

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

STREAM: West Fork Ecola Creek (#NC 115)
 BASIN: Ecola Creek
 SURVEY TYPE: Post-Tx
 DATE: November 3, 2003
 REPORT PREPARED BY: Paul Jacobsen

The West Fork Ecola 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 three years prior to treatment. This site has a companion reference reach located just upstream. Pool area has decreased through time, while complex pools are more common, and pool frequency has remained somewhat constant. Riffle gravel and fines are higher than before treatment. Large wood pieces are increased, while volume and key pieces are higher than before treatment yet lower than immediately after treatment.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	
Habitat Variable	Desirable	Undesirable		7/1/92	9/18/96	7/23/01	
Pool Area	>35%	<10%		64.5	59.9	53.9	
Pool Frequency	5-8	>20%		4.4	2.9	3.7	
Residual Pool Depth	.5-1m	.2-.5m		.55	1.05	1.11	
Complex Pools/km	>2.5	<1		0.0	16.0	10.2	
Width/Depth Ratio	<15	>30		28.8	15.4	21.7	
Riffle Gravel % area	>35%	<15%		30	75	54	
Silt-Sand-Organic %	<8%	>15%		30	8	11	
Shade %	>70%	< 60%		80	84	84	
LWD - pieces/100m	>20	<10		4.7	18.5	21.8	
LWD - Volume/100m	>30	<20		9.7	31.8	15.1	
LWD - Key pieces/ 100m	>3	<1		0.5	1.7	0.7	

COMMENTS:

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

The 1996 survey crew recorded eleven habitat structures while the 2001 crew noted nine.

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STREAM RESTORATION HABITAT REPORT

STREAM: West Fork Ecola Creek (NC-115)
BASIN: Ecola Creek
SURVEY TYPE: Post-Tx
DATE: July 23, 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 24.3 km²
USGS MAPS: Arch Cape
ECOREGION: Coast Range Astoria Willapa

GENERAL DESCRIPTION:

The West Fork Ecola Creek habitat survey extended 716 meters. The channel was constrained by terraces in a broad valley floor. The average valley width index was 15.8 (range: 11.0 – 20.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 0.9 percent. Scour pools (53%) and riffles (39%) dominated stream habitat. Gravel (50%) and cobble (27%) dominated stream substrate. Wood volume was low at 15.1 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: West Fork Ecola Creek (#NC 115)
 BASIN: Ecola Creek
 SURVEY TYPE: Post-Tx
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 24.3 km²
 USGS MAPS: Arch Cape
 ECOREGION: Coast Range Astoria Willapa

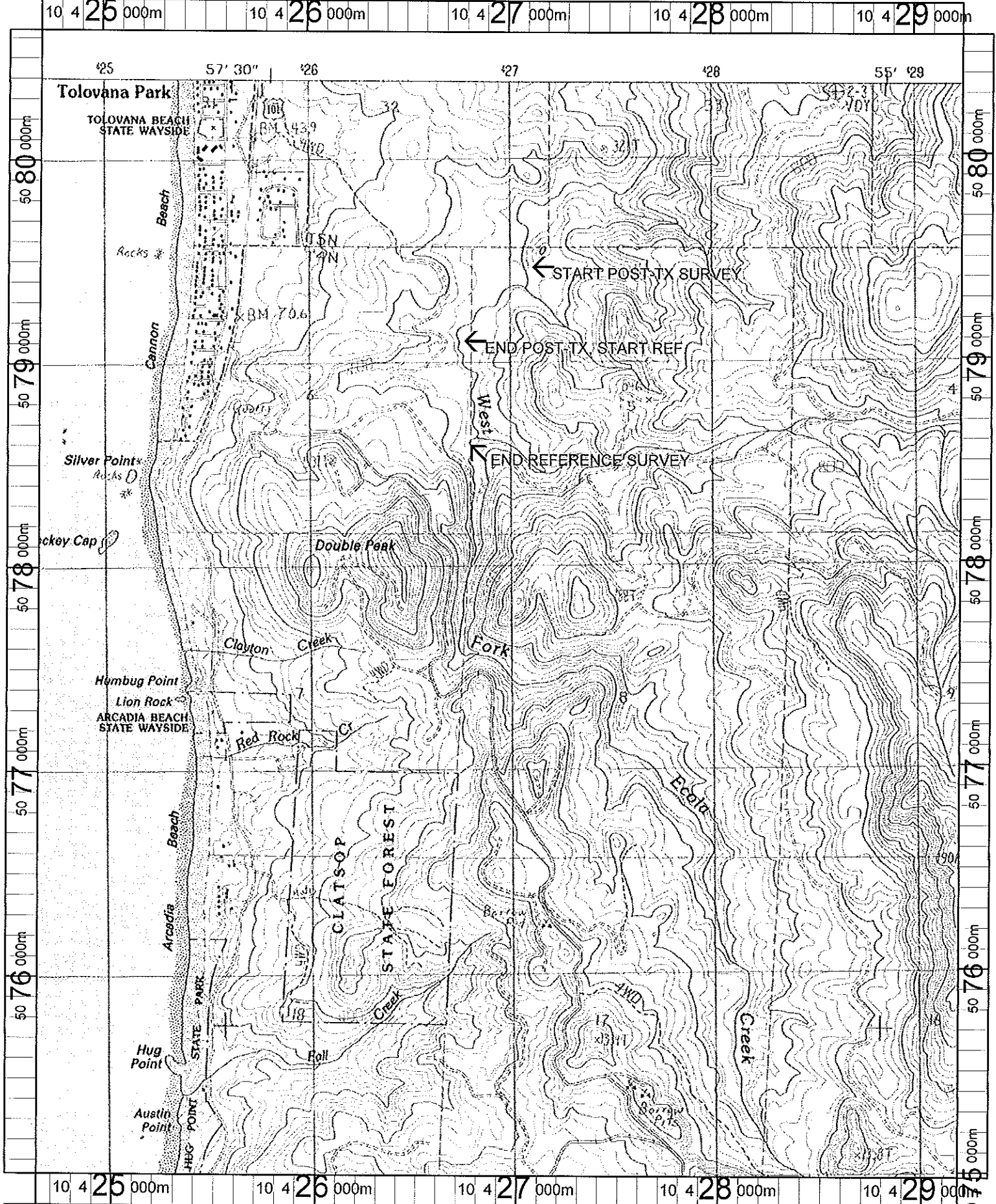
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	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		7/1/92	9/18/96	7/23/01	2/22/02
Pool Area	>35%	<10%		64.5	59.9	53.9	54.3
Pool Frequency	5-8	>20%		4.4	2.9	3.7	2.3
Residual Pool Depth	.5-1m	.2-.5m		.55	1.05	1.11	1.06
Complex Pools/km	>2.5	<1		0.0	16.0	10.2	12.1
Width/Depth Ratio	<15	>30		28.8	15.4	21.7	24.3
Riffle Gravel % area	>35%	<15%		30	75	54	45
Silt-Sand-Organic %	<8%	>15%		30	8	11	9
Shade %	>70%	< 60%		80	84	84	
LWD - pieces/100m	>20	<10		4.7	18.5	21.8	18.1
LWD - Volume/100m	>30	<20		9.7	31.8	15.1	17.8
LWD - Key pieces/ 100m	>3	<1		0.5	1.7	0.7	1.1

COMMENTS:

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



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

Location: 10 426937 E 5077808 N
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -
 WF ECOLA CREEK - ECOLA BASIN

REACH 1

T5N-R10W-S5NW

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: 15.8 range: 11.0-20.0

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	716	5,187	0
Secondary	164	404	2

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u>	<u>First Terrace</u>
Width 6.1	Width 14.7	23.5	28.3
Depth 0.57	Height 0.7	1.3	1.5
	W:D ratio 21.7	Entrenchment 1.6	

Stream Flow Type: LF Water Temp: 12.0-12.0°C
 Avg. Unit Gradient: 0.9% Habitat Units/100m: 4.3

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	
Riparian Vegetation:	M15	

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	14%	Reach avg: 84%
Undercut Banks	9%	Range: 56-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces (≥3m x 0.15m)	156	21.8
Volume (m ³)	108	15.1
Key pieces (≥10m x 0.6m)	5	0.7

REACH 1

T5N-R10W-S5NW

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-BACKWATER	2	12	2.9	0.45	33	0	18	18	58	8	0	0
POOL-LATERAL SCOUR	14	385	7.1	1.22	2,979	0	9	19	53	16	1	3
PUDDLED CHANNEL	2	80	3.3	0.25	249	0	13	28	29	24	6	0
RIFFLE	13	308	5.6	0.16	1,902	0	2	9	54	31	3	0
RIFFLE W/ POCKETS	3	80	3.8	0.30	299	1	3	8	51	35	2	0
STEP/COBBLE	4	15	9.4	0.08	129	0	0	3	34	56	7	0
Total:	38	880	6.1	0.57	5,591	1	Avg: 6	13	50	27	3	1

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	12	2.9	0.45	33	0.59	0	0.0
Scour Pools	14	385	7.1	1.22	2,979	53.28	0	0.0
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	16	388	5.2	0.18	2,201	39.37	1	*,***.*
Rapids	0	0	-	-	0	0.00	0	0.0
Cascades	0	0	-	-	0	0.00	0	0.0
Step/Falls	4	15	9.4	0.08	129	2.31	0	0.0
Dry	2	80	3.3	0.25	249	4.45	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	16	18.2
Pools ≥1m deep:	10	11.4
Complex pools (LWD pieces ≥3):	9	10.2
Pool Frequency (channel widths/pool):	3.7	
Residual pool depth (avg)	1.11m	

STREAM SUMMARY

WF ECOLA CREEK POST-TX (#115)

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	
38	880	6.1	0.57	5,591	6	13	50	27	3	1	1

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	2,979	53.3
Backwater Pools	33	0.6
Glide	0	0.0
Riffle	2,201	39.4
Rapid	0	0.0
Cascade	0	0.0
Step	129	2.3
Dry	249	4.4

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

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

Total hardwoods/1000 ft	711
Total conifers/1000 ft	732
Total conifers >20" dbh/1000 ft	81
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	2.0	0.0	1.7	0.0	0.7	0.0	4.3	0.0
15-30cm	1.7	4.7	0.3	2.7	3.3	3.0	5.3	10.3
30-50cm	0.0	1.0	0.3	0.0	0.7	0.3	1.0	1.3
50-90cm	0.7	0.0	0.0	0.0	0.7	0.0	1.3	0.0
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m ²	4.3	5.7	2.3	2.7	5.3	3.3	4.0	3.9

Canopy closure and ground cover

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	(%)		(%)		(%)	
Canopy closure	62		59		77	
Shrub cover	1		1		0	
Grass/forb cover	98		95		89	

Predominant landform in each zone

	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters	
	Hillslope	0		0		17
High terrace	100		100		83	
Low terrace	0		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 (%)	9		8		5	

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	711
Total conifers/1000 ft	732
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	4.3	0.0
15-30cm	5.3	10.3
30-50cm	1.0	1.3
50-90cm	1.3	0.0
>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	
10	LF	1	HT	9.0	65	0	100	Conifer	0	2	0	0	0	
								Hardwood	0	2	0	0	0	
10	LF	2	HT	3.0	5	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
10	LF	3	HT	0.0	60	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	3	0	0	0	
10	RT	1	HT	8.0	75	0	95	Conifer	0	1	0	0	0	
								Hardwood	0	3	0	0	0	
10	RT	2	HT	0.0	85	0	80	Conifer	0	0	1	0	0	
								Hardwood	0	0	0	0	0	
10	RT	3	HT	0.0	80	0	95	Conifer	0	0	0	0	0	
								Hardwood	0	3	0	0	0	
18	LF	1	HT	3.0	65	5	95	Conifer	1	0	0	0	0	
								Hardwood	0	3	1	0	0	
18	LF	2	HT	0.0	80	0	95	Conifer	0	0	0	0	0	
								Hardwood	0	5	0	0	0	
18	LF	3	HT	5.0	85	0	85	Conifer	1	3	0	0	0	
								Hardwood	0	0	0	0	0	
18	RT	1	HT	14.0	60	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	1	2	0	0	
18	RT	2	HT	1.0	70	0	100	Conifer	1	1	0	0	0	
								Hardwood	0	0	0	0	0	
18	RT	3	HT	0.0	75	0	65	Conifer	0	4	1	0	0	
								Hardwood	0	3	0	0	0	
26	LF	1	HT	13.0	25	0	100	Conifer	5	1	0	0	0	
								Hardwood	0	0	0	0	0	
26	LF	2	HT	1.0	55	0	100	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
26	LF	3	HT	0.0	85	0	95	Conifer	0	0	0	2	0	
								Hardwood	0	0	1	0	0	
26	RT	1	HT	8.0	80	0	100	Conifer	0	1	0	2	0	
								Hardwood	0	5	0	0	0	
26	RT	2	HT	40.0	60	5	95	Conifer	4	0	0	0	0	
								Hardwood	0	3	0	0	0	
26	RT	3	HS	22.0	75	0	95	Conifer	1	3	1	0	0	
								Hardwood	0	0	0	0	0	