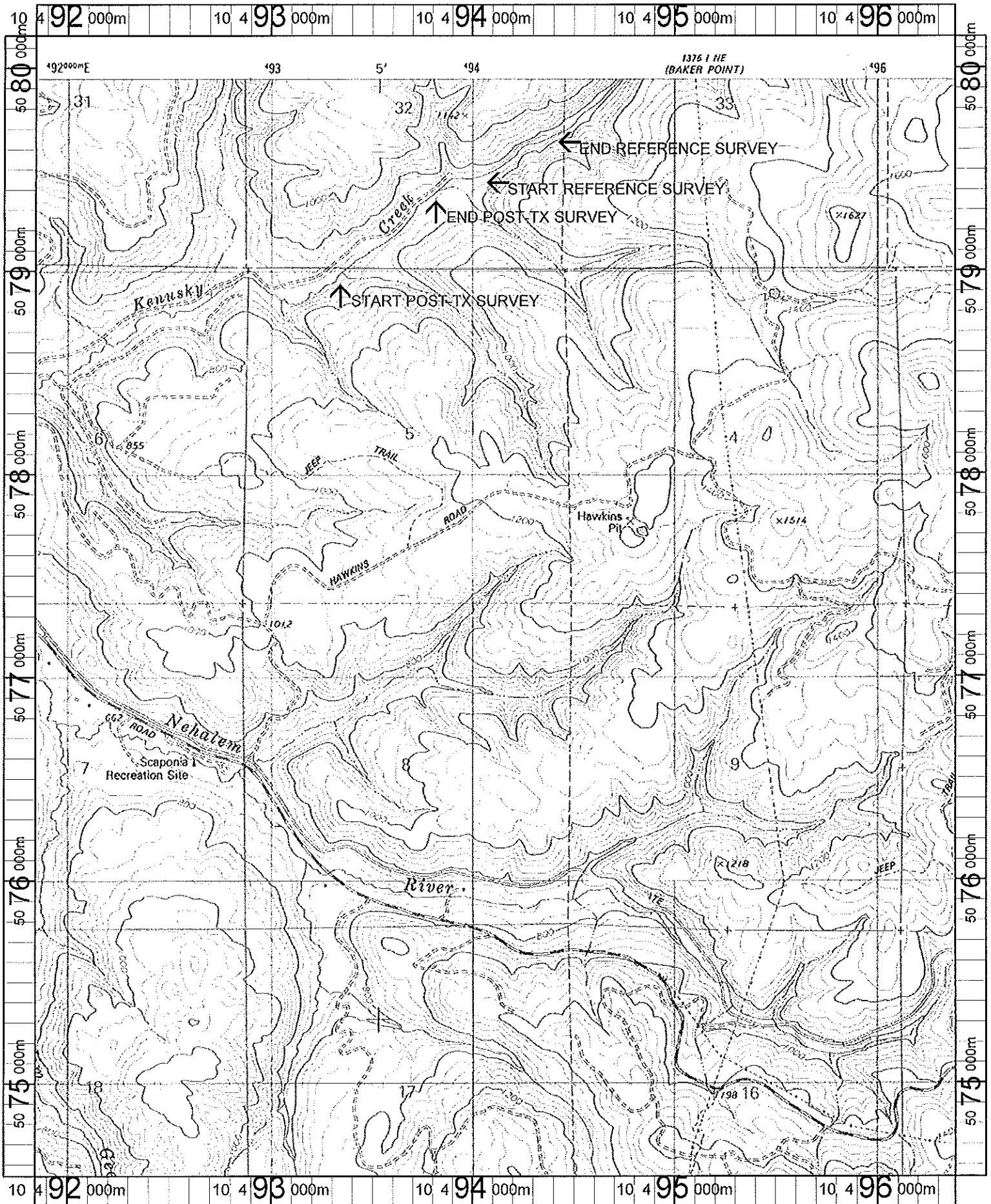
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	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		8/20/93	7/9/96	7/11/01	2/4/02
Pool Area	>35%	<10%		4.2	43.0	47.9	61.7
Pool Frequency	5-8	>20%		63.4	4.4	5.7	4.4
Residual Pool Depth	.5-1m	.2-.5m		.27	.31	.29	.47
Complex Pools/km	>2.5	<1		0	14.9	19.6	20.0
Width/Depth Ratio	<15	>30		11.8	12.0	14.7	13.6
Riffle Gravel % area	>35%	<15%		26	35	33	46
Silt-Sand-Organic %	<8%	>15%		11	27	13	8
Shade %	>70%	< 60%		83	92	85	
LWD - pieces/100m	>20	<10		20.5	22.7	33.8	30.0
LWD - Volume/100m	>30	<20		20.7	32.2	16.0	19.9
LWD - Key pieces/ 100m	>3	<1		0.2	0.7	0.0	0.0

**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: 3.8 range: 2.0-5.0

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	273	792	0
Secondary	34	115	1

Channel Dimensions (m)

<u>Wetted</u>		<u>Active</u>		<u>Floodprone</u>	<u>First Terrace</u>
Width	3.0	Width	6.7	12.5	12.3
Depth	0.19	Height	0.5	0.9	1.0
		W:D ratio	14.7	Entrenchment	1.9

Stream Flow Type: LF Water Temp: 15.0-15.0°C  
 Avg. Unit Gradient: 1.6% Habitat Units/100m: 5.9

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	YT	
Riparian Vegetation:	S	D50

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	13%	Reach avg: 85%
Undercut Banks	7%	Range: 53-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ( $\geq 3m \times 0.15m$ )	92	33.8
Volume (m <sup>3</sup> )	44	16.0
Key pieces ( $\geq 10m \times 0.6m$ )	0	0.0

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 <sup>2</sup> )	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
DRY CHANNEL	1	34	3.4	0.00	115	0	30	40	10	10	10	0
POOL-LATERAL SCOUR	7	137	2.9	0.36	390	0	26	44	17	6	1	7
POOL-STRAIGHT SCOUR	1	14	3.1	0.30	44	0	30	20	5	5	0	40
RAPID/BOULDERS	2	27	3.0	0.04	85	0	0	3	23	45	30	0
RIFFLE	6	90	2.8	0.07	257	1	3	10	33	13	2	40
STEP/LOG	1	4	4.5	0.10	17	0	10	70	20	0	0	0
<b>Total:</b>	<b>18</b>	<b>306</b>	<b>3.0</b>	<b>0.19</b>	<b>907</b>	<b>1</b>	<b>Avg:15</b>	<b>28</b>	<b>22</b>	<b>12</b>	<b>5</b>	<b>18</b>

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m <sup>2</sup> )	Percent	Large Boulders Number	Boulders #/100m <sup>2</sup>
Dammed & BW Pools	0	0	-	-	0	0.00	0	0.0
Scour Pools	8	151	2.9	0.35	434	47.90	0	0.0
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	6	90	2.8	0.07	257	28.30	1	0.4
Rapids	2	27	3.0	0.04	85	9.32	0	0.0
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	1	4	4.5	0.10	17	1.84	0	0.0
Dry	1	34	3.4	0.00	115	12.64	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	8	26.1
Pools ≥1m deep:	0	0.0
Complex pools (LWD pieces ≥3):	6	19.6
Pool Frequency (channel widths/pool):	5.7	
Residual pool depth (avg)	0.29m	

STREAM SUMMARY

KENUSKY CREEK REFERENCE (#122)

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m <sup>2</sup> )	Substrate Percent Wetted Area						Total Large Boulder
					S/O	Sand	Grvl	Cbbl	Bldr	Bdrk	
18	306	3.0	0.19	907	15	28	22	12	5	18	1

Wetted Area

Habitat Group	(m <sup>2</sup> )	Percent
Scour Pool	434	47.9
Backwater Pools	0	0.0
Glide	0	0.0
Riffle	257	28.3
Rapid	85	9.3
Cascade	0	0.0
Step	17	1.8
Dry	115	12.6

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REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	650
Total conifers/1000 ft	284
Total conifers >20" dbh/1000 ft	0
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	0.3	0.0	1.3	6.0	2.3	1.7	4.0	7.7
15-30cm	0.3	0.7	0.0	1.0	0.0	0.0	0.3	1.7
30-50cm	0.0	0.3	0.0	0.3	0.3	0.0	0.3	0.7
50-90cm	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.7
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m <sup>2</sup>	0.7	1.7	1.3	7.3	2.7	1.7	1.6	3.6

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	31		52		22	
Shrub cover	64		65		34	
Grass/forb cover	33		35		66	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	17		83		100
High terrace	67		17		0	
Low terrace	17		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 (%)	8		23		30	



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	650
Total conifers/1000 ft	284
Total conifers >20" dbh/1000 ft	0

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	4.0	7.7
15-30cm	0.3	1.7
30-50cm	0.3	0.7
50-90cm	0.0	0.7
>90cm	0.0	0.0

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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	
6	LF	1	HT	3.0	60	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	2	0	1	0	
6	LF	2	HT	8.0	50	50	50	Conifer	0	0	0	0	0	
								Hardwood	10	0	0	0	0	
6	LF	3	HS	15.0	30	80	20	Conifer	0	0	1	0	0	
								Hardwood	0	0	0	0	0	
6	RT	1	LT	5.0	5	30	50	Conifer	1	0	0	0	0	
								Hardwood	0	0	0	0	0	
6	RT	2	HS	4.0	30	30	70	Conifer	4	0	0	0	0	
								Hardwood	0	0	0	0	0	
6	RT	3	HS	20.0	10	15	85	Conifer	1	0	0	0	0	
								Hardwood	1	0	0	0	0	
11	LF	1	HT	8.0	20	80	20	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
11	LF	2	HS	10.0	20	80	20	Conifer	0	0	0	0	0	
								Hardwood	4	0	0	0	0	VINE MAPLE
11	LF	3	HS	8.0	0	50	50	Conifer	1	0	0	0	0	
								Hardwood	0	0	0	0	0	
11	RT	1	HT	5.0	30	90	10	Conifer	0	1	0	0	0	
								Hardwood	0	0	0	0	0	
11	RT	2	HS	12.0	70	80	20	Conifer	0	0	0	0	0	
								Hardwood	0	1	1	0	0	ALDER
11	RT	3	HS	16.0	50	20	80	Conifer	3	0	0	0	0	
								Hardwood	0	0	0	0	0	FIR
14	LF	1	HT	3.0	60	95	5	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	1	0	
14	LF	2	HS	8.0	80	90	10	Conifer	0	0	0	0	0	
								Hardwood	4	2	0	0	0	
14	LF	3	HS	0.0	10	30	70	Conifer	0	0	0	0	0	
								Hardwood	2	0	0	0	0	
14	RT	1	HS	25.0	8	90	10	Conifer	0	0	0	0	0	
								Hardwood	0	0	1	0	0	
14	RT	2	HS	95.0	60	60	40	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
14	RT	3	HS	120.0	30	10	90	Conifer	2	0	0	0	0	
								Hardwood	2	0	0	0	0	