

**APPENDIX E - REACH-SCALE ANALYSIS MATRICES**

**DRAFT**

Shoreline Lengths and Reach Areas

Reach Name	Shoreline Length (Mi)	Shoreline Length (Ft)	Area (Acres)
<b>WRIA 27: Lewis River</b>			
BIGT_CK_01	0.45	2,384	24.92
BIGT_CK_02	3.24	17,114	155.54
CANY_CR_01	2.86	15,126	159.71
CANY_CR_02	5.12	27,033	281.77
CED2_CR_01	3.23	17,062	299.93
CEDA_CR_01	4.38	23,113	232.31
CEDA_CR_02	6.95	36,691	486.00
CEDA_CR_03	8.96	47,316	474.94
CHEL_CR_01	0.63	3,333	30.71
CHEL_CR_02	3.74	19,765	263.00
COPP_CR_01	1.54	8,139	78.57
COYO_CR_01	1.14	5,994	61.55
EFLE_RV_01	3.52	18,573	471.39
EFLE_RV_02	2.58	13,599	763.88
EFLE_RV_03	10.49	55,393	2,025.62
EFLE_RV_04	4.95	26,126	309.85
EFLE_RV_05	3.47	18,328	257.13
EFLE_RV_06	1.70	8,959	91.31
EFLE_RV_07	2.78	14,671	148.13
EFLE_RV_08	3.72	19,633	187.45
FLY_CR_01	7.53	39,739	418.29
GEE_CR_01	4.38	23,128	238.32
HATH_LK_01	6.23	32,874	228.64
HORS_LK_01	2.77	14,612	86.30
KING_CK_01	2.36	12,450	120.80
LANC_LK_01	1.34	7,064	235.07
LEWI_RV_01	3.37	17,814	659.66
LEWI_RV_02	13.13	69,337	1,758.44
LEWI_RV_03	3.90	20,586	147.17
LEWI_RV_04	0.94	4,987	30.85
LOCK_CR_01	2.06	10,867	111.73
MASO_CK_01	3.73	19,684	264.34
MERW_LK_01	10.26	54,181	2,486.29
MERW_LK_02	2.22	11,719	121.75
MERW_LK_03	0.91	4,790	39.22
MUD_LK_01	2.28	12,027	152.84
NSIO_CR_01	1.36	7,177	64.91
PUP_CK_01	0.46	2,405	23.28
ROC1_CR_01	4.15	21,895	202.04
ROC3_CR_01	3.08	16,250	149.88
ROC3_CR_02	2.79	14,756	140.19
ROC3_CR_03	2.75	14,509	139.55
SIOU_CR_01	4.45	23,514	329.17
UCHE_CK_01	1.70	8,965	390.65
UNNA_LK_01	1.05	5,521	49.85
YACO_CK_01	0.65	3,445	42.44
YALE_LK_01	10.98	57,970	2,169.07
<b>WRIA 27: Lewis River Total</b>	<b>176.25</b>	<b>930,619</b>	<b>17,604.46</b>

Shoreline Lengths and Reach Areas

Reach Name	Shoreline Length (Mi)	Shoreline Length (Ft)	Area (Acres)
<b>WRIA 28: Salmon-Washougal</b>			
BATT_LK_01	0.74	3,909	46.25
BOUL_CK_01	1.64	8,654	91.92
BURN_CR_01	5.53	29,174	315.40
BURN_CR_02	1.07	5,663	113.69
CAMP_LK_01	1.04	5,502	17.89
CANV_LK_01	2.16	11,426	123.28
COLU_RV_01	7.05	37,221	1,678.43
COLU_RV_02	9.79	51,688	7,489.47
COLU_RV_03	16.45	86,877	3,929.58
COLU_RV_04	0.94	4,971	180.61
COLU_RV_05	7.12	37,577	3,656.09
COUG_CR_01	1.36	7,178	65.68
CURT_CR_01	2.44	12,906	173.29
EFLW_RV_01	0.89	4,696	43.28
FALL_LF_LK_01	1.20	6,353	52.45
FIPL_CR_01	2.26	11,946	933.36
GIBB_CR_01	0.29	1,518	22.96
GIBB_CR_02	0.03	135	0.53
GREE_LK_01	2.38	12,581	195.12
HAGE_CR_01	1.08	5,683	53.45
LACA_CR_01	1.49	7,854	77.80
LACA_CR_02	5.88	31,026	1,656.81
LACA_CR_03	3.30	17,438	447.28
LACA_CR_04	4.35	22,948	340.29
LACA_LK_01	6.29	33,205	475.74
LAKE_RV_01	5.02	26,484	919.02
LAKE_RV_02	1.99	10,514	300.96
LAWT_CR_01	0.05	262	11.54
LWAS_RV_01	8.01	42,269	426.59
MATN_CR_01	1.35	7,149	88.39
MILL_CR_01	2.52	13,282	146.97
MORG_CR_01	1.53	8,074	253.05
NFLA_CR_01	0.63	3,324	31.81
POST_LK_01	0.40	2,109	14.46
ROC2_CR_01	1.86	9,816	105.31
ROUN_LK_01	1.89	10,004	72.03
SALM_CR_01	9.12	48,169	922.37
SALM_CR_02	2.51	13,251	142.34
SALM_CR_03	6.87	36,293	433.06
SALM_CR_04	5.07	26,782	360.43
SALM_CR_05	1.51	7,962	104.88
UNNA_LK_02	3.12	16,470	109.34
UNNA_LK_03	1.47	7,741	40.21
VANC_LK_01	8.90	47,001	2,608.29
VANC_LK_02	3.54	18,674	738.21
WASH_RV_01	0.67	3,523	126.02
WASH_RV_02	4.73	24,969	392.12
WASH_RV_03	2.83	14,945	164.30
WASH_RV_04	3.85	20,342	241.45
WHIP_CR_01	2.06	10,865	128.25
<b>WRIA 28: Salmon-Washougal Total</b>	<b>168.26</b>	<b>888,406</b>	<b>31,062.03</b>
<b>Grand Total</b>	<b>344.51</b>	<b>1,819,024</b>	<b>48,666.48</b>

Existing Shoreline Environment Designations

Reach Name	Existing Shoreline Environment Designation	Length (Miles)	%
<b>WRIA 27: Lewis River</b>			
BIGT_CK_01	Conservancy	0.19	100%
BIGT_CK_02	Conservancy	2.59	100%
CANY_CR_01	Conservancy	5.65	100%
CANY_CR_02	Conservancy	10.61	100%
CED2_CR_01	Conservancy	2.44	100%
CEDA_CR_01	Rural	5.16	100%
CEDA_CR_02	Rural	6.04	100%
CEDA_CR_03	Conservancy	2.3	34%
	Rural	4.53	66%
CHEL_CR_01	Rural	1.66	100%
CHEL_CR_02	Rural	2.51	100%
COPP_CR_01	Conservancy	2.49	100%
EFLE_RV_01	Conservancy	1.99	24%
	Rural	5.9	71%
	Urban	0.47	6%
EFLE_RV_02	Rural	5.2	98%
	Urban	0.08	2%
EFLE_RV_03	Conservancy	6.38	27%
	Rural	17.47	73%
EFLE_RV_04	Rural	7.17	100%
EFLE_RV_05	Conservancy	3.85	70%
	Rural	1.62	30%
EFLE_RV_06	Conservancy	3.07	100%
EFLE_RV_07	Conservancy	5.33	100%
EFLE_RV_08	Conservancy	7.11	100%
FLY_CR_01	Conservancy	7.68	100%
GEE_CR_01	Conservancy	1.64	31%
	Rural	3.69	69%
HATH_LK_01	Rural	6.83	100%
HORS_LK_01	Urban	1.53	100%
KING_CK_01	Conservancy	2.21	100%
LANC_LK_01	Rural	1.2	100%
LEWI_RV_01	Conservancy	1.79	53%
	Rural	1.59	47%
LEWI_RV_02	Conservancy	0.4	3%
	Rural	13.26	89%
	Urban	1.31	9%
LEWI_RV_03	Conservancy	4.07	100%
LEWI_RV_04	Conservancy	20.98	100%
LOCK_CR_01	Rural	1.14	100%
MASO_CK_01	Rural	3.92	100%
MERW_LK_03	Conservancy	27.48	100%
MUD_LK_01	Conservancy	3.28	100%
ROC1_CR_01	Conservancy	1.36	68%
	Rural	0.65	32%
ROC3_CR_01	Conservancy	3.87	100%
ROC3_CR_02	Conservancy	2.31	100%
SIOU_CR_01	Conservancy	8.9	100%
UCHE_CK_01	Rural	1.27	100%
YACO_CK_01	Conservancy	1.35	100%
YALE_LK_01	Conservancy	0.1	100%
<b>Lewis Total</b>		<b>235.62</b>	
<b>WRIA 28: Salmon-Washougal</b>			
BATT_LK_01	Conservancy	0.37	50%
	Natural	0.37	50%
BOUL_CK_01	Conservancy	1.24	100%
BURN_CR_01	Urban Conservancy	3.97	73%
	Urban High Intensity	0.28	5%
	Urban Medium Intensity	1.18	22%
BURN_CR_02	Urban Conservancy	1.82	55%
	Urban High Intensity	1.3	40%
	Urban Medium Intensity	0.17	5%
CAMP_LK_01	Rural	1.45	100%
CANV_LK_01	Rural	3.38	100%
COLU_RV_01	Rural	12	100%
COLU_RV_02	Rural	3.58	27%
	Urban Conservancy	5.32	41%
	Urban High Intensity	4.17	32%
COLU_RV_03	Conservancy	1.66	7%
	Urban Conservancy	1.47	6%

Existing Shoreline Environment Designations

Reach Name	Existing Shoreline Environment Designation	Length (Miles)	%
	Urban High	6.23	26%
	Urban High Intensity	4.15	17%
	Urban Low Intensity	7.18	30%
	Urban Medium / Low	3.08	13%
	Urban Natural	0.43	2%
COLU_RV_04	Urban	0.29	31%
	Urban Medium / Low	0.64	69%
COLU_RV_05	Conservancy	8.21	62%
	Rural	2.54	19%
	Urban	2.4	18%
CURT_CR_01	Rural	2.21	86%
	Urban High Intensity	0.35	14%
EFLW_RV_01	Conservancy	0.86	100%
FALL_LF_LK_01	Conservancy	0.24	34%
	Natural	0.46	66%
FIPL_CR_01	Rural	2.22	100%
GREE_LK_01	Rural	2.39	100%
HAGE_CR_01	Conservancy	0.61	100%
LACA_CR_01	Conservancy	1.75	78%
	Urban Medium / Low	0.49	22%
LACA_CR_02	Conservancy	1.81	25%
	Rural	5.34	75%
LACA_CR_03	Rural	3.2	100%
LACA_CR_04	Rural	1.76	100%
LACA_LK_01	Conservancy	7.36	95%
	Natural	0.4	5%
LAKE_RV_01	Conservancy	0.01	0%
	Rural	16.65	88%
	Urban	1.09	6%
	Urban Conservancy	1.22	6%
LAKE_RV_02	Conservancy	0.72	24%
	Urban Conservancy	2.23	76%
LWAS_RV_01	Conservancy	0.84	11%
	Rural	6.92	89%
MILL_CR_01	Urban Conservancy	1.76	100%
MORG_CR_01	Urban	1.83	100%
POST_LK_01	Rural	1.53	100%
ROC2_CR_01	Rural	0.78	100%
ROUN_LK_01	Conservancy	1.72	100%
SALM_CR_01	Conservancy	0.01	0%
	Urban Conservancy	12.03	80%
	Urban High Intensity	0.5	3%
	Urban Low Intensity	2.51	17%
SALM_CR_02	Conservancy	0.03	1%
	Urban Conservancy	1.99	80%
	Urban Low Intensity	0.48	19%
SALM_CR_03	Rural	5.51	96%
	Urban	0.2	4%
SALM_CR_04	Rural	4.35	93%
	Urban	0.35	7%
SALM_CR_05	Rural	1.72	100%
VANC_LK_01	Urban Conservancy	11.37	88%
	Urban Natural	1.58	12%
VANC_LK_02	Urban Conservancy	2.26	100%
WASH_RV_01	Conservancy	0.87	27%
	Natural	1.11	34%
	Urban	0.17	5%
	Urban High	0.58	18%
	Urban Medium / Low	0.5	15%
WASH_RV_02	Conservancy	3.42	38%
	Urban	5.3	59%
	Urban Medium / Low	0.28	3%
WASH_RV_03	Conservancy	5.21	100%
WASH_RV_04	Conservancy	8.28	100%
WHIP_CR_01	Rural	2.28	100%
<b>WRIA 28: Salmon-Washougal Total</b>		<b>220.52</b>	
<b>Grand Total</b>		<b>456.14</b>	

# Clark County Shoreline Ecological Functions

## Hydrologic Function

### High

IWA Hydrology Score = Functional
2009 Ecology Watershed Characterization = Protection or Restoration
Tidal Influence
Lacks levees, significant modifications or confinement
High to moderate Channel Migration Zone (CMZ)
Stream Health Report, SNAP reports indicate healthy waterbody

### Moderate

IWA Hydrology Score = Moderate
2009 Ecology Watershed Characterization = Restoration or Develop
Some levees, modification or confinement
Moderate to low CMZ
Stream Health Report, SNAP: moderate function

### Low

IWA Hydrology Score = Impaired
2009 Ecology Watershed Characterization = Develop
Has levees, confinement, significant modifications
Low or no CMZ
Stream Health Report, SNAP: low function

## Riparian Function

### High

IWA Score Riparian = F or M
Land Cover in Reach = 50% or more Forested or Floodplain /Riparian
Aerial photographs from 2009 show 150 feet or more forested riparian zone in majority (75%) of shoreline planning area
Developed areas in the reach = less than 5% (USGS 2010 Land Cover data)

### Moderate

IWA Score Riparian = M or I
Land Cover in Reach = between 15 and 50% Forested or Floodplain/Riparian
Aerial photographs from 2009 show 100 feet or more forested riparian zone in 50 percent or more of the shoreline planning area
Developed areas in the reach = 5 to 10%

### Low

IWA Score Riparian = I
Land Cover in Reach = 15% or less Forested, Floodplain or Riparian
Aerial photographs from 2009 show less than 100 feet or more forested riparian zone in majority of shoreline planning area
Developed areas in the reach = over 10%

## Hyporheic (or Water Quality Improvement) Function

### High

IWA Sediment Score = F or M
Watershed Characterization = denitrification high
Contains Category 1 CARA
Good water quality (not on 303d list) or potential for good water quality
Significant area of wetlands in reach = high potential to improve water quality
Significant area of floodplain in reach = % undeveloped floodplain in reach

### Moderate

IWA Sediment Score = M or I
Watershed Characterization = denitrification moderate
No Category 1 CARA
Moderate water quality (303d list for few parameters)
Moderate area of wetlands in reach = medium potential to improve water quality
Moderate to minor area of floodplains in reach = % undeveloped floodplain in reach

### Low

IWA Sediment Score = I
Watershed Characterization = denitrification low
No Category I CARA
Low water quality (303d list for multiple parameters)
Small area of wetlands in reach = low potential to improve water quality
Minor area of floodplain in reach = % undeveloped floodplain in reach

## Habitat Function

### High

Salmon Recovery Priority = Tier 1 or 2
Tidal Influence at mouth of river
Multiple Priority Habitats and Species present
WDNR plant species present
High quality wetlands; High % wetlands in shoreline planning area
Stream Health Report show healthy fish populations

### Moderate

Salmon Recovery Priority = Tier 2 or 3
Non tidal or moderate habitat quality
Few PHS Species Present or none
Few WDNR plant species present or none
Moderate quality wetlands; Moderate % wetlands
Stream Health Report shows moderate fish populations

### Low

Salmon Recovery Priority = Tier 4 or not rated
Non tidal or low habitat quality
No PHS Species Present
No WDNR plant species present
Low quality wetlands; Low % wetlands
Stream Health Report shows few fish species

### **Key:**

IWA : Integrated Watershed Assessment by Lower Columbia Fish Recovery Board (2010) (I=Impaired, M=Moderately Impaired, F=Functional)

Watershed Characterization: Stanley 2009

Land Cover: Gap Analysis data for 2009 (University of ID)

EDT Tiering: LCFRB 2010

Stream Health Report: Clark County Surface Water (2004)

SNAP Reports (Stormwater Needs Assessment Report; Clark County)

CMZ (Olson, 2010)

**Analysis Table 1. Shoreline Analysis by Reach – Lower Columbia River (WRIA 27 and 28)**

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Uses in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Lower Columbia River												
COLU_RV_01 (1,678 ac)	Priority Protection and Restoration Management Zone – Important area for discharge, storage and nitrogen removal processes. Processes are relatively intact and restoration has a high level of success.	n/a	Tier 4 Lake River and tidal section of E Fork Lewis River	Area flooded in 1996 Flood, Flood hazard, no critical aquifer	399 acres; (75% High Quality)	Impaired: temperature, dissolved oxygen, fecal coliform Impaired by Invasive Exotic Species	m,r – all anadromous salmonid species; eulachon, white sturgeon, green sturgeon, mountain whitefish and coastal cutthroat trout. Waterfowl concentrations; great blue heron. Multiple nest sites – bald eagle and osprey	Forested zone varies from non-existent to 200 feet or wider. Ranges from degraded to moderate quality. High quality riparian on northern half of Bachelor Island.	1 mapped dock/pier Dredging	SF – Residential: 100%	0% Developed 4% Agricultural pastures 11% Beach shore and sand 37% Marsh or swamp 48% Floodplain and riparian	Hydrologic: High Riparian: Moderate Hyporheic: Moderate Habitat: High Tidal influence, major migratory route for salmonids, high quality wetlands, multiple PHS, and next to Ridgefield National Wildlife Refuge.
COLU_RV_02 (7,489 ac)	Priority Protection and Restoration Management Zone – Important area for discharge, storage and nitrogen removal processes. Processes are relatively intact and restoration has a high level of success.	n/a	No Tier	Area flooded in 1996 Flood	1,735 acres; (16% High Quality)	Polluted sediments: PCB, bioassay Temperature is a concern Invasive Exotic Species in Caterpillar Slough	m,r – all anadromous salmonid species; white sturgeon, green sturgeon, mountain whitefish and coastal cutthroat trout. Waterfowl concentrations; great blue heron; dusky Canada goose; Multiple nest sites – bald eagle and osprey. 1 rare plant species documented by WNHP.	Forested zone varies from non-existent to 200 feet or wider. Ranges from degraded to moderate quality.	Conversion to agricultural and industrial lands Roadways and railways Hard armoring 27 mapped docks/piers and 1 mapped buoy Kadow's Marina - 100 slips for recreational moorage and 18 slips for floating homes Sand/gravel mining	Vacant: 40% SF Residential: 35% Mobile Home: 13%	8% Developed 67% Agricultural pastures 19% Marsh or swamp 6% Floodplain and riparian	Hydrologic: High Riparian: Low to Moderate Hyporheic: High Habitat: High Tidal influence, large expanse of floodplain and wetlands along river. Multiple PHS species indicating habitat is provided.
COLU_RV_03 (3,930 ac)	Restoration and Development Management Zone – Moderate importance for hydrology and nitrogen removal processes with High impairment.	n/a	Tier 1 Tidal section of Washouga I River	Springs along a 6 mile stretch of the river from hillsides.	593 acres; (7% High Quality)	Impaired: temperature, dissolved oxygen TMDL (by Lady Island): Dioxin	All species of anadromous fish; Multiple nest sites – bald eagle and osprey; peregrine falcon; purple martin. Leopard dace. 1 rare plant species documented by WNHP.	Degraded and lacks vegetation through Port of Vancouver and downtown Vancouver. Forested vegetation at the Water Resources Center and scatted patches to the east.	69 mapped docks/piers Port of Vancouver operations Steamboat Landing Marina has 153 slips (uncovered moorage) 9 bridges cross the river Roadway and railway parallel majority of shoreline Hard armoring Conversion to industrial and residential lands	MF Residential: 38% Industrial: 28% Public Facility: 8%	40% Developed 30% Agricultural pasture 22% Coniferous forest, mixed 4% Marsh or swamp	Hydrologic: High Riparian: Low Hyporheic: Moderate Habitat: Moderate Developed shoreline through downtown Vancouver to Camas. Tidal influence at mouth of Washougal River.

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Uses in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
COLU_RV_04 (181 ac)	Restoration and Development Management Zone – Moderate importance for hydrology and nitrogen removal processes with High impairment.	n/a	Not rated		22 acres (none considered high quality)	Impaired: temperature	All species of anadromous fish; Purple martin	Degraded	8 mapped docks/piers Conversion to residential Port of Camas-Washougal Boat Ramp and Marina - 356 moorage slips (most under cover), 1,200 linear feet of transient moorage, boat launch facility, armoring associated with the marina.	Vacant: 47% SF Residential: 20% Public Facility: 15% Camas Wastewater Treatment Facility	55% Developed 40% Agricultural pastures 5% Marsh or swamp	Hydrologic: Moderate Riparian: Low Hyporheic: Low Habitat: Low Riparian habitat is degraded and development within the shoreline planning area is high.
COLU_RV_05 (3,656 ac)	Priority Protection and Restoration Management Zone – Important area for discharge, storage and denitrification processes. Processes are relatively intact and restoration has a high level of success. Importance for Nitrogen Removal = M	n/a	Not rated	Area flooded in 1996 Flood	986 acres (13% High quality)	Impaired: temperature TMDL (by Reed Island): Dioxin	All species of anadromous fish; Multiple nest sites – bald eagle and osprey; purple martin wood duck; waterfowl concentrations. 2 protected habitat types documented by WNHP.	Varies, degraded to moderate. Forested zones are narrow along the Steigerwald Lake National Wildlife Refuge. Reed Island has forested riparian area.	2 mapped docks/piers Conversion to industrial lands.	Open Space: 36% Vacant: 35% Industrial : 24%	9% Developed 48% Agricultural pasture 27% Coniferous forest, mixed 10% Marsh or swamp	Hydrologic: High Riparian: Low to Moderate Hyporheic: Moderate Habitat: High Adjacent to Steigerwald Lake National Wildlife Refuge and contains an estimated 1,000 acres of wetlands in the planning area.
Waterbody: Vancouver Lake												
VANC_LK_01 (2,608 ac)	Priority Protection and Restoration Management Zone – Important area for discharge, storage and denitrification processes. Processes are relatively intact and restoration has a high level of success.	Hydrology: M Sediment: F Riparian: I	Not rated	Columbia River floodplain. Tidal influence. Area flooded in 1996 Flood	750 acres (80% high quality)	Impaired: fecal coliform, total phosphorus, 2,3,7,8 – TCD, Dieldrin High turbidity, high temperatures. Extreme high levels of phosphorus and nitrogen; significant blue-green algal blooms (SNAP). Poor overall health	Purple martin. Waterfowl concentrations; multiple bald eagle nesting sites.	Moderate quality, vegetated with shrubs and trees.	Land clearing for agricultural and residential uses Roadway parallels lake Boat launch at south end. 1000 ft. artificial beach. Flushing Channel created to improve connection to Columbia River. 2 mapped docks/piers Dredged in 1980s, fill used to create island.	Vacant: 51% Open Space: 29% Mobile Home: 19%	0.1% Developed 2% Agricultural pastures 67% Open water/aquatic bed 19% Marsh or swamp 10% Floodplain and riparian	Hydrologic: High Riparian: Moderate Hyporheic: Low to Moderate Habitat: High
VANC_LK_02 (738 ac)	Same as above.	Hydrology: M Sediment: F Riparian: I	Not rated	Columbia River floodplain. Tidal influence. Area flooded in 1996 Flood	94 acres (87% High quality)	Impaired: PCB, 2,3,7,8 – TCD, Dieldrin High turbidity, high temperatures. Extreme high levels of phosphorus and nitrogen; significant blue-green algal blooms (SNAP).	Waterfowl concentrations; Multiple bald eagle nesting sites.	Moderate quality, trees in some areas along lakeshore; other areas railroad bed located at shore	6 mapped docks/piers Railroad tracks run parallel to the lake shore. Mobile home park and residential structures. Swimming area and marina near confluence with Burnt Bridge Creek. Dredged in 1980s, fill used to create island.	Vacant: 53% Mobile Home: 17% SF Residential: 14% Public Facility: 10%	0% Developed 3% Agricultural pastures 77% Open water/aquatic bed 12% Marsh and swamp 7% Floodplain and riparian	Hydrologic: High Riparian: Moderate Hyporheic: Low to Moderate Habitat: High

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Uses in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Lancaster Lake												
LANC_LK_01 (235 ac)	Priority Protection and Restoration Management Zone	n/a	Not rated		156 acres	No data	Oak woodlands, waterfowl concentrations, wintering and breeding dusky Canada geese, cavity nesting ducks, tundra swan, sandhill crane and bald eagle.	Varies, some areas forested, others lacking tree cover.	Conversion of forest to railroad tracks and roads on the east of the lake. Possible man-made bridge dividing Lancaster and nearby Hathaway Lakes.	SF Residential: 85% Vacant: 11%	0% Developed 38% Agricultural pastures 16% Open water/aquatic bed 11% Coniferous forest, mixed 33% Marsh or swamp	Hydrologic: High Riparian: Moderate Hyporheic: High Habitat: High
Waterbody: Hathaway Lake												
HATH_LK_01 (229 ac)	Priority Protection and Restoration Management Zone	n/a	Not rated		88 acres	No data	Oak woodlands, concentrations of waterfowl, tundra swan, sand hill crane. Habitat for anadromous fish in Gee Creek.	Varies, some areas forested, others lacking tree cover.	Bridge divides Lancaster and nearby Hathaway Lakes.	Vacant: 88% SF Residential: 12%	0% Developed 17% Open water/aquatic bed 15% Coniferous forest, mixed 52% Marsh or swamp 13% Floodplain and riparian	Hydrologic: High Riparian: Moderate Hyporheic: High Habitat: High
Waterbody: Gee Creek												
GEE_CR_01 (238 ac)	Protection and Restoration Management Zone: Low to moderate importance for discharge, storage and nitrogen removal with high impairments	Hydrology: I Sediment: M Riparian: I	Not rated	None	85 acres	Impaired: fecal coliform Concern: DO, temperature Water quality: poor to very poor; high turbidity and does not meet state criteria for temperature (SNAP) Overall stream health is Poor	m,r - steelhead, fall chum, coho. Critical habitat for LCR steelhead and Columbia River chum. Very limited use by anadromous fish (SNAP) Wetlands supporting wintering and breeding Canada geese, mallards, dusky Canada geese, redtail hawk nesting, cavity nesting ducks Bald eagle winter concentrations.	Forested zone is 200 feet or wider in certain areas, but varies. Invasive plants dominate; large woody debris is limited (SNAP)	Six roadway crossings and one railway crossing Areas of cleared vegetation Private dams and associated ponds. Numerous stormwater detention ponds.	Vacant: 35% SF Residential: 31% Mobile Home: 11%	2% Developed 22% Agricultural pastures 53% Coniferous forest, mixed 8% Burned 8% Marsh or swamp 6% Floodplain and riparian	Hydrologic: Low Riparian: Moderate Hyporheic: Low Habitat: Moderate
Waterbody: Canvasback Lake												
CANV_LK_01 (123 ac)	Priority Protection and Restoration Management Zone	n/a	n/a	Columbia River floodplain	33 acres (100% High quality)	No data	Waterfowl concentrations, purple martin nesting, and great blue heron nesting. 1 protected habitat type by WNHP	Forested riparian habitat on west shore; cultivated lands on eastern shore.	Levee is present	SF Residential: 100%	0% Developed 8% Agricultural pastures 53% Open water/aquatic bed 17% Marsh or swamp 23% Floodplain and riparian	Hydrologic: High Riparian: Low - Moderate Hyporheic: High Habitat: High

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Uses in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Lake River												
LAKE_RV_01 (919 ac)	Priority Protection and Restoration Management Zone	Hydrology: M Sediment: M Riparian: I	Tier 4	Tidal influence	275 acres (no high quality wetlands)	Impaired: PCB; Dieldrin; 2,3,7,8-TCDD; 4,4'-D Poor to Fair; high levels of phosphorus and nitrogen; elevated temperatures (SNAP)	m-coho, fall and spring Chinook, fall chum, and summer and winter steelhead; sockeye salmon; white sturgeon. Critical habitat for chum. Bald eagle nest sites; oak woodlands and purple martin.	Degraded, few trees in riparian area. Forested habitat generally lacking.  Potential for LWD is low; shade below state targets (SNAP).	McCuddy's Marina - 60 moorage spaces for boats, boathouses, and houseboats, with open slips up to 40 feet long and covered slips up to 30 feet long. 55 houseboat structures currently present. Port of Ridgefield contaminated property Railroad track parallels eastern bank. Dikes are present	Vacant: 80% SF Residential: 16%	4% Developed 19% Agricultural pastures 10% Coniferous forest, mixed 64% Marsh or swamp	Hydrologic: High Riparian: Low Hyporheic: Moderate Habitat: High
LAKE_RV_02 (301 ac)	Priority Protection and Restoration Management Zone	Hydrology: M Sediment: F Riparian: I	Tier 4	Tidal influence	109 acres (58% High quality)	Impaired: PCB; Toxaphene; 4,4'-DDE Poor to Fair; high levels of phosphorus and nitrogen; elevated temperatures (SNAP)	m-coho, fall and spring Chinook, fall chum, and summer and winter steelhead; sockeye salmon; white sturgeon. Critical habitat -chum. Bald eagle nest sites; oak woodlands and purple martin.	Degraded, few trees in riparian area. Forested habitat generally lacking. Potential for LWD is low; shade below state targets (SNAP).	Railroad track parallels eastern bank. Houseboat community - 40 overwater structures moored to three or four docks. Detention pond on western bank visible in 2009 aerial photographs. Dikes are present	SF Residential: 47% Vacant: 45%	2% Developed 48% Agricultural pastures 39% Marsh or swamp 6% Floodplain and riparian	Hydrologic: High Riparian: Low to Moderate Hyporheic: High Habitat: High
Waterbody: Unnamed Lake 03												
UNNA_LK_03 (Bachelor Island) (40 ac)	Priority Protection and Restoration Management Zone	n/a	No data	Columbia River floodplain	21 acres	No data	Waterfowl concentrations, great blue heron, and purple martin.	Little forested area, mostly cultivated lands.	None apparent	One Single Family Residence on Agricultural Use of Land	0% Developed 23% Open water/aquatic bed 47% Marsh and swamp 30% Floodplain and riparian	Hydrologic: High Riparian: Low Hyporheic: High Habitat: High
Waterbody: Campbell Lake												
CAMP_LK_01 18 ac within SMA planning area Total lake size is 228 ac	Priority Protection and Restoration Management Zone	n/a	n/a	Columbia River floodplain	4 acres	No data	Bald eagle foraging; sand hill crane habitat.	Forested riparian area on western shore to limit of NWR, also trees on southeastern shore. Remainder in agricultural uses.	None apparent	Vacant: 46% Open Space: 37% Forestry: 17%	0% Developed 25% Agricultural pastures 19% Open water/aquatic bed 40% Marsh or swamp 17% Floodplain and riparian	Hydrologic: High Riparian: Moderate Hyporheic: High Habitat: High

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Uses in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Whipple Creek												
WHIP_CR_01 (128 ac)	Priority Protection and Restoration Management Zone	Hydrology: I Sediment: F Riparian: I	No Tier	No critical aquifer.	103 acres (85% High quality)	Impaired: fecal coliform Overall stream health is Very Poor	m,r – coho and steelhead; priority oak woodlands.	Lacks tree downstream of RR tracks; patchy forests upstream.	Streambank hardening. Disconnected floodplains. Fish passage barriers. Roadway and railway parallel creek and cross north of Green Lake Walking trail crosses creek multiple times.	Vacant: 52% SF Residential: 29% Agriculture: 18%	0% Developed 32% Agricultural pastures 18% Coniferous forest, mixed 27% Marsh or swamp	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Moderate
Waterbody: Post Office Lake												
POST_LK_01 14 ac within SMA planning area Total lake size is 75 ac	Priority Protection and Restoration Management Zone	n/a	n/a	Columbia River floodplain	7 acres	No data	Waterfowl concentrations and bald eagle nesting.	Degraded, forest cover is lacking.	Dike separates lake from the Columbia River. Roadways parallel lake	SF Residential: 97%	69% Agricultural pastures 31% Open water/aquatic bed	Hydrologic: High Riparian: Low Hyporheic: High Habitat: High
Waterbody: Green Lake												
GREE_LK_01 (195 ac)	Priority Protection and Restoration Management Zone	n/a	Not rated	Columbia River floodplain	44 acres (100% High quality)	No data	Waterfowl concentrations and bald eagle nesting.	Narrow band of forested habitat on west and eastern shore.	Road development to east. Conversion of forest lands to agriculture.	Vacant: 100%	74% Open water/aquatic bed 26% Marsh or swamp	Hydrologic: High Riparian: Moderate Hyporheic: High Habitat: High
Waterbody: Unnamed Lake 02												
UNNA_LK_02 (Shillapoo Wildlife Recreation Area) (109 ac)	Priority Protection & Restoration	n/a	Not rated	Columbia River floodplain	39 acres	No data	Waterfowl concentrations, great blue heron and bald eagle foraging.	Narrow (50 ft or less) band of trees along west and eastern shore.	Conversion to recreational and agricultural lands. Cultivated lands	SF Residential: 74% Vacant: 16% *According to 2009 aerial all is in agricultural use and owned by USFWS	0% Developed 82% Agricultural pastures 10% Open water/aquatic bed 7% Marsh or swamp	Hydrologic: High Riparian: Low Hyporheic: High Habitat: High
Waterbody: Burnt Bridge Creek												
BURN_CR_01 (315 ac)	Urban Restoration and Development Management Zone: High level of impairment but important area for recharge.	Hydrology: I Sediment: F Riparian: I	Not rated	None	66 acres (85% High quality)	Impaired: temperature, fecal coliform Water quality impairments from stormwater runoff (SNAP). Overall stream health is Poor	m,r – coho, winter steelhead, fall Chinook salmon. Resident cutthroat trout.	Forest observed on southern edge of wetlands (150 feet wide). Narrower band of trees on northern bank.	Railroad tracks parallel northern shore. Creek passes through culvert under I-5 and Highway 99, and under bridge at SR 500. 6 roadways also cross over the creek. Stormwater runoff routed to drywells (SNAP).	Mobile Home: 75% Vacant: 14%	19% Developed 54% Agricultural pasture 12% Forested	Hydrologic: Low Riparian: Moderate Hyporheic: Low Habitat: Low

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Uses in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
BURN_CR_02 (114 ac)	Same as above.	Hydrology: I Sediment: F Riparian: I	Not rated	Primarily piped system (SNAP).	85 acres	Impaired: temperature, pH, dissolved oxygen, fecal coliform Poor to very poor quality; TMDL under development for fecal coliform, temperature, and dissolved oxygen (SNAP) Overall stream health is very Poor	m,r – coho, winter steelhead, resident cutthroat trout. Waterfowl concentrations in upper marsh	Degraded buffer in urban areas.	Channelized Stormwater ponds. Three roadways cross creek BPA transmission line parallels creek	Vacant: 55% MF Residential: 19% Commercial: 8%	17% Developed 77% Agricultural pasture 3% Forested	Hydrologic: Low Riparian: Low Hyporheic: Moderate Habitat: Low
Waterbody: Gibbons Creek												
GIBB_CR_01 (23 ac)	Priority Protection and Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Not rated		1 acre	TMDL: fecal coliform Fair to good, high turbidity and does not meet state criteria for temperature (SNAP)	m – winter steelhead and coho, chum. Wood duck, waterfowl and oak woodland habitats.	Blackberry and Invasive plants (SNAP data); limited tree cover.	Forest converted to pasture and residential houses. 2 roadways and a railway cross the creek.	Mobile Home: 88%	14% Developed 86% Agricultural pasture	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Moderate
GIBB_CR_02 (1 ac)	Priority Protection and Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Not rated		< 1 acre	TMDL: fecal coliform Fair to good (SNAP)	m – winter steelhead and coho, chum. Wood duck, waterfowl and oak woodland habitats.	Scattered trees and pasture.	Channelized. Dikes.	Vacant: 100%	100% Open water/aquatic bed *Per 2009 aerial area is agricultural pasture	Hydrologic: Low Riparian: Low Hyporheic: Moderate Habitat: Moderate
Waterbody: Lawton Creek												
LAWT_CR_01 (12 ac)	Priority Protection Management Zone	Hydrology: I Sediment: M Riparian: M	Not rated		2 acres	No data	m,r – winter steelhead, coho and chum. Oak woodlands.	Narrow forested area. Degraded.	BNSF railroad crosses creek. Agricultural impacts and channelization.	Vacant: 61% SF Residential: 39%	100% Agricultural pastures	Hydrologic: Moderate Riparian: Low Hyporheic: Low Habitat: Moderate

**Analysis Table 2. Shoreline Analysis by Reach – Washougal River Basin**

Reach (Area)	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tiers <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: Washougal River												
WASH_RV_01 SSWS (126 ac)	Priority Protection and Restoration Management Zone: Important for hydrologic processes	Hydrology: M Sediment: M Riparian: I	Tier 1 (tidal influence section)	Potential CMZ Category I CARA	Marshes at mouth of River; Bead Island; 49 acres (High quality wetland 18%)	Not Impaired Excellent overall stream health	All anadromous salmon species, except spring Chinook.	Forested patches near mouth. Most of riparian area degraded. Forest 50 feet wide or narrower.	Multiple bridge crossings: SR 14 bridge at mouth, SR 500, the RR Bridge, a pedestrian trail and waterline bridge	Industrial: 55% Vacant: 33%	33% Developed 40% Agricultural pastures 28% Marsh or swamp	Hydrology: Moderate Riparian: Low Hyporheic: High Habitat: High  Water quality not impaired, tidal section, multiple species of anadromous fish present, no dams or major blockages, and headwaters protected in National Forest lands.
WASH_RV_02 (392 ac)	Priority Protection and Restoration Management Zone: Important for hydrologic processes	Hydrology: I Sediment: M Riparian: I	Tier 1 and 2	Category I CARA Potential CMZ	93 acres; lagoons and in-channel islands (High quality wetland 15%)	Not Impaired Excellent overall stream health	All anadromous salmon species, except spring Chinook. Reticulate sculpin. 1 rare plant species documented by WDNR	Forested zone varies from 40 to 125 feet upstream of 17 <sup>th</sup> Street bridge. Downstream, riparian zone is narrow and degraded.	NE 3 <sup>rd</sup> Avenue Bridge; N Washougal River Road Bridge Confined channel 1 mapped dock/pier	SF Residential: 36% Vacant: 32% Industrial: 10%	23% Developed 27% Agricultural pastures 20% Coniferous forest, mixed 24% Marsh or swamp	Hydrology: High Riparian: Low to Moderate Hyporheic: High Habitat: High
WASH_RV_03 (164 ac)	Priority Protection and Restoration Management Zone: Important for hydrologic processes	Hydrology: I Sediment: M Riparian: M	Tier 1	Steep slopes on right bank looking upstream, Erosion hazard areas	29 acres; pasture and floodplain wetlands	Not Impaired Good overall stream health	All anadromous salmon species present, except Spring Chinook	Forested riparian zone varies from 50 to 125 feet.	NE Washougal River Road parallels river. Roadway lies within 200 feet of river bank. Road confines channel migration.	SF Residential: 59% Vacant: 24% Forestry: 16%	0.3% developed 5% pastures 82% Coniferous forest, mixed 9% Marsh or swamp	Hydrology: High Riparian: Moderate Hyporheic: High Habitat: High
WASH_RV_04 (241 ac)	Priority Protection and Restoration Management Zone	Hydrology: I Sediment: M Riparian: M	Tiers 1 and 2	Potential CMZ in upper portion of reach Steep slopes on right bank looking upstream	34 acres	Impaired: fecal coliform Good overall stream health	All anadromous salmon species present except spring Chinook. r-fall Chinook	North bank – riparian forest is narrow 50 to 120 feet. South bank – young forest 100-150 feet wide.	NE Washougal River Road parallels river. Residential homes right on north river bank (left looking upstream). Armoring associated with houses.	SF Residential: 40% Vacant: 40% Forestry: 16%	4% developed 5% pasture lands 38% Coniferous or mixed forest 39% Floodplain and riparian	Hydrology: High Riparian: Moderate Hyporheic: High Habitat: High
Waterbody: Little Washougal River												
LWAS_RV_01 (427 ac)	Restoration Management Zone	Hydrology: I Sediment: M Riparian: M	Tiers 1 and 2	Limited CMZ	83 acres (High quality wetland 6%)	No data Good overall stream health, but declines near its confluence with Washougal.	Spawning, rearing, migration – coho, winter steelhead, summer steelhead, chum salmon. Reticulate sculpin.	Degraded buffers due to residential development, agriculture and timber harvest	Multiple road crossings. Blair Road crosses 2 times, SE Washougal River Rd, SE 6 <sup>th</sup> St, and NE Timothy Rd BPA Transmission Line crossing. Agricultural diversions. Dikes. Shoreline armoring present.	SF Residential: 55% Forestry: 25% Vacant: 13%	3% Developed 19% pasture 29% coniferous forest, mix 11% harvested 32% Floodplain and riparian	Hydrology: Moderate Riparian: Low Hyporheic: High Habitat: High  Support of multiple salmonid species, development footprint small, needs restoration of riparian buffers.

Reach (Area)	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tiers <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: East Fork Little Washougal River												
EFLW_RV_01 (43 ac)	Protection Zone	Hydrology: M Sediment: M Riparian: M	Tier 2	Steep slopes Potential CMZ	< 1 acre	No data	s-winter steelhead, fall Chinook, chum, coho	Second growth, degraded.	Timber harvest Unpaved logging roads	Forestry: 100%	0% Developed 44% harvested forest 56% floodplain riparian	Hydrology: Moderate Riparian: Moderate Hyporheic: High Habitat: High
Waterbody: Boulder Creek												
BOUL_CK_01 (92 ac)	Protection Zone	Hydrology: M Sediment: M Riparian: M	Tiers 2 and 3	Steep slopes Potential CMZ	49 acres (High quality wetland 33%)	No data	s-winter steelhead, fall Chinook, chum, coho	Second growth, degraded	Timber harvest Boulder Creek Road parallels the creek	Forestry: 68% Vacant: 25%	0% Developed 13% coniferous forest 27% harvested forest 53% floodplain riparian	Hydrology: Moderate Riparian: Moderate Hyporheic: High Habitat: High
Waterbody: Cougar Creek												
COUG_CR_01 (66 ac)	Priority Protection Management Zone	Hydrology: I Sediment: M Riparian: M	Tier 4	Steep slopes	6 acres	No data Good overall stream health.	Coho salmon Chinook salmon	Good quality. Second growth riparian forest.	NE Washougal Road Rd crossing at stream mouth, logging roads; BPA powerline crossing at upstream limit of shoreline.	Vacant: 70% Forestry: 23%	0% Developed 5% pasture 49% coniferous forest, mixed 44% riparian floodplain	Hydrology: Moderate Riparian: High Hyporheic: Moderate Habitat: High
Waterbody: Hagen Creek												
HAGE_CR_01 (53 ac)	Priority Protection Management Zone	Hydrology: F Sediment: F Riparian: F	Not rated	Steep slopes	None	No data	No anadromous fish.	Second growth riparian forest – good quality	Logging road crossings	Forestry: 100%	0% Developed 97% conifer forest	Hydrology: High Riparian: High Hyporheic: High Habitat: High
Waterbody: Lacamas Creek												
LACA_CR_01 (78 ac)	Priority Restoration and Protection Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 2 and 3	Steep slopes mostly on left bank looking upstream Potential CMZ	15 acres	Impaired: temperature, pH, dissolved oxygen	Coho, winter steelhead	Forested on both banks through park lands.	Dam on Lacamas Lake NE 3 <sup>rd</sup> Avenue crossing just north of stream mouth	Open Space: 52% Vacant: 26% Industrial: 13%	14% Developed 73% Forested, conifer or mixed 7% Marsh or swamp	Hydrology: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: Moderate  Impaired water quality and industrial development, but support anadromous fish that are blocked by dam at upstream end of reach.

Reach (Area)	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tiers <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
LACA_CR_02 (1,657 ac)	Priority Restoration and Protection Management Zone: Important areas for recharge and surface water storage to support stream baseflow; restoration important.	Hydrology: M Sediment: F Riparian: I	Not rated	Category I CARA to east. Wide floodway/floodway fringe. Floodplain is 0.75 – 1.0 mile wide. Potential CMZ	418 acres; pasture wetlands and farmed wetlands (High quality wetland 27%)	Impaired: temperature, pH, dissolved oxygen Poor overall stream health; China Ditch contributes to degrade water quality	No anadromous fish due to dam; Wood duck, oak woodland 8 rare plant species documented by WDNR Natural Heritage Program. Reticulate sculpin.	Degraded riparian zone; lacks trees.	NE Goodwin Road crossing. Dredging of associated wetlands for ski racing ponds and agricultural ponds Ditching and draining	Vacant: 63% SF Residential: 13% Mobile Home: 10%	1% Developed 50% agricultural pasture or cultivated 1% Conifer forest 17% harvested forest 9% Marsh or swamp 10% floodplain and riparian	Hydrology: High Riparian: Low Hyporheic: High Habitat: High  Impaired water quality, fish passage blocked, but supports significant area of floodplain and wetlands. Presence of rare plant species indicate unique habitat. High function for hydrology support and sediment.
LACA_CR_03 (447 ac)	Priority Restoration and Protection Management Zone: Important areas for recharge and surface water storage to support stream baseflow	Hydrology: M Sediment: F Riparian: I	Not rated	Potential CMZ Category I CARA near 4 <sup>th</sup> Plain crossing	320 acres; pasture and farmed wetlands	Impaired: temperature, dissolved oxygen Fair overall stream health	No anadromous fish. Reticulate sculpin.	Degraded due to agricultural uses, lacks riparian forest.	2 roadway crossings: 4th Plain and NE 217th Avenue Conversion of forests to agricultural and residential use.	SF Residential: 69% Vacant: 20%	6% Developed 52% agricultural pasture or cultivated 17% Harvested forest 20% Floodplain and riparian	Hydrology: Low Riparian: Low Hyporheic: Moderate to High Habitat: Low  Impaired water quality, fish passage blocked, but supports significant area of floodplain and wetlands. High function for hydrology support.
LACA_CR_04 (340 ac)	Priority Restoration and Protection Management Zone: Important areas for recharge – slated for preservation	Hydrology: M Sediment: M Riparian: M	Not rated	Category I CARA	296 acres (High quality wetland 30%)	Impaired: temperature, dissolved oxygen Concern re: pH Good overall stream health	No anadromous fish. 2 rare plant species documented by WNHP	Many sections forested.	Multiple private road crossings Remediation required for former Camp Bonneville.	Institutional: 93% (Camp Bonneville)	0% Developed 8% Agricultural pasture 12% Conifer forest 14% Harvested 66% Floodplain and riparian	Hydrology: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: Moderate  Impaired water quality, large area of floodplain wetlands, majority of area held in public trust.
Waterbody: Round Lake												
ROUN_LK_01 (72 ac)	Priority Restoration and Protection Management Zone	Hydrology: M Sediment: F Riparian: M	Not rated	None	4 acres	Impaired: pH, dissolved oxygen Concern regarding temperature	Oak woodlands, bald eagle nesting. 1 rare plant species documented by WNHP.	Forested area is 200 feet wide along majority of lakeshore.	Conversion to residential development Presence of dam structure Roadway parallels lake	Mobile Home: 68% Open Space: 19%	14% Developed 34% Open water/aquatic bed 42% Coniferous forest, mixed 7% Floodplain and riparian	Hydrology: Moderate Riparian: High Hyporheic: Moderate Habitat: Moderate
Waterbody: Fallen Leaf Lake												
FALL_LF_LK_01 (52 ac)	Priority Restoration and Protection Management Zone	Hydrology: M Sediment: F Riparian: M	Not rated	Erosion hazard areas, steep slopes to the west	17 acres	No data	Oak woodlands, bald eagle territories	Forested area is 200 feet wide along majority of lakeshore.	Sediment transport from urban runoff.	Vacant: 58% Mobile Home: 37%	13% Developed or disturbed 23% Open water/aquatic bed 61% Conifer forest	Hydrology: Moderate Riparian: High Hyporheic: Moderate Habitat: Moderate

Reach (Area)	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tiers <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: Lacamas Lake												
LACA_LK_01 (476 ac)	Priority Restoration and Protection Management Zone: Important areas for recharge and surface water storage to support stream baseflow	Hydrology: M Sediment: F Riparian: M	Not rated	Erosion hazard areas to south west, Lacamas Fault line	148 acres (High quality wetland 50%)	Impaired: PCB, total phosphorus Impaired by invasive exotic species Fair overall health; pollutant loading from upstream	No anadromous fish. Osprey nests and territory. 1 habitat type protected by WNHP	Forested riparian zone is 100 to 150 feet wide on western shore (trail runs parallel). No vegetation or limited vegetation on eastern lakeshore along NE Leadbetter Road. Road is 20 feet from water's edge.	Roadway parallels the lake and has associated riprap Dam structure present. Flow diversions. Water quality impairments due to runoff. Conversion to residential development. Three boat launch sites. Several docks, most of which on the western shore.	Vacant: 42% SF Residential: 18% Mobile Home: 12% Institutional: 8%	7% Developed 53% Open water/aquatic bed 12% Coniferous forest, mixed 6% Harvested forest 21% Floodplain and riparian	Hydrology: Moderate Riparian: Low to Moderate Hyporheic: Moderate Habitat: Low to Moderate
Waterbody: Fifth Plain Creek												
F IPL_CR_01 (933 ac)	Priority Restoration and Protection Management Zone: Important areas for recharge and surface water storage to support stream baseflow	Hydrology: I Sediment: M Riparian: M to I	Not rated	Unconsolidated sediments (earthquake hazard), no steep slopes.	860 acres; farmed wetland, wet pastures, forested wetland – high value based on area	Impaired: dissolved oxygen Water of concern: pH, temperature, fecal coliform China Ditch/Shanghai Creek Impaired: dissolved oxygen, temp. China Ditch – very poor stream health. Fifth Plain Fair.	No anadromous fish. 1 rare plant species documented by WDNR Natural Heritage Program	Degraded. Little to no forested riparian zone.	Ditching, draining associated wetlands, fill, roadway crossing.	SF Residential: 60% Vacant: 26% Mobile Home: 9%	3% developed 73% pasture and agriculture (mostly wetland) 15% harvested (scrub land) 6% floodplain and riparian	Hydrology: High Riparian: Low Hyporheic: High Habitat: Moderate  Significant area of wetland indicating high function for stream recharge and support of baseflow. Area tagged as high potential for restoration and enhancement of riparian corridors.
Waterbody: Matney Creek												
MATN_CR_01 (88 ac)	Priority Restoration and Protection Management Zone: Important areas for recharge and surface water storage to support stream baseflow	Hydrology: I Sediment: M Riparian: M	Not rated	Potential CMZ Unconsolidated sediments	27 acres	Not Impaired Concern: temperature, DO Fair overall stream health	No anadromous fish.	Varies, some forested areas, other in pasture.	Two roadway crossings: NE 68 <sup>th</sup> St. and 232 <sup>nd</sup> St Conversion of forests to residential uses and pastures.	SF Residential: 66% Vacant: 32%	1% Developed 24% Agricultural pasture 10% Conifer forest 16% Harvested forest 50% Floodplain and riparian	Hydrology: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: Low
Waterbody: North Fork Lacamas Creek												
NFLA_CR_01 (32 ac)	Priority Restoration and Protection Management Zone	Hydrology: M Sediment: M Riparian: M	Not rated	Erosion hazard areas, steep slopes.	6 acres	Not tested	No anadromous fish. Bald eagle territories	Good to moderate quality	Buried armaments, contamination	Institutional: 100% (Camp Bonneville)	0% Developed 18% floodplain and riparian 81% coniferous forest, mixed	Hydrology: Moderate Riparian: High Hyporheic: Moderate Habitat: Moderate  Impaired water quality, high quality riparian zones, cleanup underway, majority of area held in public trust.

**Analysis Table 3. Shoreline Analysis by Reach – Salmon Creek Watershed**

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: Salmon Creek												
SALM_CR_01 (922 ac)	Urban Restoration & Development Management Zone (highest impairment)	Hydrology: M Sediment: M Riparian: M	Tier 3 down stream I-5, Tier 4 elsewhere (Lowest)	CMZ and floodplain is 1,500 feet wide; Category 1 CARA	490 acres High quality wetlands in Salmon Creek Greenway	Impaired: pH, dissolved oxygen, temperature TMDL: turbidity, fecal coliform Klineline Pond Impaired: invasive exotic species Poor overall stream health	m,r,s – winter steelhead, coho. Waterfowl concentrations, wood duck, sandhill crane, tundra swan.	Moderate quality - Salmon Creek Greenway. Low -outside of park.	Railroad bridge crosses creek near confluence with Lake River Salmon Creek Wastewater Treatment Plant Five road crossings with bridges including I-5, Pacific Hwy, I-205, and SR 503. Large swimming pond west of I-5, historic channel dredging. Diking, bank armoring Conversion of forests to residential developments.	Vacant: 59% SF Residential: 16% MF Residential: 15%  Wastewater Treatment facility, public park and trail – west of I-5; WSU Campus and residential – east of I-5	6% Developed 28% Agricultural pastures 20% Coniferous forest, mixed 27% Marsh or swamp 12% Floodplain and riparian 7% Burned	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
SALM_CR_02 (142 ac)	Urban Restoration & Development Management Zone (highest impairment)	Hydrology: M Sediment: M Riparian: I	Tier 4 (Lowest)	Potential CMZ = yes	53 acres	TMDL: fecal coliform Concern: pH, temperature Poor overall health	m,r,s – coho, winter steelhead No other PHS data	Varies from no vegetation to 150 feet forested riparian zone	Alteration and SF development in the riparian zone. Roadway crossings	SF Residential: 60% Vacant: 30%	3% Developed 28% Agricultural pastures 66% Coniferous forest, mixed	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: Low to Moderate
SALM_CR_03 (433 ac)	Restoration & Protection Management Zone	Hydrology: M Sediment: M Riparian: I	Tier 3 and 4 (Lowest)	Potential CMZ = yes	208 acres	Impaired: pH TMDL: fecal coliform Concern: DO, temperature Poor health to confluence with Woodin Creek	m,r,s – coho, winter steelhead	Varies, north bank degraded, south bank forested.	Multiple roadway crossings. One railroad crossing. Conversion of forest to recreational and residential development Ponds for Cedars Golf Course	SF Residential: 53% Vacant: 26% Recreation: 15%	5% Developed 30% Agricultural pastures 17% Coniferous forest, mixed 39% Floodplain and riparian	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Low to Moderate
SALM_CR_04 (360 ac)	Restoration & Protection Management Zone	Hydrology: I Sediment: M Riparian: I	Tier 3 and 4 (Lowest)	Potential CMZ = yes. Steep slopes	178 acres	Impaired: pH TMDL: fecal coliform Fair overall stream health	m,r,s – coho, winter steelhead	Degraded	Ponds for Cedars Golf Course 4 roadway crossings Diking	SF Residential: 53% Vacant: 17% Mobile Home: 9% Forestry: 8%	5% Developed 36% Agricultural pastures 13% Harvested 39% Floodplain and riparian	Hydrologic: Low Riparian: Low Hyporheic: Moderate Habitat: Low
SALM_CR_05 (105 ac)	Restoration & Protection Management Zone	Hydrology: I Sediment: M Riparian: M	Tier 3 and 4 (Lowest)	Potential CMZ = yes; Category 1 CARA	55 acres	Impaired: pH TMDL: fecal coliform Fair overall stream health	m,r,s – coho, winter steelhead	Moderate	Conversion of forests to agricultural and residential developments. 2 roadway crossings.	SF Residential: 75% Open Space: 11%	2% Developed 13% Coniferous forest, mixed 23% Harvested 54% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: Moderate

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	EDT Model Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: Mill Creek												
MILL_CR_01 (147 ac)	Urban Restoration & Development Management Zone	Hydrology: M Sediment: M Riparian: I	Tier 4	Erosion hazard areas	63 acres	TMDL: fecal coliform; Concern re: dissolved oxygen, pH Poor to Very Poor; meets standard for turbidity but shows an increasing trend (SNAP).	m,r,s – coho, winter steelhead, wood duck nearby	Varies, degraded some sections, forested in others. Channel lacks shade.	Conversion of forests to agricultural and residential lands. 4 road crossings. 62 public and private stormwater facilities in basin (SNAP).	SF Residential: 56% Institutional: 17% Vacant: 13% Forestry: 12%	4% Developed 24% Agricultural pastures 40% Coniferous forest, mixed 16% Harvested 16% Forested and riparian	Hydrologic: Low to Moderate Riparian: Moderate Hyporheic: Low Habitat: Moderate
Waterbody: Curtin Creek												
CURT_CR_01 (173 ac)	Urban Restoration & Development Management Zone	Hydrology: I Sediment: M Riparian: I	Tier 4	None	127 acres	Impaired: dissolved oxygen, pH TMDL: fecal coliform Poor water quality; moderate to poor biological integrity (SNAP).	m,r,s – coho, winter steelhead; No other PHS data	Degraded; lacks forested cover.	Channelized. Conversion to agricultural and residential lands. Three road crossings.	Vacant: 47% SF Residential: 41%	1% Developed 70% Agricultural pastures 10% Burned 13% Floodplain and riparian	Hydrologic: Low Riparian: Low Hyporheic: Moderate Habitat: Low
Waterbody: Morgan Creek												
MORG_CR_01 (253 ac)	Priority Restoration & Protection Management Zone	Hydrology: I Sediment: M Riparian: I	Tiers 3 and 4	None	214 acres	No data	m,r,s – coho, winter steelhead No other PHS data	Degraded but varies; lack forested cover in most areas.	One roadway crossing. Conversion of forest to residential and agricultural lands Small section has been channelized and culverted.	SF Residential: 78% Vacant: 14%	1% Developed 75% Agricultural pastures 17% Floodplain and riparian	Hydrologic: Low Riparian: Low Hyporheic: Moderate Habitat: Low
Waterbody: Rock Creek												
ROC2_CR_01 (105 ac)	Priority Restoration & Protection Management Zone	Hydrology: I Sediment: M Riparian: M	Tiers 3 and 4	None	61 acres	No data Fair overall stream health	m,r,s – coho, winter steelhead No other PHS data	Harvested areas, low to moderate quality.	Conversion of forest to residential and pasture lands.	SF Residential: 50% Vacant: 39% Forestry: 10%	0% Developed 14% Coniferous forest 8% Harvested 7% Marsh or swamp 66% Floodplain and riparian	Hydrologic: Low Riparian: Moderate Hyporheic: Low Habitat: Moderate
Waterbody: Battle Ground Lake												
BATT_LK_01 (46 ac)	Priority Restoration & Protection Management Zone	n/a	Not rated	None	< 1 acre	Impaired: invasive exotic species Good overall health based on clarity measurements	No PHS data State Parks noted use by osprey	Coniferous forest, 200 feet or wider (trails within this zone)	One dock and boat ramp for non-motorized boats	Open Space: 100% Battle Ground State Park	0% Developed 49% Open water/aquatic bed 51% Coniferous forest, mixed	Hydrologic: High Riparian: High Hyporheic: Moderate Habitat: Moderate

**Analysis Table 4. Shoreline Analysis by Reach – Lewis River Subbasin**

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Lewis River												
LEWI_RV_01 (660 ac) SSWS (tidal section)	Protection & Restoration Management Zone	Hydrology: I Sediment: M Riparian: I	Tier 4 (Tidal sections)	Steep slopes (greater than 40%) Potential CMZ	313 acres (100% High quality)	Not listed. Excellent overall stream health	m-resident cutthroat, spring and fall Chinook salmon, fall chum, coho salmon, bull trout, largemouth bass, mountain whitefish, sockeye salmon, summer and winter steelhead trout  Wetlands supporting wintering and breeding Canada geese, mallards, dusky Canada geese, redbill hawk nesting, cavity nesting ducks  Bald eagle winter concentrations Oak woodlands	Mix of forested patches (200+feet wide) and areas cleared for agricultural	Major levees Railroad crossing Conversion to residential and agricultural lands	SF Residential: 58% Forestry: 25% Vacant: 17%	0% Developed 26% Agricultural pastures 12% Coniferous forest, mixed 25% Marsh or swamp 32% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: High Habitat: High
LEWI_RV_02 (1,758 ac)	Protection, Restoration & Development Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 1 and 2 Tidal Section (Tier 4)	Category 1 Recharge Area Steep slopes (greater than 40%) Potential CMZ	562 acres (50% High quality)	Not listed. Excellent overall stream health	m-resident cutthroat, spring and fall Chinook salmon, fall chum, coho salmon, bull trout, largemouth bass, mountain whitefish, sockeye salmon, summer and winter steelhead trout  Multiple bald eagle concentration sites; multiple woodland cavity nesting ducks sites; multiple oak woodlands sites	Mix of forested patches (50 to 200+ feet wide) and areas cleared for agricultural and residential lands.  Structures and roadways located in riparian and floodplain zone	Rip rap and levees. Conversion from forest to agricultural and residential lands Roadways parallel river  Two bridges cross the river: I-5 and NW Hayes Road Woodland airport landing field	SF Residential: 32% Mobile Home: 27% Vacant: 24%	8% Developed 42% Agricultural pastures 35% Coniferous forest, mixed 9% Marsh or swamp	Hydrologic: Moderate Riparian: Moderate Hyporheic: High Habitat: High
LEWI_RV_03 (147 ac)	Protection & Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 1 and 2	Steep slopes, canyon Potential CMZ	13 acres	Not impaired. Meets temperature standards. Excellent overall stream health	s-spring and fall Chinook salmon, winter steelhead m-resident cutthroat, fall chum, coho salmon, bull trout, steelhead trout, Bald eagle concentration; elk winter range	Forested, 200 feet or wider except at Merwin Dam structure	Levees, dam	SF Residential: 34% Mobile Home: 28% Vacant: 24% Forestry: 10%	1% Developed 6% Agricultural pastures 15% Beach shore and sand 53% Coniferous forest, mixed 16% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: High Habitat: Moderate
LEWI_RV_04 31 ac (above Lake Merwin)	Protection & Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Not rated	Steep slopes (greater than 40%)	None	Not listed.	m-resident cutthroat, bull trout, rainbow trout; Bald eagle concentration; elk winter range	Forested, 200 feet or wider	River flows into impounded reservoir 1 road crossing	Forestry: 100%	0% Developed 83% Coniferous forest, mixed 12% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: High Habitat: High
Waterbody: Lake Merwin												
MERW_LK_01 2,486 ac	Protection & Restoration Management Zone	n/a	Not rated	Steep slopes (greater than 40%)	61 acres	Impaired: PCB Concern: 2,3,7,8-TCDD TEQ	m-fall and spring Chinook, fall chum, coho salmon, bull trout, summer and winter steelhead  Bald eagle communal night roost, bald eagle concentration, staging area for Merwin communal roost, elk winter range	Forested 200 feet or wider except at dam location  One cleared area near upper portion of reach	240-foot high Merwin Dam Marina	Forestry: 65% Vacant: 30%	0% Developed 86% Open water/aquatic bed 10% Coniferous forest, mixed	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: High

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
MERW_LK_02 122 ac	Protection & Restoration Management Zone:	n/a:	Not rated	Steep slopes (greater than 40%)	22 acres	Meets temperature standards	m-spring Chinook, coho salmon, bull trout, summer and winter steelhead  Elk winter range, bald eagle concentration	Forested 200 feet or wider	Yale Bridge crosses lake via suspension bridge	Forestry: 98%	0.2% Developed 28% Open water/aquatic bed 42% Coniferous forest 18% Marsh or swamp 6% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: High
MERW_LK_03 39 ac	Protection & Restoration Management Zone:	n/a	Not rated	Steep slopes (greater than 40%)	None	Impaired: total dissolved gas	m-spring Chinook, coho salmon, bull trout, summer and winter steelhead  Bald eagle communal night roost, bald eagle concentration, wintering elk and deer range	Forested 200 feet or wider except at dam location	Yale Reservoir dam	Forestry: 100%	1% Developed 9% Open water/aquatic bed 53% Coniferous forest, mixed 30% Marsh or swamp	Hydrologic: Moderate Riparian: High Hyporheic: Low Habitat: High
Waterbody: Yale Reservoir												
YALE_LK_01 2,169	Protection & Restoration Management Zone:	n/a	Not rated	Steep slopes (greater than 40%)	37 acres		m-resident cutthroat, Chinook salmon, coho salmon, bull trout, rainbow trout, summer and winter steelhead trout  Bald eagle communal night roost, wintering elk and deer range	Forested 200 feet or wider except in areas where road parallels shore	Yale Reservoir dam Private road parallels lake shore	Forestry: 85%	0% Developed 84% Open water/aquatic bed 8% Coniferous forest, mixed 6% Marsh or swamp	Hydrologic: Moderate Riparian: High Hyporheic: Low Habitat: High
Waterbody: Mud Lake												
MUD_LK_01 153 ac	Protection & Restoration Management Zone:	n/a	Tier 4 (Allen Creek)	Steep slopes (greater than 40%)	51 acres	No data Presumed poor based on model prediction (SNAP).	m-coho salmon, summer and winter steelhead	Forested 200 feet or wider Invasive vegetation predominantly in the understory (SNAP).	None apparent	Forestry: 52% Vacant: 44%	0% Developed 53% Open water/aquatic bed 28% Coniferous forest, mixed 8% Marsh or swamp 12% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Low Habitat: Moderate
Waterbody: Unnamed Lake 01												
UNNA_LK_01 50 ac	Protection, Restoration & Development Management Zone	n/a	Not rated	-	31 acres	No data	m-coho salmon Cavity nesting duck ponds, oak woodlands	Mix of forested areas (200 feet or wider) and cleared areas.	Highway abuts southwest shore. Historical connection to Lewis River has been removed.	Forestry: 41% Mobile Home: 41% Vacant: 14%	23% Developed 18% Agricultural pastures 29% Open water/aquatic bed 24% Coniferous forest, mixed	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
Waterbody: Horseshoe Lake												
HORS_LK_01 86 ac	Protection, Restoration & Development Management Zone	n/a	Not rated	-	26 acres	No data	No documented fish presence Oak woodlands, cavity nesting habitat which support cavity nesting ducks	Vegetation limited to 30-50 feet in width in northern part of lake where residential development has occurred.  Remainder is a mix of forested and cleared areas	Five docks Eastern ends of the lake are riprap embankments that support I-5. Historical connection to Lewis River has been removed.	Mobile Home: 58% SF Residential: 40%	10% Developed 23% Agricultural pastures 36% Open water/aquatic bed 31% Marsh or swamp	Hydrologic: Low Riparian: Low Hyporheic: Moderate Habitat: Moderate

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Cedar Creek												
CEDA_CR_01 232 ac	Protection & Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 2 and 3	Category 1 Recharge Area Steep slopes (greater than 40%) Potential CMZ	87 acres (72% high quality)	Impaired: fecal coliform Concern: pH Fair overall stream health	m-resident cutthroat, fall chum, coho salmon, rainbow trout s-fall Chinook, coho salmon, and winter steelhead r-spring Chinook Bald eagle concentration; wintering elk	Mostly forested 200 feet or wider with limited number of cleared areas.	2 road crossings: NE Grist Mill Rd and NE Etna Rd at stream mouth	Vacant: 49% SF Residential: 35% Forestry: 9%	0.4% Developed 9% Agricultural pastures 44% Coniferous forest, mixed 40% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: High
CEDA_CR_02 486 ac	Protection & Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 2 and 3	Steep slopes (greater than 40%) Potential CMZ	173 acres (31% High quality)	No data Fair overall stream health	m-resident cutthroat, fall chum, coho salmon, rainbow trout s-fall Chinook and winter steelhead r-spring Chinook Cavity nesting ducks	Mixture of large clearings and forested areas 200 feet or wider. Limited structures within shoreline area.	Conversion from forest lands to residential and agriculture Roadways parallel creek Two road crossings: NE Cedar Creek Rd and NE Cedar Ridge Rd Timber harvesting	SF Residential: 39% Vacant: 37% Forestry: 12%	1% Developed 8% Agricultural pastures 9% Coniferous forest, mixed 21% Harvested 59% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
CEDA_CR_03 475 ac	Protection & Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 3 and 4	Category 1 Recharge Area Steep slopes (greater than 40%); Potential CMZ	177 acres (30% High quality)	No data Fair overall stream health	m-resident cutthroat, fall Chinook, chum salmon, coho salmon, rainbow trout, s-spring Chinook, steelhead trout	Forested area 200 feet or wider. Some areas have been harvested. Limited number of structures located within shoreline area.	3 crossings: Chelatchie Prairie railroad, NE Amboy Road and SR 503 Conversion from forest lands to residential Timber harvesting	SF Residential: 39% Vacant: 28% Forestry: 24%	0.3% Developed 27% Coniferous forest, mixed 12% Harvested 58% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: Moderate
Waterbody: Pup Creek												
PUP_CK_01 23 ac	Protection & Restoration Management Zone:	Hydrology: M Sediment: M Riparian: M	Tier 3	Potential CMZ at stream mouth	< 1 acre	No data Good overall stream health	m-chum salmon, spring Chinook s-coho salmon, winter steelhead trout	Mostly forested-200 feet or wider	None apparent	SF Residential: 47% Forestry: 28% Vacant: 25%	0% Developed 49% Coniferous forest, mixed 7% Harvested 44% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: Low Habitat: Moderate
Waterbody: Chelatchie Creek												
CHEL_CR_01 (31 ac)	Protection & Restoration Management Zone:	Hydrology: I Sediment: M Riparian: I	Tiers 3 and 4	Potential CMZ Category 1 Recharge Area	24 acres	Not Impaired. Concern: dissolved oxygen Good overall stream health	s-winter steelhead m-resident cutthroat, fall Chinook, chum salmon, spring Chinook, coho salmon, rainbow trout	Forested area with some structures and roadways	NE 221 <sup>st</sup> Avenue	Institutional: 41% Mobile Home: 29% SF Residential: 12%	15% Developed 75% Floodplain and riparian	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Moderate
CHEL_CR_02 (263 ac)	Same as above	Hydrology: I Sediment: M Riparian: I	Tier 4	Potential CMZ	175 acres	No data Good overall health	s-coho salmon, winter steelhead m-resident cutthroat, fall and spring Chinook salmon, chum salmon, rainbow trout 1 documented rare plant species as per WNHP	Mixture of areas cleared for residential and agricultural, thinned patches of trees, and forested areas 200 feet or wider.	4 roadway crossings: Gerber McKee Road, NE 256 <sup>th</sup> Avenue, NE 261 <sup>st</sup> Court, and NE 419 <sup>th</sup> Street as well as private roadways Conversion from forested to residential lands	SF Residential: 36% Vacant: 24% Mobile Home: 20% Agriculture: 10%	0.3% Developed 40% Agricultural pastures 49% Floodplain and riparian 5% Marsh or swamp	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Moderate

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Functions
Waterbody: Unnamed Tributary to Chelatchie Creek												
UCHE_CK_01 (391 ac)	Protection & Restoration Management Zone	Hydrology: I Sediment: M Riparian: I	Tier 3	Potential CMZ	373 acres (15% high quality)	No data	s-coho salmon, winter steelhead m-fall and spring Chinook salmon, chum salmon, rainbow trout	Mixture of areas cleared for residential and agricultural and forested areas 200 feet or wider (with younger trees).	Three road crossings: NE Chelatchie Road, NE 419 <sup>th</sup> Street and NE 244 <sup>th</sup> Avenue Conversion of forest lands to residential	SF Residential: 52% Mobile Home: 20% Forestry: 18% Vacant: 10%	0.4% Developed 40% Agricultural pastures 23% Harvested 34% Floodplain and riparian	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Moderate
Waterbody: Canyon Creek												
CANY_CR_01 (160 ac)	Protection & Restoration Management Zone:	Hydrology: F Sediment: M Riparian: F	Not rated	Steep slopes (greater than 40%) Potential CMZ in upper portion of reach	None	No data	m-bull trout, resident cutthroat, rainbow trout Wintering elk, canyon creek cliffs, wintering elk and deer range, bald eagle and communal night roost, bald eagle concentration	Forested 200 feet or wider	Private roadway crossing	Forestry: 72% Vacant: 16%	0% Developed 67% Coniferous forest, mixed 17% Deciduous dominated savanna and glade 9% Harvested	Hydrologic: High Riparian: High Hyporheic: Moderate Habitat: High
CANY_CR_02 (282 a)	Protection & Restoration Management Zone:	Hydrology: F Sediment: M Riparian: F	No data	Steep slopes (greater than 40%) Potential CMZ Small area in aquifer recharge	20 acres	No data. Upstream in Skamania County – temperature concern	m- resident cutthroat, rainbow trout Wintering elk, wintering elk and deer range	Forested 200 feet or wider with patches cleared for harvesting	Roadway parallels creek to the north and then crosses near the Fly Creek stream mouth	Forestry: 100%	0% Developed 68% Coniferous forest, mixed 18% Floodplain and riparian	Hydrologic: High Riparian: High Hyporheic: Moderate Habitat: Moderate
Waterbody: Fly Creek												
FLY_CR_01 (418 ac)	Protection & Restoration Management Zone:	Hydrology: I Sediment: M Riparian: M	No data	Steep slopes (greater than 40%) Potential CMZ in lower portion of reach No aquifer recharge area	72 acres (94% high quality)	No data	m-rainbow trout	Forested 200 feet or wider with areas harvested in the upper portion of the reach	One roadway crossing via bridge Forest harvesting	Forestry: 100%	0% Developed 19% Coniferous forest, mixed 56% Harvested 24% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: Moderate
Waterbody: Siouxon Creek												
SIOU_CR_01 (329 ac)	Protection & Restoration Management Zone	Hydrology: F Sediment: M Riparian: M	Tier 4	Steep slopes (greater than 40%)	< 1 acre	No data Upstream in Skamania Co. impaired: temperature	m-Kokanee salmon and rainbow trout Wintering elk and deer range, bald eagle communal night roost	Forested 200 feet or wider	Two roadway crossings	Forestry: 100%	0% Developed 89% Coniferous forest, mixed	Hydrologic: High Riparian: High Hyporheic: Low Habitat: High
Waterbody: North Siouxon Creek												
NSIO_CR_01 (65 ac)	Protection & Restoration Management Zone	Hydrology: F Sediment: M Riparian: M	No data	Steep slopes (greater than 40%)	None		m-rainbow trout Wintering elk and deer range	Forested 200 feet or wider	None apparent	Forestry: 100%	0% Developed 90% Coniferous forest, mixed	Hydrologic: High Riparian: High Hyporheic: Low Habitat: High

**Analysis Table 5. Shoreline Analysis by Reach – East Fork Lewis River**

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: East Fork Lewis River												
EFLE_RV_01 SSWS 471 ac	Restoration, Protection and Development Zone: Important areas along river, but high impairments in contributing basins.	Hydrology: I Sediment: M Riparian: M	Tier 4 (tidal section)	Steep slopes on south river bank near McCormick Creek mouth	McCormick Creek wetlands; 280 acres, high quality forested wetlands with aquatic bed in floodplain	Impaired: temperature Tributaries – impaired: fecal coliform, temperature Good overall stream health	Fall Chinook, coho, chum, summer steelhead, and winter steelhead 1 rare plant species documented by WDNR Natural Heritage Program	Mostly forested and in good condition.	I-5 bridge crossing, NW La Center Road bridge. 1 mapped dock	Vacant: 61% SF Residential: 32%	3% Developed 4% Agricultural pastures 22% Coniferous forest 27% Marsh 16% Forested swamp 28% Floodplain and riparian	High Function: Tidal section of E Fork Lewis, including high quality wetlands at McCormick Creek confluence. Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: High
EFLE_RV_02 764 ac	Protection and Restoration Management Zone: restoration encouraged along the mainstem of the river in this reach.	Hydrology: I Sediment: M Riparian: I	Tier 1 (Lockwood Creek to Mason Creek) – rest Tier 4	Floodplain width from 0.5 to 0.8 miles	538 acres; floodplain wetlands, ponds and sloughs; degraded condition.	Impaired: temperature, fecal coliform Concern: temperature Tributaries – impaired: fecal coliform, temperature	Fall Chinook, coho, chum, summer steelhead, and winter steelhead.	Majority of river lacks forested cover within 200 feet; degraded riparian quality	Ditching and draining of floodplain wetlands 1 mapped dock	Vacant: 89%	0.4% Developed 18% Agricultural pasture 10% Forest 8% Burned 39% Marsh or swamp 25% Floodplain and riparian	High Function: E Fork Lewis section with significant floodplain, including expansive areas of wetlands, ponds and sloughs. Hydrologic: Moderate Riparian: Low Hyporheic: High (wetlands) Habitat: Moderate
EFLE_RV_03 2,026 ac	Protection and Restoration Management Zone: restoration encouraged along the mainstem of the river in this reach.	Hydrology: I Sediment: M Riparian: M	Tier 1 (Mason Creek to Rock Creek)	Floodplain width from 0.5 to 1.0 mile wide; bank erosion.	837 acres; floodplain wetlands, sloughs and farmed wetlands.	Impaired: temperature, fecal coliform Good overall stream health	Fall Chinook, coho, chum, summer steelhead, and winter steelhead Bald eagle and osprey nesting; reticulate sculpin. 3 rare plant species documented by WDNR Natural Heritage Program	Most of river lacks forested cover, especially through section with gravel pits. Upstream of Daybreak Road has forested slope to the north of river.	NE JA Moore Road on north side of floodplain; Storedahl gravel pits in floodplain; Daybreak Road bridge; SR 503 crossing	Vacant: 45% SF Residential: 31% Industrial: 9%	5% Developed 39% Agricultural pasture 5% Open water (gravel pits) 30% Coniferous or mixed forest 5% Burned 12% Marsh or swamp 4% Floodplain/riparian	High Function: E Fork Lewis section with significant floodplain, including expansive areas of wetlands, ponds and sloughs. Restoration needed. Hydrologic: Moderate Riparian: Low Hyporheic: High (wetlands) Habitat: Moderate
EFLE_RV_04 310 ac	Protection and Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Tiers 1 and 2		132 acres	Impaired: temperature Concern: fecal	All salmonid species, except coho to Lucia Falls. 2 rare plant species documented by WDNR Natural Heritage Program	Moderate quality, forested zone varies from 100 to 200 feet. Residential development close to shore.	Heisson Bridge; NE Lucia Falls Road parallel northern shore.	SF Residential: 60% Vacant: 26%	1% Developed 53% Coniferous or mixed forest 3% Harvested 19% Marsh or swamp 22% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
EFLE_RV_05 257 ac	Protection and Restoration Management Zone	Hydrology: M Sediment: M Riparian: M	Tier 2	Lucia Falls and Moulton Falls Channel in bedrock.	171 acres	Impaired: temperature Good overall stream health	Summer and winter steelhead above Lucia Falls 1 rare plant species documented by WDNR Natural Heritage Program	Moderate quality, varies from forested areas to timber harvest/	NE Hantwick Road crossing. NE Lucia Falls Road parallels northern shore (60 to 75 feet from bank). Old train bridge crosses. Railroad bed parallels bank.	Forestry: 28% SF Residential: 25% Vacant: 24% Mobile Home: 11%	1% Developed 44% Coniferous or mixed forest 7% Harvested 36% Marsh or swamp 12% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
EFLE_RV_06 91 ac	Protection Management Zone: High functions and low impairments.	Hydrology: M Sediment: M Riparian: M	Tier 1	Canyon, steep slopes	27 acres	Impaired: temperature Good overall.	Summer and winter steelhead	High quality and forested for 200 feet.	Moulton Falls Park pedestrian bridge.	Forestry: 60% Open Space: 26% Vacant: 9%	0% Developed 60% Coniferous forest 6% Marsh or swamp 31% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
EFLE_RV_07 148 ac	Protection Management Zone: High functions and low impairments.	Hydrology: F Sediment: M Riparian: M	Tier 4		21 acres	Impaired: temperature	Summer and winter steelhead	Quality varies; some forested, others harvested.	NE 312 <sup>th</sup> Avenue bridge crossing. Residential structures.	Forestry: 43% SF Residential: 34% Vacant: 22%	0% Developed 53% Coniferous forest 18% Harvested 27% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
EFLE_RV_08 187 ac	Protection Management Zone: High functions and low impairments.	Hydrology: M Sediment: M Riparian: M	Tiers 1 and 4		7 acres	Impaired: temperature Temperature impairments begin in Skamania County approximately 8 miles upstream of county border.	Summer and winter steelhead	Quality varies; some forested, others harvested.	NE Sunset Falls Road parallels north shoreline.	Forestry: 57% SF Residential: 30% Vacant: 13%	0% Developed 42% Coniferous forest 23% Harvested 4% Marsh or swamp 32% Floodplain and riparian	Hydrologic: Moderate Riparian: Moderate Hyporheic: Moderate Habitat: High
Waterbody: Lockwood Creek												
LOCK_CR_01 112 ac	Protection and Restoration Management Zone	Hydrology: I Sediment: F Riparian: M	Tier 1	Steep slopes; landslides in upper watershed.	45 acres	Not Impaired Concern: temperature TMDL required for fecal coliform bacteria (SNAP).	Summer and winter steelhead. Reticulate sculpin Coho and winter steelhead use (SNAP)	High quality forested riparian zone LWD recruitment potential is good (SNAP).	NE Lockwood Creek Road crossing and electrical transmission crossing.	Vacant: 49% SF Residential: 38% Mobile Home: 13%	0% Development 21% Agricultural pasture 29% Forested 11% Harvested 32% Floodplain and Riparian	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: Moderate
Waterbody: Mason Creek												
MASO_CK_01 264 ac	Protection and Restoration Management Zone	Hydrology: I Sediment: M Riparian: M	Tier 2	Steep slopes to the north	131 acres	Impaired: temperature Overall fair; TMDL required for fecal coliform (SNAP). Fair stream health.	Summer and winter steelhead Coho and winter steelhead use (SNAP)	Forested riparian zone varies, 50 to 200 feet wide. LWD recruitment potential is good (SNAP).	Houses close to creek bank. Two crossings via bridges; NE JA Moore Rd and NE 290 <sup>th</sup> Street Electrical transmission line crosses creek	SF Residential: 43% Vacant: 34% Mobile Home: 13%	0% Developed 47% Agricultural pasture 34% Forested, mixed 16% Recently burned	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: Moderate
Waterbody: Rock Creek (Lower)												
ROC1_CR_01 202 ac	Protection and Restoration Management Zone	Hydrology: I Sediment: M Riparian: I	Tier 4	Steep slopes at the mouth.	42 acres	Impaired: fecal coliform Concern: dissolve oxygen Good overall stream health	Summer and winter steelhead 1 rare plant species documented.	Varies from poor to good. Narrow forested zone.	SR 503 parallels creek. Multiple road crossings. Rip-rap. Channel incision.	SF Residential: 59% Forestry: 13% Mobile Home: 9%	4% Developed 6% Agricultural pasture 22% Forested, mixed 16% Harvested 51% Floodplain and riparian	Hydrologic: Low Riparian: Low to Moderate Hyporheic: Moderate Habitat: Low to Moderate

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: Big Tree Creek												
BIGT_CK_01 25 ac	Protection and Restoration Management Zone	Hydrology: I Sediment: M Riparian: M	Tier 2 to Moulton Falls		11 acres	Impaired: temperature Fair to Good water quality; but fails the fecal coliform standard (SNAP).	Summer and winter steelhead	Riparian zone forested. LWD recruitment potential is low (SNAP).	Timber harvest; road crossings (2).	Open Space: 49% SF Residential: 38%	2% Developed 50% Coniferous forest 19% Harvested forest 12% Marsh 18% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: Moderate Habitat: High
BIGT_CK_02 (156 ac)	Protection and Restoration Management Zone	Hydrology: I Sediment: M Riparian: M	Tier 4	No CMZ	42 acres	Fair to Good (SNAP)	Summer and winter steelhead in East Fork Lewis, no known anadromous use of upper Big Tree.	Riparian zone degraded; timber harvest	Timber roads.	Forestry: 56% Vacant: 28% SF Residential: 15%	0% Developed 14% Coniferous forest 31% Harvested forest 54% Floodplain and riparian	Hydrologic: Moderate Riparian: Low to Moderate Hyporheic: Moderate Habitat: Moderate
Waterbody: Yacolt Creek												
YACO_CK_01 (42 ac)	Protection and Restoration Management Zone	Hydrology: I Sediment: M Riparian: M	Not rated	No CMZ	17 acres	Impaired: fecal coliform Good overall based upon moderate to high biological integrity (SNAP)	Summer and winter steelhead	Riparian zone degraded; timber harvest LWD recruitment is low (SNAP).	NE Railroad Avenue and RR crossings	SF Residential: 49% Vacant: 44%	1% Developed 5% Coniferous forest 10% Harvested 83% Floodplain and Riparian	Hydrologic: Moderate Riparian: Low Hyporheic: Moderate Habitat: Moderate
Waterbody: Rock Creek (Upper)												
ROC3_CR_01 (150 ac)	Protection Management Zone: High functions and low impairments.	Hydrology: M Sediment: F Riparian: M	Tier 1	Steep slopes, canyon	1 acre	Impaired: temperature, fecal coliform Poor to Fair (SNAP)	Coho and winter steelhead Good overall stream health	Varies, timber harvest on east bank. Shade varies between 0 and 90% (SNAP).	Forest roads, timber harvest.	Forestry: 58% Vacant: 26% SF Residential: 15%	0% Developed 62% Coniferous forest (second growth) 8% Harvested 30% Floodplain and riparian	Hydrologic: High Riparian: High Hyporheic: Moderate Habitat: High
ROC3_CR_02 (140 ac)	Protection Management Zone: High functions and low impairments.	Hydrology: M Sediment: F Riparian: M	Tiers 1 and 4	Steep slopes	39 acres	Impaired: temperature, fecal coliform Poor to Fair (SNAP)	Same	Varies, timber harvest Shade varies between 0 and 90% (SNAP).	Forest roads, timber harvest	Forestry: 75% SF Residential: 15% Vacant: 10%	0% Developed 52% Coniferous forest (second growth) 4% Harvested 43% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: High Habitat: High
ROC3_CR_03 140 ac	Protection Management Zone: High functions and low impairments.	Hydrology: M Sediment: F Riparian: M	Tier 4	Steep slopes	57 acres	Poor to Fair (SNAP)	Same	Varies, timber harvest	Forest roads, timber harvest	Forestry: 100%	0% Developed 41% Coniferous forest (second growth) 9% Harvested 48% Floodplain and riparian	Hydrologic: Moderate Riparian: High Hyporheic: High Habitat: High
Waterbody: Cedar Creek (East Fort Lewis River Tributary)												
CED2_CR_01 300 ac	Protection Management Zone: High functions and low impairments.	Hydrology: F Sediment: F Riparian: M	Tiers 2 and 4	Steep slopes	216 acres; headwater wetland area, appears to be scrub-shrub or forested	No data	Summer and winter steelhead	Partially harvested but generally good condition. Forest zone is 100 to 150 feet each side.	Forest roads, timber harvest	Forestry: 100%	0% Developed 62% Coniferous forest (second growth) 4% Harvested 32% Floodplain and riparian	Hydrologic: High Riparian: High Hyporheic: High Habitat: High

Reach	Watershed Characterization (Ecology) <sup>1</sup>	Integrated Watershed Assessment (IWA) <sup>2</sup>	Salmon Recovery Priority Tier <sup>3</sup>	CMZ, Hazards, Critical Aquifers <sup>4</sup>	Associated Wetlands <sup>5</sup>	Water Quality Assessment <sup>6</sup>	Priority Habitat and Species Data <sup>7</sup>	Riparian Habitat Quality <sup>8</sup>	Modifications <sup>9</sup>	Existing Land Use in Shoreline Planning Areas <sup>10</sup>	Land Cover <sup>11</sup>	Ecological Function
Waterbody: Coyote Creek												
COYO_CR_01 62 ac	Protection Management Zone: High functions and low impairments.	Hydrology: F Sediment: F Riparian: F	Tier 4	None	8 acres	No data	Same	Partially harvested but generally good condition. Forest zone is 100 to 150 feet each side.	Forest roads and timber harvest. Clearcuts outside of shoreline jurisdiction.	Forestry: 100%	78% Coniferous forest 3% Harvested 19% Floodplain and Riparian	Hydrologic: High Riparian: High Hyporheic: High Habitat: High
Waterbody: King Creek												
KING_CK_01 (121 ac)	Protection Management Zone: High functions and low impairments.	Hydrology: M Sediment: M Riparian: M	Tier 4	Steep slopes	9 acres	Impaired: temperature	Summer and winter steelhead	Varies, timber harvest	Forest roads and timber harvest. One roadway crossing.	Forestry: 100%	0% Development 40% Conifer forest 9% Harvested forest 49% Floodplain and Riparian	Hydrologic: High Riparian: Moderate Hyporheic: Moderate Habitat: Moderate
Waterbody: Copper Creek												
COPP_CR_01 (79 ac)	Protection Management Zone: High functions and low impairments.	Hydrology: F Sediment: M Riparian: M	Tier 2 to impassable falls	Steep slopes in upper basin	< 1 acre	No data	Summer and winter steelhead	Varies, timber harvest	Forest roads, timber harvest	Forestry: 91%	74% Coniferous forest 23% Floodplain and Riparian	Hydrologic: High Riparian: High Hyporheic: Moderate Habitat: High

Notes:

<sup>1</sup> Watershed Characterization for Clark County, Washington (Stephen Stanley, 2009).

<sup>2</sup> IWA; Lower Columbia Fisheries Recovery Board, 2010; Functions classified as Impaired (I), Moderately Impaired (M) or Functional (F).

<sup>3</sup> Ecosystem and Diagnostic Testing (EDT) Model; GIS Tier Data from LCFRB (2009); Tier 1 = High Priority Reaches for one or more primary fish populations; Tier 4 = Reaches medium to low priority.

<sup>4</sup> SMP Master Program Update: Identifying Potential Channel Migration Reaches (Patricia Olson, 2010); Clark County GIS Data set: Erosion Hazard Areas obtained in 2009 (1997 completed); Critical aquifer recharge areas obtained in 2009 (1994 completed); Earthquake Hazard Areas obtained in 2009 (1993 completed); Washington Department of Natural Resources, 2002; FEMA: Preliminary dFIRM data, 2007 and 100-year Floodplain, 1993

<sup>5</sup> Clark County GIS Data set: Wetland Inventory obtained in 2009 (2005 completed); High quality wetland data obtained in 2009 (completed 1993)

<sup>6</sup> Ecology 2008 Water Quality Assessments; SNAP Reports; 2003 Stream Health Report.

<sup>7</sup> WDFW Priority Habitat and Species data, 2009; m=migratory, r=rearing, and s=spawning

<sup>8</sup> Clark County orthophotos, 2005 and 2009

<sup>9</sup> DNR Encumbrance GIS data set, 2006

<sup>10</sup> Clark County GIS Data set: Existing Land Use obtained in 2009 (1993 completed)

<sup>11</sup> USGS (Gap Analysis Program), 2010

### Public Ownership on the Columbia River

Reach Name	Public Acres	Total Acres	% Public
COLU_RV_01	152	1,678	9%
COLU_RV_02	3,302	7,489	44%
COLU_RV_03	329	3,930	8%
COLU_RV_04	21	181	11%
COLU_RV_05	929	3,656	25%
CAMP_LK_01	6	18	32%
CANV_LK_01	15	123	13%
GEE_CR_01	39	238	16%
GREE_LK_01	16	195	8%
HATH_LK_01		229	0%
LANC_LK_01		235	0%
POST_LK_01		14	0%
UNNA_LK_02	24	109	22%
UNNA_LK_03		40	0%

### Public Ownership in the Washougal River Sub-basin

Reach Name	Public Acres	Total Acres	% Public
WASH_RV_01	8	126	6%
WASH_RV_02	101	392	26%
WASH_RV_03	2	164	1%
WASH_RV_04	40	241	17%
BOUL_CK_01		92	0%
COUG_CR_01		66	0%
EFLW_RV_01		43	0%
FALL_LF_LK_01	4	52	8%
FIPL_CR_01	19	933	2%
HAGE_CR_01	4	53	7%
LACA_CR_01	56	78	72%
LACA_CR_02	128	1,657	8%
LACA_CR_03	2	447	0%
LACA_CR_04		340	0%
LACA_LK_01	79	476	17%
LWAS_RV_01	1	427	0%
ROUN_LK_01	32	72	45%
MATN_CR_01		88	0%
NFLA_CR_01		32	0%

**Public Ownership in the Washougal River Sub-basin**

<b>Reach Name</b>	<b>Public Acres</b>	<b>Total Acres</b>	<b>% Public</b>
GIBB_CR_01	5	23	23%
GIBB_CR_02	1	1	100%
LAWT_CR_01		12	0%

**Public Ownership in the Salmon Creek Sub-basin**

<b>Reach Name</b>	<b>Public Acres</b>	<b>Total Acres</b>	<b>% Public</b>
BATT_LK_01	46	46	100%
BURN_CR_01	193	315	61%
BURN_CR_02	75	114	66%
CURT_CR_01	16	173	9%
LAKE_RV_01	137	919	15%
LAKE_RV_02	187	301	62%
MORG_CR_01	0	253	0%
MILL_CR_01	34	147	23%
ROC2_CR_01		105	0%
SALM_CR_01	525	922	57%
SALM_CR_02	13	142	9%
SALM_CR_03	17	433	4%
SALM_CR_04		360	0%
SALM_CR_05		105	0%
VANC_LK_01	785	2,608	30%
VANC_LK_02	87	738	12%
WHIP_CR_01	35	128	27%

**Public Ownership in East Fork Lewis River**

<b>Reach Name</b>	<b>Public Acres</b>	<b>Total Acres</b>	<b>% Public</b>
EFLE_RV_01	197	471	42%
EFLE_RV_02	532	764	70%
EFLE_RV_03	720	2,026	36%
EFLE_RV_04	10	310	3%
EFLE_RV_05	123	257	48%
EFLE_RV_06	50	91	55%
EFLE_RV_07		148	0%
EFLE_RV_08	14	187	8%
BIGT_CK_01	13	25	53%
BIGT_CK_02		156	0%
CED2_CR_01	270	300	90%
COPP_CR_01	55	79	70%
LOCK_CR_01		112	0%
MASO_CK_01	6	264	2%
ROC1_CR_01		202	0%
ROC3_CR_01	37	150	25%
ROC3_CR_02	79	140	56%
ROC3_CR_03	74	140	53%
YACO_CK_01	3	42	6%

### Public Ownership in Lewis River

Reach Name	Public Acres	Total Acres	% Public
LEWI_RV_01		660	0%
LEWI_RV_02	376	1,758	21%
LEWI_RV_03	5	147	3%
LEWI_RV_04	6	31	20%
MERW_LK_01	92	2,486	4%
MERW_LK_02		122	0%
MERW_LK_03		39	0%
YALE_LK_01	111	2,169	5%
CANY_CR_01		160	0%
CANY_CR_02	30	282	11%
CEDA_CR_01	26	232	11%
CEDA_CR_02	33	486	7%
CEDA_CR_03	3	475	1%
CHEL_CR_01	19	31	61%
CHEL_CR_02	4	263	1%
COYO_CR_01	62	62	100%
FLY_CR_01		418	0%
HORS_LK_01	1	86	1%
KING_CK_01	30	121	25%
MUD_LK_01	17	153	11%
NSIO_CR_01	65	65	100%
PUP_CK_01		23	0%
SIOU_CR_01	207	329	63%
UCHE_CK_01	1	391	0%
UNNA_LK_01	50	50	101%