

## **5.8A Carty Lake**

Distinguishing a shoreline planning area for Carty Lake posed a challenge because all of the Ridgefield National Wildlife Refuge (NWR) is located in the floodplain of the Columbia River and is essentially a complex of wetlands associated with jurisdictional shorelines. For purposes of this analysis, the planning area was drawn to include wetlands that are identified in the National Wetland Inventory that intersect the line extending 200 feet from the ordinary high water mark (OHWM) of Carty Lake. The planning area boundary for the northern part of the lake was drawn coincident with the wetlands defined in the previous sentence. For the eastern portion of the lake, the mapped full extent of the floodplain was used and for the southern and western boundaries the planning area was coincident with the line drawn 200 feet from the OHWM of the lake. On a project-specific basis, field surveys would be required to define the shoreline area of Carty Lake regulated by the SMP.

### **5.8A.1 Physical and Biological Characterization**

#### **5.8A.1.1 Drainage Basin and Tributary Streams**

Carty Lake is a 52 acre lake that lies entirely within the Ridgefield National Wildlife Refuge (RNWR) and is located in the Carty Unit of the refuge, between Lake River on the west, Gee Creek to the north and east, and the Port of Ridgefield to the south and east. The lake is approximately 0.56 miles in length and 0.16 miles wide (USFWS, 2009). Carty Lake lies within the historic lower Columbia River floodplain. According to Clark County wetland mapping, 53 acres of the Carty Lake upland shoreline planning area (approximately 77 acres) is mapped as freshwater emergent wetland. Wetlands in the southern end of Carty Lake have been delineated as part of the Port of Ridgefield clean-up process. Wetlands have been classified as a Category II lake fringe wetland (ELS, 2013).

#### **5.8A.1.2 Process and Channel Modifications**

Carty Lake features a low-energy, depositional environment. The southern portion of Carty Lake is separated from Port of Ridgefield property (Miller's Landing, formerly known as the Lake River Industrial Site) by a failing treated-wood bulkhead. During high-water events, Gee Creek and Carty Lake can be hydraulically connected at the lake's northern end. Although the lake lies within the Lower Columbia River floodplain, during most of the year Carty Lake has no outlet or connection with the river system.

Based on aerial photography, there has been little modification directly to Carty Lake in the past fifty years. However, development of the Pacific Wood Treatment (PWR) facility to the east and south has altered Carty Lake's natural connections to former floodplains and wetlands to the south.

#### **5.8A.1.3 Geologic and Flood Hazard Areas**

The Ridgefield NWR is part of the Lower Columbia River floodplain and Willamette Lowlands, a 5,680 square-mile trough that lies between uplifted marine rocks of the Coast Range to the west and volcanic rocks of the Cascade Range to the east. Most of the soils within the Ridgefield

NWR are composed of Sauvie silty clay loam and Sauvie silt loam, deep, moderately well drained alluvial soil found on terraces with slopes of 0-8 percent. There are no severe erosion hazards or landslide hazards around Carty Lake. Carty Lake is located within the FEMA designated floodway associated with the Columbia River. The 10-year floodplain elevation of Carty Lake is approximately 23.8 feet.

#### 5.8A.1.4 Critical or Priority Habitat and Species Use

The Columbia white-tailed deer is federally listed as endangered and were recently translocated to the Ridgefield NWR; this species is now present in the Carty Unit. Other federally designated species are not known to occur in Carty Lake or its shoreline. Federally-listed anadromous fish species are not likely to utilize Carty Lake for spawning or rearing habitat due to a lack of consistent surface water connection with Gee Creek, Lake River and the Columbia River System. Fish in the lake include primarily warm water species such as carp and large-scale sucker, which have negatively affected water quality and aquatic plants.

Numerous state priority habitats and species are documented in the vicinity of Carty Lake. As part of the Ridgefield lowlands, the Carty Lake shoreline area supports wintering concentrations of Canada geese, Sandhill crane, tundra swan, white fronted geese and dabbling duck. This area also supports nesting habitat for a variety of duck species. The lake contains Washington Department of Fish and Wildlife (WDFW) priority-designated palustrine wetland habitat and Oregon white oak woodland priority habitat occurs to the east and north of the lake.

#### 5.8A.1.5 Instream and Riparian Habitats

The National Wetlands Inventory classifies Carty Lake a lacustrine, limentic, unconsolidated bottom wetland habitat. Aquatic plants, including native wapato occur in the lake, and the fringe wetland is dominated by nonnative, invasive reed canary grass (ELS, 2013). Much of the Carty Lake shoreline is in agricultural use with mowing and other treatment as part of the NWR. Himalayan blackberry is dominant along the bulkhead that separates the Carty Unit and the Port property.

#### 5.8A.1.6 Water Quality

Carty Lake is not listed on the current Ecology 303(d) list for water quality impairments. However, lake sediments have been found to be contaminated as result of former Pacific Wood Treating Company operations on Port of Ridgefield property at the south end of the lake. This area is a Washington State Model Toxics Contract Act (MTCA) cleanup site contaminated with wood-treating related chemicals. Until the 1980s, chemicals from the Pacific Wood Treating Company were allowed to drain directly onto open ground. In 1986, preliminary studies indicated that contaminants such as petroleum hydrocarbons, creosote, chlorinated phenols and trace elements of arsenic, chromium, copper, dioxins and furans were identified.

Ecology and the Port of Ridgefield have been working on cleanup efforts at the southern end of Carty Lake. In 2013, Ecology released the consent decree, cleanup action plan, and remedial investigation/feasibility study for public review and comment. In November 2013, Ecology, the Port and the City of Ridgefield finalized the Consent Decree for cleanup of the site. A Draft Environmental Assessment has been prepared for the US Fish and Wildlife Service to evaluate

the proposed Carty Lake Remedial Action at the Ridgefield NWR (Maul, Foster and Alongi, 2013).

## **5.8A.2 Shoreline Use Patterns**

### **5.8A.2.1 Existing Land and Shoreline Uses**

Carty Lake is part of the Ridgefield NWR Carty Unit and is managed to maximize habitat for waterfowl and other wetland wildlife. The lake has limited recreational use with occasional wildlife observation and photography. Boating is not allowed. The City of Ridgefield's wastewater treatment facility is located on a small City-owned parcel on the eastern shore of Carty Lake adjacent to Port of Ridgefield property.

The Port of Ridgefield owns 40 acres of undeveloped waterfront along Lake River adjacent to Carty Lake, which is zoned for waterfront mixed use development. Pacific Wood Treating Company (PWT) was located on the Port's Lake River Industrial Site from 1964 to 1993. Historical PWT wood treatment activities impacted sediments in the southern end of Carty Lake. The Port is proposing cleanup activities in the southern end of Carty Lake to remove contaminated sediment in the southern end of Carty Lake and within its 200 foot shoreline. The proposed Carty Lake remedial action includes in-water and upland components conducted primarily on Refuge property. Cleanup is proposed to take place in the summer of 2014 and will involve mechanical sediment excavation, the placement of a clean layer of sand to manage residuals, and stabilization of a treated wood bulkhead (Ecology 2013).

### **5.8A.2.2 Shoreline Environment Designations and Zoning**

Unincorporated portions of Carty Lake zoning and shoreline management is under the jurisdiction of Clark County. The majority of existing zoning along Carty Lake is composed of parks/open space and wildlife refuge designations. As of June 2010, the entirety of the Carty Lake shoreline had a shoreline environment designation of Rural. A summary of the zoning is shown in the following table: Table 5.8A-01

**Table 5.8A-01. Carty Lake Existing Zoning (Upland)**

Zoning Designation	Acreage	Percentage
Parks/Open Space/Wildlife Refuge (P/OS & P/WL)	42	55%
Water	24	31%
Open space (OS)	7	9%
Waterfront mixed use (WMU)	4	5%
<b>Total</b>	<b>77</b>	<b>100%</b>

*Note: The Clark County Zoning data set for the designation “Water” includes both open water and upland area. The Clark County Waterbodies data set, includes only open water. This table reduced the 65 acres zoned “Water” by 41 acres to highlight only the 24 acres of upland areas.*

#### 5.8A.2.3 Existing Public Access

Carty Lake has limited public access and is used for both wildlife habitat and recreational purposes. A mowed seasonal footpath is maintained along the north end of the lake for access to Gee Creek.

#### 5.8A.2.4 Historical and Cultural Resources

The entire Carty Lake shoreline planning area is part of the Shoto Villages-Vancouver Lakes Archaeological District which has been Determined Eligible for listing on the National Register of Historic Places. There are approximately five other recorded sites in the planning area including both historic and prehistoric sites. There is some information to suggest that one prehistoric site contains burials, however due to conflicting information, further research is needed to clarify this assertion. Clark County archaeological resource probability mapping suggests there is a significant chance of finding unknown artifacts within almost all areas of the County’s shoreline planning area (Clark County 2003); the Washington State Archaeological Predictive Model characterizes the entire area as “Very High Risk” (DAHP 2014). Major remnants of the Chinookan Indian Cathlapotle village are located in the Carty Unit of the RNWR at the confluence of the Columbia River, Multnomah Channel, Lake River and Lewis River. A historic Lewis and Clark campsite known as Wapato Portage is also situated in the Carty Unit. There are no county-, state-, or federally-listed historic structures within the Carty Lake shoreline planning area (DAHP, 2010; Clark County, 2010d).

#### 5.8A.2.5 Areas of Special Interest

The former Pacific Wood Treating Company site is an area of special interest to the state.

### 5.8A.3 Opportunity Areas

#### 5.8A.3.1 Restoration

The riparian areas along the north and south shore have the potential for some riparian/wetland enhancement through increased plantings of native tree and shrub species within the riparian/wetland buffers. The lake appears to be isolated and only engaged with the Columbia River during high flow events. An opportunity may exist to increase connectivity with the Columbia River via Gee Creek or to Lake River through a constructed channel. The Gee Creek connection could provide access to Carty Lake by salmonids.

#### 5.8A.3.2 Public Access

Because the general area around Carty Lake is primarily used for open space and wildlife refuge, preserving Carty Lake for wildlife habitat only is appropriate. The potential exists for development of a loop trail if access from the Port of Ridgefield property were available.

### 5.8A.4 Reach Scale Assessment

Carty Lake itself lies entirely within the Ridgefield NWR and has been evaluated as one shoreline reach. Table 5.8A-02 provides a brief description of this reach and highlights key modifications, unique features and any restoration opportunities.

**Table 5.8A-02. Reach Assessment for Carty Lake**

Reach Number	Reach Location	Reach Length (miles)	Land Use Descriptions	Modifications	Unique Features	Riparian Zones	Restoration Opportunities
CARTY_LK	Entire lake and shoreline	1.5 mi	Open space, habitat conservation and remediation	None apparent.	Within the Ridgefield NWR. Approximately 53 acres of wetland.	Mostly lacking forested riparian zone	Riparian/wetland enhancement Remediation of contaminated soils Reconnect with Columbia River floodplain

#### Citations:

Clark County. 2010d. Clark County Historic Preservation Website. Available: <http://www.co.clark.wa.us/longrangeplan/historic/index.html>. Accessed February 2, 2014.

DAHP (Washington State Department of Archaeology and Historic Preservation). 2010. Washington Information System for Architectural and Archaeological Records Data (WISSARD) Online Database. Accessed February 2, 2014. Available: <http://www.dahp.wa.gov/pages/wissardIntro.htm>.

*Errata – Exhibit A*

Ecology. 2013. Cleanup action plan, former Pacific Wood Treating Co. site. Washington State Department of Ecology (Ecology). November 5, 2013.

ELS. 2013. Critical areas report for Carty Lake, Ridgefield, Washington. Ecological Land Services, Inc (ELS). Prepared on August 2, 2013.

Maul, Foster & Alongi, Inc. 2013. Draft Environmental Assessment, Proposed Carty Lake Remedial Action at Ridgefield National Wildlife Refuge; Prepared for the US Fish and Wildlife Service on December 9, 2013, 22 pp.