

SECTION 5

**COLUMBIA RIVER SUB-BASIN
SHORELINE INVENTORY AND ANALYSIS
DISK #2**

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COLUMBIA RIVER SUB-BASIN REACH DESCRIPTION

REACH 1

ABIOTIC– See Columbia Physical map and Columbia Physical (soil characteristics) map (*Columbia_Physical.pmf* and *Columbia_Soil_Characteristics.pmf*)

Geology/Landform (Table CO2)

Throughout this SMP jurisdiction of this reach, the surficial geology is predominantly alluvium with some areas of basalt (Washington State Department of Natural Resources [WDNR], 2000).

There are minimal areas of geologic hazards noted along the Columbia River reach (Yakima County, 2003c). Throughout the jurisdiction there is only 1.4% classified as a high risk due to oversteepened slopes and unstable materials presenting the possibility for rock fall and creep.

Soil and Soil Properties (Table CO3)

According to the available geology data, Reach 1 is dominated (35.7) by alluvium and basalt flows (33.7%) (USDA Natural Resources Conservation Service [NRCS], 2003). Soil permeability is primarily moderate (12.3%), runoff is generally classed as medium (6.52%), and the hazard of erosion is rated as slight in some areas (1.69%) and high (1.3%) in others.

BIOTIC- See Columbia Biological map (*Columbia_Biological.pmf*)

Natural Vegetation (Table CO5)

Upland

GAP analysis data estimates that the vegetation community along this reach is entirely dominated by central arid steppe vegetation (Washington Department of Fish and Wildlife [WDFW], 2004a).

Riparian

There is no riparian area data coverage for the Columbia River.

Wetlands

Wetlands occupy 2.3% of the SMP jurisdiction (United States Fish and Wildlife Service [USFWS], 2003).

Wildlife

Aquatic (Table CO6)

Species including coho, fall chinook, sockeye, spring chinook, summer chinook, summer steelhead, and winter steelhead are all present along this stretch of the Columbia River. The waters that lie below the passable dam along the Columbia River SMP jurisdiction are identified as spawning and rearing habitat for fall chinook and summer chinook (WDFW, 2004c). Adequate habitat is expected for 26 species of resident fish in this reach, including black bullhead, black crappie, bridgip sucker, brown bullhead, brown trout, burbot, carp,

channel catfish, chiselmouth, crappie, lake whitefish, largemouth bass, longnose sucker, mottled sculpin, Pacific lamprey, pumpkinseed, rainbow trout, redbreasted sunfish, sculpin, smallmouth bass, sunfish, three spine stickleback, walleye pike, white crappie, yellow bullhead, and yellow perch. The American shad is the only species listed as being blocked by the Priest Rapids Dam (WDFW, 2004c).

Avian (Tables CO5 and CO7)

GAP analysis data indicates that a portion of this reach may provide habitat for some species of concern, including principally the sage sparrow and the sage thrasher (63.8%), and the Ferruginous hawk (62.4%) (WDFW, 2004a). Other species of concern include the burrowing owl, spotted owl, and the sage grouse. Although not included with in the SMP jurisdiction, Wildlife Heritage locations in which the prairie falcon has been identified are shown on the biological map as they lie within close proximity of the jurisdiction (WDFW, 2003).

Terrestrial (Table CO7)

GAP analysis data indicates that portions of Reach 1 may provide habitat for four species of concern, including principally the Townsend's big eared bat (100%), as well as smaller portions for the black tailed jack rabbit (63.8%), Townsend's ground squirrel (63.8%) and the Western gray squirrel (WDFW, 2004a).

**CULTURAL MODIFICATIONS – See Columbia Cultural Modifications map
(*Columbia_Cultural_Modifications.pmf*)**

Land Use (Table CO8)

Of the SMP jurisdiction lands along the Columbia reach, 41.5% remain vacant or natural land (Yakima County, 2004a). Of the remaining 58.5% of SMP jurisdiction lands, 25% is in government, 24.8% is in industrial/transportation, 5.4% is in residential single family, 2.9% is in industrial power generation, and 0.1% is in residential multi family. Of these lands, 0.79% of lands classified as transportation lie on rapid runoff soil, along with 0.23% of government land and 0.27% of vacant or natural land. The U.S. Department of Defense is the major public land owner within the SMP jurisdiction, holding title to 31.6% of the land.

Transportation (Table CO10)

Roadways occupy 0.6 miles of SMP jurisdiction land in this reach (Yakima County, n.d.a). There are no active railroads but there are 8.4 miles of abandoned railroads along this reach (Washington State Department of Transportation [WDOT], 1997). There are no bridge crossings along this reach (WDOT, 2004).

Revetments (Table CO10)

There are no revetments impinging upon and confining the river along this reach (CWU, 2002).

**CULTURAL JURISDICTION – See Bumping Cultural Jurisdictional map
(Columbia_Cultural_Jurisdictional.pmf)**

Zoning (Table CO9)

Current zoning within the SMP jurisdiction of the Columbia River reach is predominantly federal land (65.3%) with a smaller area of agriculture (25.8%) (Yakima County, 2004b). The entire jurisdiction is also designated as conservancy.

Cultural Resources

There are no cultural resources found in the SMP jurisdiction of the Columbia Reach (Washington Department of Ecology [WDOE], 1998).

DOE Sites/facilities and 303(d) Listings

There are no DOE sites/facilities or 303(d) streams found in the SMP jurisdiction of the Columbia Reach (WDOE, 1998).

ECOLOGICAL FUNCTION SUMMARY

Reach 1 Characterization Summary

Hazard Potential	Habitat Conditions	Public Access	Key Modifications
Steep slopes: 1.4% High soil runoff: 1.3% High erosion soils: 1.3% High soil permeability: 1.69%	Wetlands: 2.3% Vacant/natural: 41.5% Priority habitats: 5 Species of concern: 6 Anadromous habitat: 9.6 mi Total fish species: 33	Public land: 100%	Principal land use: Vacant/natural >10% Imperviousness: 3.8% Roads: 0.6 mi Barriers: Passable dam

Ecological functions along Reach 1 are principally impaired by government and industrial-transportation development, which covers 49.8% of the jurisdiction. These land uses, in addition to the 0.6 miles of roads and 8.4 miles of abandoned railroad, account for the majority of the estimated 3.8% of the reach that is greater than 10% impervious. In addition, one dam occurs along the reach (Priest Rapids Dam). Much of the reach is presently undeveloped (41.5%), while 2.3% is covered by wetlands. The reach provides habitat for six species of concern, as well as five priority habitats and aquatic habitat for 33 fish species, including anadromous fish.

ECOLOGICAL PROTECTION OPPORTUNITIES– See Columbia Opportunity for Protection map (*Columbia_Opp_Protection.pmf*)

The following list refers to the similarly numbered locations on the digital ecological protection maps for the Columbia River.

- 1) Rationale: Mule Deer Priority Species habitat in riparian zone. Suggested Action: Protect Mule Deer habitat.
- 2) Rationale: Waterfowl Priority Species habitat in riparian zone. Suggested Action: Protect Waterfowl habitat.
- 3) Rationale: Wetlands on private property. Suggested action: Work with landowner to protect wetlands.
- 4) Rationale: Common Loon Priority Species habitat in riparian zone. Suggested Action: Protect Common Loon habitat.
- 5) Rationale: Chukar Priority Species habitat in riparian zone. Suggested Action: Protect Chukar habitat.

ECOLOGICAL RESTORATION OPPORTUNITIES - See Columbia Opportunity for Restoration map

There are no ecological restoration opportunities identified for the Columbia.

APPENDIX

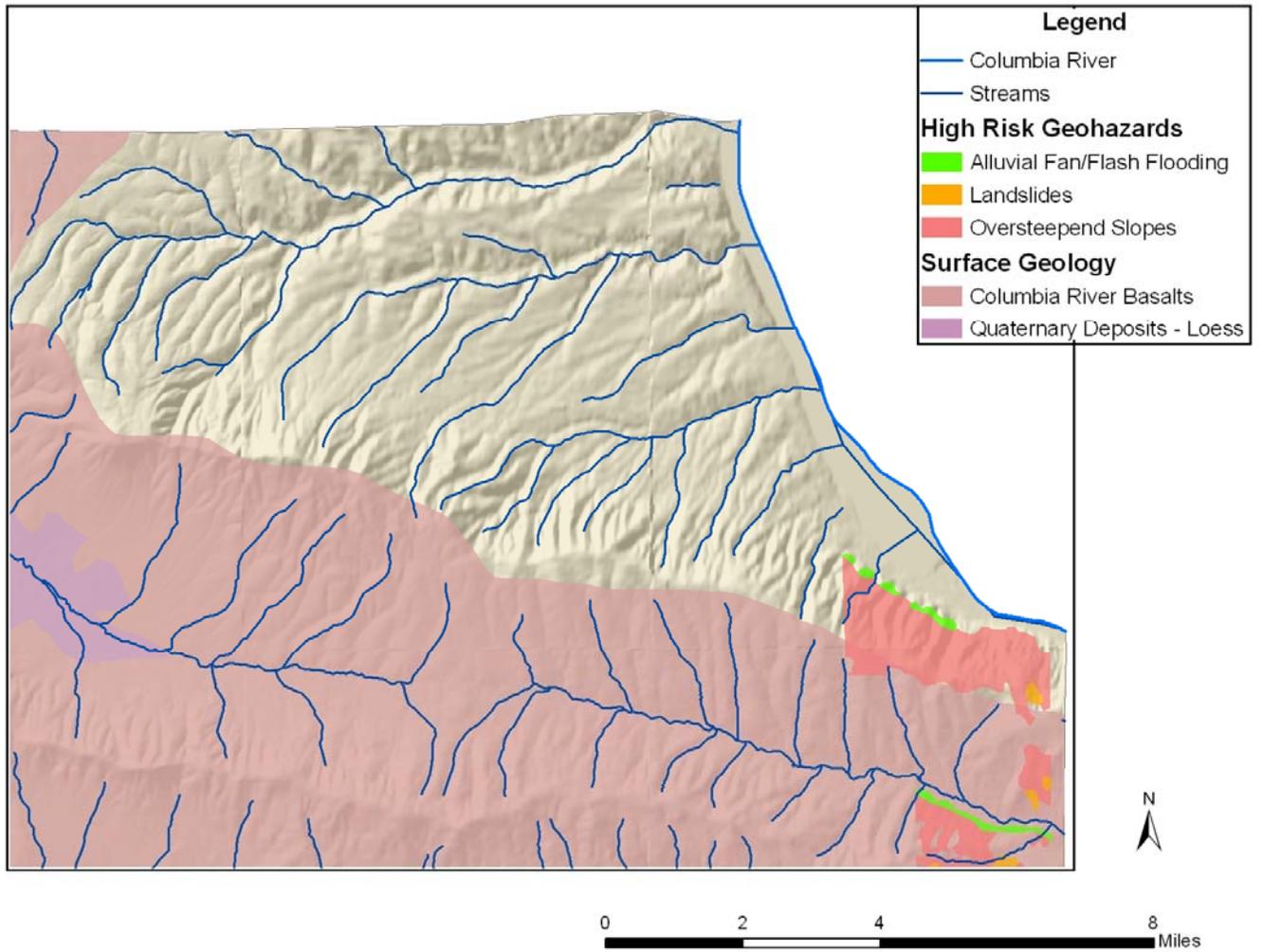


Figure CO1. Geology and Geohazards in the Columbia River.

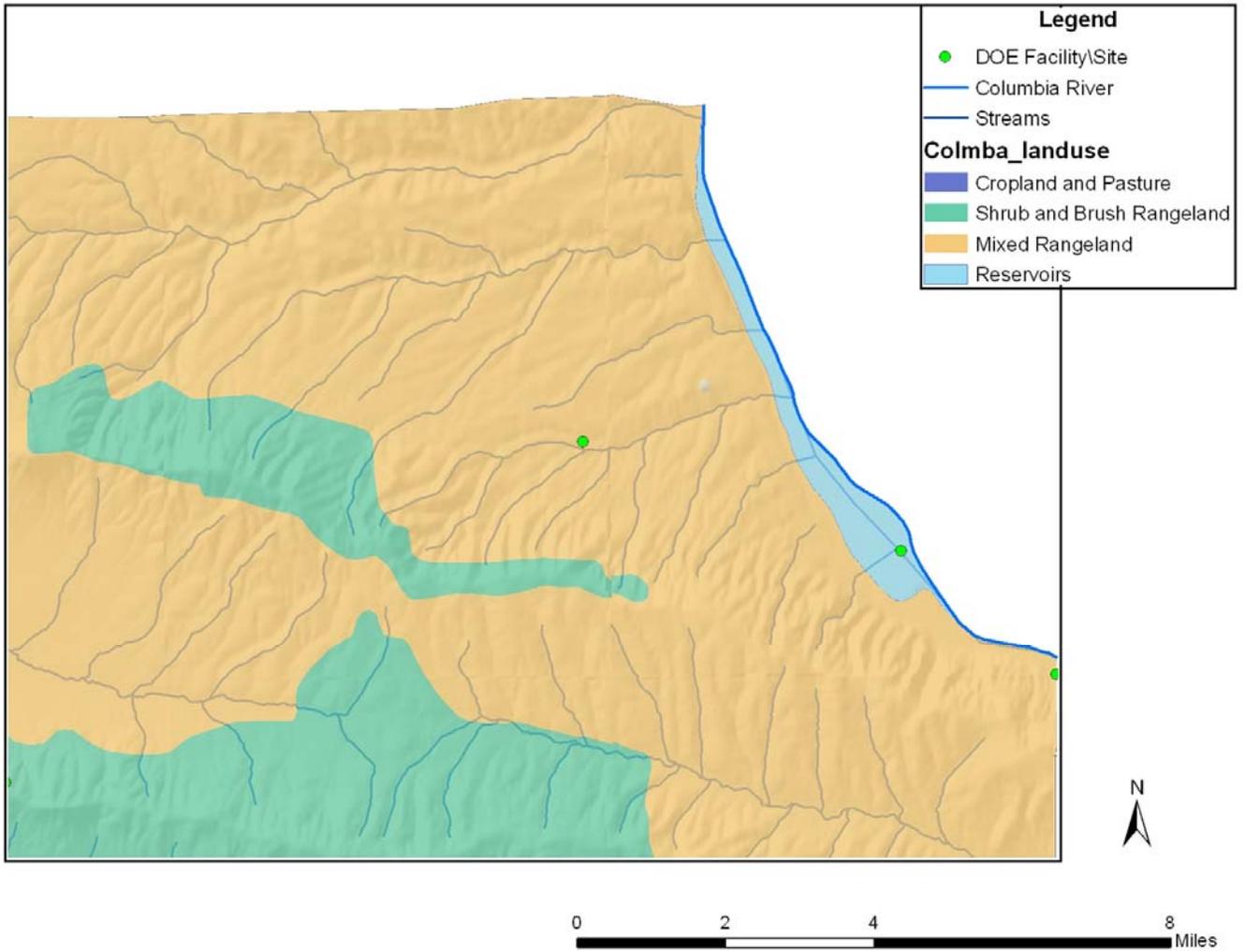


Figure CO2. Cultural Modifications in the Columbia River.

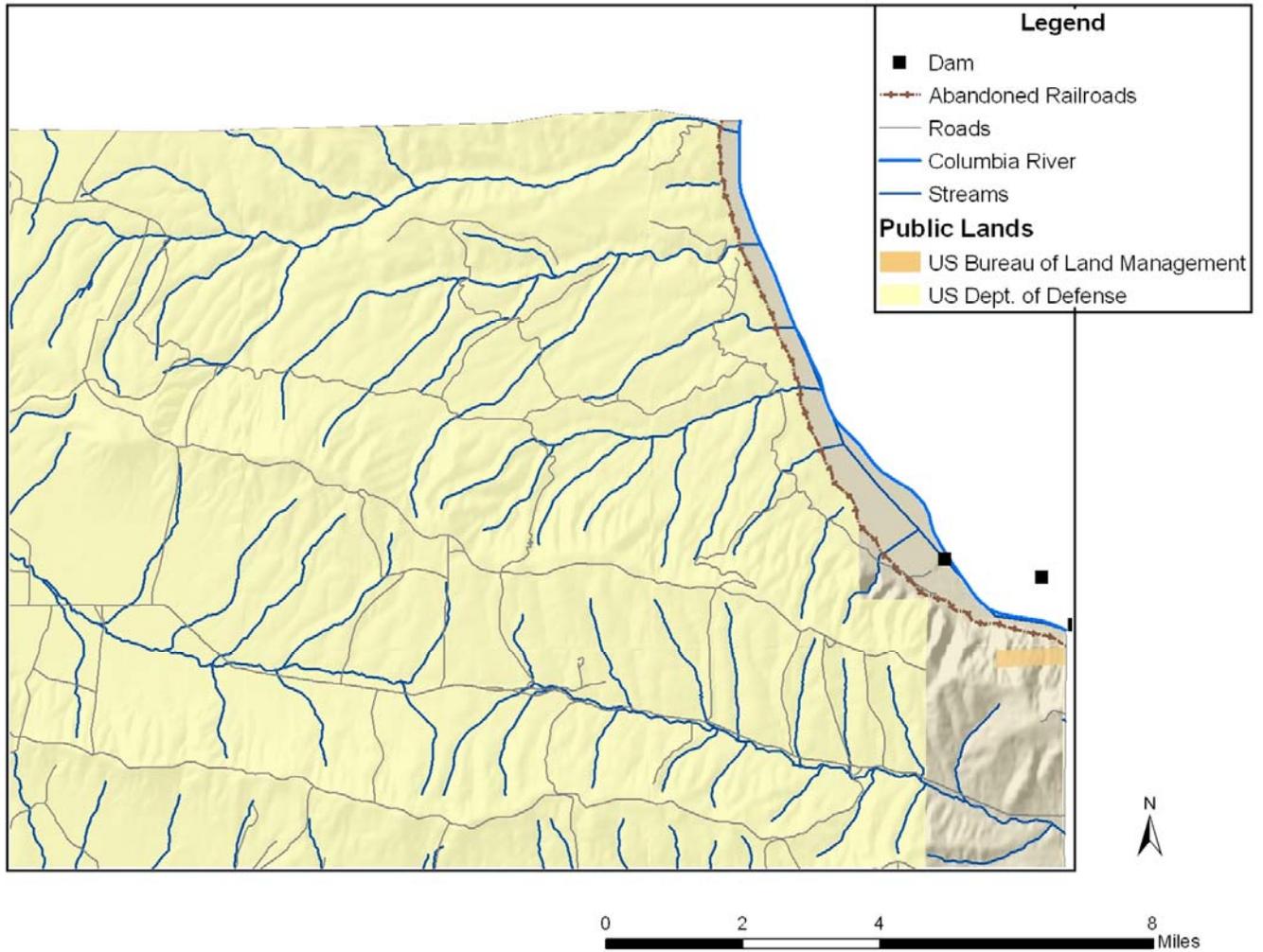


Figure CO3. Public Resources and Access for the Columbia River.

Table CO1. SMP Reach Breaks for Inventory and Analysis, Columbia River.

Reach	Area	Start	Reach Justification	Break	End
1	306.0 Acres	Kittitas County line (north line of S32,T15N, R23E)	County line		Benton County line (east line of S12, T13N, R23E)

Table CO2. Geology and Geohazard Characteristics for the Columbia River.

REACH	Geology		Geohazard	
	Lithology	Area (%)	Geohazard	Area (%)
1 Area:306.0 Acres	Alluvium	35.7	Oversteepened Slopes (High Risk)	1.4
	Basalt Flows (Frenchman Springs Member [CRB, WB])	20.3		
	Basalt Flows (Priest Rapids Member [CRB, WB])	33.7		
	Basalt Flows (Roza Member [CRB, WB])	3.6		
	Loess	2.8		
	Mass-Wasting Deposits, Mostly Landslides	3.0		
	Water	0.9		

Table CO3. Soil Characteristics for the Columbia River.

REACH	Soil Characteristics						Aquic Soils
	Permeability	Area (%)	Runoff	Area (%)	Hazard of Erosion	Area (%)	Area (%)
1 Area:306.0 Acres	moderate	12.25005	medium	6.521474	high	1.296349	No Data
	N/A	0.094136	N/A	0.094136	moderate	10.9537	
	rapid	1.691657	rapid slow	1.296349 6.123885	N/A slight	0.094136 1.691657	

Table CO4. Stream Channel Characteristics for the Columbia River.

REACH	Stream Lengths		Channel Migration	
	Total Streams (Miles)	SMP Stream (Miles)	Potential	Area (%)
1 Length: Miles Area: 306.0 Acres	0.3	9.5	No data	No data

Table CO5. Habitat Characteristics for the Columbia River.

REACH	Wildlife Heritage	Wetlands	Riparian Areas	Priority Species & Habitats		Barriers	
	Locations (#)	Area (%)	Area (%)	Habitat	Area (%)	Type	Species Blocked
1 Area: 306.0 Acres	0	2.3	No Data	Chukar Cliffs/Bluffs Common Loon Mule Deer Waterfowl Concentrations	22.3 8.6 21.0 58.4 21.0	Dam (Priest Rapids)	American Shad

Table CO6. Fish Characteristics for the Columbia River.

REACH	Anadromous Fish						Resident Fish	
	Presence		Spawning		Rearing		Species	Length (Miles)
	Species	Length (Miles)	Species	Length (Miles)	Species	Length (Miles)		
Area: 306.0 Acres Length: 9.6 Miles	Coho	9.6	Fall Chinook	1.7	Fall Chinook	1.0	Black Bullhead	9.6
	Fall Chinook	9.6	Summer Chinook	1.7	Summer Chinook	1.0	Black Crappie	9.6
	Sockeye	9.6					Bridgelip Sucker	9.6
	Spring Chinook	9.6					Brown Bullhead	9.6
	Summer Chinook	9.6					Brown Trout	9.6
	Summer Steelhead	9.6					Burbot	9.6
	Winter Steelhead	9.6					Carp	9.6
							Channel Catfish	9.6
						Chiselmouth	9.6	
						Crappie	9.6	
						Lake Whitefish	9.6	
						Largemouth Bass	9.6	
						Longnose Sucker	9.6	
						Mottled Sculpin	9.6	
						Pacific Lamprey	9.6	
						Pumpkinseed	9.6	
						Rainbow Trout	9.6	
						Redside Shiner	9.6	
						Sculpin	9.6	
						Smallmouth Bass	9.6	
						Sunfish	9.6	
						Three Spine Stickleback	9.6	
						Walleye Pike	9.6	
						White Crappie	9.6	
						Yellow Bullhead	9.6	
						Yellow Perch	9.6	

Table CO7. GAP Analysis of SMP Jurisdiction for the Columbia River.

REACH	GAP Analysis					
	Mammals		Birds		Vegetation	
	Type	Area (%)	Type	Area (%)	Type	Area (%)
1 Area: 306.0 Acres	Black-Tailed Jack Rabbit	63.8	Ferruginous Hawk	62.4	Central Arid Steppe	100.0
	Townsend's Big-Eared Bat	100.0	Sage Sparrow	63.8		
	Townsend's Ground Squirrel	63.8	Sage Thrasher	63.8		

Table CO8. Land-use Characteristics for the Columbia River Jurisdiction.

REACH	Land Use		Land Use Type on Rapid Runoff Soil		Impervious Surface	
	Type	Area (%)	Type	Area (%)	Range	Area (%)
1 Area: 306.0 Acres	Government (School/Work Camp)	25.0	Government	0.2	0%	88.0
	Industrial - Power Generation	2.9	Transportation	0.8	1-10%	7.9
	Industrial - Transportation	24.8	Vacant/Natural	0.3	11-25%	3.4
	Residential - Multi-Family	0.1			26-50%	0.0
	Residential - Single Family	5.4			51-75%	0.0
	Vacant/Natural	41.5			76+%	0.4

Table CO9. Cultural Jurisdiction Characteristics for the Columbia River.

REACH	Zoning		Public Land Ownership		Environmental Designation (1981)	
	Type	Area (%)	Owner	Area (%)	Designation	Area (%)
<p>1</p> <p>Area: 306.0 Acres</p>	<p>Agriculture</p> <p>Federal</p> <p>No Data</p>	<p>25.8</p> <p>65.3</p> <p>9.0</p>	<p>US Dept. of Defense</p> <p>No Data</p>	<p>31.63192</p> <p>68.4</p>	<p>Conservancy</p>	<p>100.0</p>

Table CO10. Transportation Characteristics for the Columbia River.

REACH	Length of Revetments		Total Road Length (Miles)	Length of Railroads		Bridge Crossing (#)
	Type	Length (Miles)		Active (Miles)	Abandoned (Miles)	
<p>1</p> <p>Length: Miles</p>	<p>N/A</p>	<p>0.0</p>	<p>0.6</p>	<p>0.0</p>	<p>8.4</p>	<p>0</p>