

# Chapter 2

## *Shoreline Inventory - Summary*

### **Introduction**

As a foundation for the development of the goals policies and regulations in the City's Shoreline Master Program, the City conducted an inventory of natural and built conditions along the Sumner Shoreline. This inventory identifies existing conditions, and provides an analysis that evaluates the components that make up the ecological health of the shoreline jurisdiction and identifies areas with potential for conservation and restoration of ecological functions. This chapter excerpts portions of that inventory and analysis. Please consult *Appendix A: Shoreline Inventory* for a full discussion of the complex issues associated with the Sumner shoreline.

### **Study Area Boundary**

The inventory includes the shorelines along the Puyallup and White (Stuck) Rivers that fall within the Sumner city limits and its urban growth area. Both rivers are shorelines of statewide significance according to the state's Shoreline Management Act, and they are the City's only two water bodies regulated under the Act. Under the Shoreline Management Act, the shoreline area to be regulated under the City's Shoreline Master Program must include all areas two hundred (200) feet landward of the ordinary high water mark, as well as floodways and any associated wetlands. Because the shoreline within Sumner's city limits and urban growth area is largely constrained by a system of dikes, for the purposes of the inventory, the shoreline jurisdiction is assumed to extend to two hundred (200) feet landward from the top of each river's bank.

The Puyallup River is located within Sumner's city limits and urban growth area from its southernmost point at approximately River Mile (RM) 12.25 downstream to its confluence with the White River at approximately RM 10.0 west of downtown Sumner. Downstream of Sumner's shoreline jurisdiction, the Puyallup River drains into Commencement Bay in Puget Sound. The White (Stuck) River is located within Sumner's city limits and urban growth area from approximately RM 4.5 at the northern border of the City's urban growth area downstream to its confluence with the Puyallup River at RM 0.0.

### **Inventory**

The full inventory is divided into five main sections: background and introductory information; existing land use and zoning; biological resources within the shoreline jurisdiction; instream fish habitat and fish use of the City's rivers; and a segment-by-segment analysis of shoreline conditions.

For the purposes of categorizing distinct segments of the City's shorelines for planning purposes, the City's shoreline jurisdiction was classified into seven relatively homogeneous segments. These segments were grouped to correspond with

the level of ecological functions provided by each segment for salmonids (including but not limited to streambank vegetation, potential spawning areas, and off-channel habitat).

**Table 1.** Shoreline Study Segments

Location	Segment	Description	Approximate Length (feet)	River Mile
Puyallup River	A	Linden Ave. Bridge to City Limits	7,561	10.7 - 12.2
Confluence – Puyallup and White Rivers	B	Sewage works, Confluence of White and Puyallup Rivers	3,920	10.2 – 10.7 (Puyallup) 0.0 – 0.2 (White)
White River	C	SR 410 Bridge to Milwaukee Canal	4,560	0.2 – 1.05
White River	D	Milwaukee Canal to Tacoma Road Bridge	3,828	1.05 – 1.8
White River	E	Tacoma Road Bridge to Public Land	3,169	1.8 – 2.5
White River	F	Right Bank Public Land	9,160	2.5 – 4.15
White River	G	Sumner Urban Growth Area	4,000	4.15 – 4.9
TOTAL:			36,198	6.8

### Land Use and “Altered” Conditions

The City of Sumner encompasses an area of approximately 16 square miles. The City is predominantly located on the valley floor of the Puyallup and White River valleys. As of 2000, the City’s population was approximately 8,500. Over the recent past, the city has experienced a rapid growth rate, and a portion of this development has occurred in the shoreline areas of the White and Puyallup Rivers.

### Existing Land Use

Current land use in Sumner is a mix of residential, commercial, agricultural and light industrial uses. Agriculture is currently the dominant existing land use, covering a large portion of northern portions the City’s shoreline jurisdiction along the White River. Industrial and commercial land uses also dominate along the City shorelines. Public land, including a wastewater treatment plant and a golf course, occupy portions of the shoreline at the north end of the shoreline jurisdiction and at the confluence of the White and Puyallup Rivers, respectively. Compared to the other land uses, low- and high-density residential uses currently occupy a relatively small portion of Sumner’s shoreline area.

### Comprehensive Plan

According to the Sumner Comprehensive Plan, the City contains a variety of designated land uses, ranging from heavy industrial to residential. In Sumner’s

shoreline jurisdiction, the predominant comprehensive land use designation is light manufacturing. Public land is the next largest designated land use within the regulated shoreline. Remaining land use designations are evenly divided among high-density residential, public/private utilities and facilities, low-density residential, general commercial, and heavy manufacturing.

### Zoning Designations

The City's zoning designations generally follow land use designations from the city's comprehensive plan, discussed above. According to the City's zoning map, land in Sumner is zoned into six residential categories ranging from low to high-density residential. Commercial zones include neighborhood, central business district, and general commercial areas, while industrial zones include heavy and light industrial designations. Overall, light industrial land occupies the largest area in the City, followed by low-density residential designations.

Within the shoreline jurisdiction, light industrial zoning occupies the largest portion of the total shoreline area. Remaining zoning designations in the shoreline are divided between heavy industrial, agriculture, high-density residential, low-density residential.

The full inventory presents an inventory of Parks and Open Space, Impervious Surface, Roads and Bridges, Bulkheads, Levees, and Dikes - Flood Control Structures, Docks, Piers, and Over-Water Structures, Storm Water and Sewer Outfalls; Other Utilities, and Culverts.

### **Biological Resources and Critical Areas - Opportunity Areas**

As part of the inventory process, this report identified several "opportunity" areas, or areas that offer the potential to protect or contribute to the long-term improvement in the conditions described above. This inventory report incorporates a study prepared for Pierce County using the Ecosystem Diagnostics Method, a method whereby reaches throughout the Puyallup River watershed were identified and prioritized with respect to the conservation and recovery of salmonid species. In that study, individual segments in the White and Puyallup Rivers were rated according to the benefit that full restoration to historic conditions would provide to salmonid diversity, productivity, and abundance.

According to the study, the Puyallup River within Sumner's jurisdiction ranked highest in the watershed for restoration potential. This section of the river had high combined scores for capacity (equilibrium spawning population size), productivity (number of spawners produced per parent spawner), and diversity (percentage of life history trajectories that are sustainable). The White River in Sumner below the Dieringer Powerhouse ranked fourth for restoration potential, while the segment above the powerhouse ranked eighth. The section of the river below the powerhouse had moderate combined scores for capacity, productivity, and diversity.

Many of the factors that limit salmonid production within Sumner's shoreline jurisdiction are caused by factors outside of the City's jurisdiction, such as upstream dam operations, flood control, or timber harvest in the upper portions of the watershed. As a result, this report identifies opportunity areas that are both effective and achievable within the scope of Sumner's jurisdiction. The ability to improve

these opportunity areas is dependent upon a number of factors including land acquisition, funding availability, and permits. The preliminary selection of opportunity areas was based on field observations, zoning and comprehensive plan information, and aerial photograph analysis. Recommendations from the Puyallup River Basin Comprehensive Flood Control Management Plan were also incorporated where applicable.

### **Opportunity Areas By Inventory Segment**

#### **Segment A: Linden Avenue Bridge to City Limits**

- A-1 Opportunity Areas

##### **Restoration**

There is limited opportunity to provide areas of overbank flooding and side channel habitat in this segment, given the revetment levee and existing development. Many of the existing structures in this segment have been subject to flood-proofing measures. Several vegetation management opportunities exist.

#### **Segment B: Confluence of White and Puyallup Rivers**

- B-1 Opportunity Areas

##### **Protection**

Black cottonwood-dominated forest is the most common vegetation assemblage found throughout all of the segments, and is represented in this segment. Riparian forested areas are typically productive wildlife habitats. Protection of this forested area could increase potential habitat for many sensitive species.

##### **Restoration**

City property adjacent to the City's Wastewater Treatment Facility, at the confluence of the White and Puyallup Rivers, is used informally by residents for fishing access. Current access is provided by a dirt road, which has intruded into the riparian vegetation. Denuded areas could be planted with riparian vegetation, such as Pacific and Sitka willow, Pacific ninebark, and beaked hazelnut, all species that are already present in this area. This site could be further improved by restricting access to a smaller area through use of fencing and signs, and installing trash receptacles, and repaving an access road and parking area with a semi-pervious surface such as crushed gravel or pervious pavers.

#### **Segment C. SR410 Bridge to Milwaukee Canal**

- C-1 Opportunity Areas

##### **Restoration**

Area C-1, is an approximately 100-foot long section of dike revetment area with bank erosion denuded of vegetation through constant public use. Planting of trees and shrubs in this area would restore riparian cover, reduce erosion along the riverbanks, and improve bird nesting and foraging habitat. The area offers opportunity for replanting with live native willow stakes and fascines. Large root wads could be buried in the bank to provide a more diverse aquatic habitat for macro-invertebrates and fish. Plantings along the upper terrace could include riparian scrub-shrub (vine maple, snowberry, beaked hazelnut) and forested

species (black cottonwood, western red cedar, hemlock, Douglas fir) in order to improve bird habitat and reduce peak flows during flood events.

**Protection and Restoration**

Area C-2 is undeveloped land (private) containing two wetland areas that extend within the two hundred (200) foot shoreline jurisdiction. The area downstream of the recently developed industrial park has a dense cover of riparian vegetation with moderate diversity. The shoreline adjacent to the industrial park has sparse plantings and turf. The grassy area within 100 feet of the shoreline could be replanted with forest and scrub-shrub species, including black cottonwood, snowberry, and beaked hazelnut.

**Segment D. Milwaukee Canal to Tacoma Road Bridge**

- D-1 Opportunity Areas

Potential habitat enhancement opportunities include the removal of invasive plants such as Himalayan blackberry and English ivy, combined with the planting of trees and shrubs to restore riparian cover, reduce erosion along the riverbanks, and improve nesting and forage habitat.

**Protection**

Three areas have been identified within this segment as offering opportunities for habitat protection, within the limits of the future projected land use (light and heavy industry). Opportunity area D-1 is the point at which Milwaukee Canal enters the White River. Outside the shoreline jurisdiction limits, a fish barrier has been identified on Milwaukee Canal. According to the Puyallup River Flood Control Management Plan, at the 100-year flood level there is some backwater flooding west of the railroad across vacant and agricultural land, as well as some overbank flooding. Opportunity area D-2 contains a wetland and is associated with an approximately 150-foot band of riparian vegetation. Opportunity area D-3 is an area of undeveloped land.

**Segment E. Tacoma Road Bridge to Public Land**

- E-1 Opportunity Areas

**Protection**

According to the Puyallup River Flood Control Management Plan, at the 10-year flood level, the river floods the immediate overbank area, and at the 100-year level most of the adjoining lands, on both sides of the river. Two areas, E-1 and E-2, have been identified as offering a habitat protection opportunity. E-1 includes a forested riparian wetland associated with Salmon Creek. E-2 is a second wetland in what is currently farmed land.

**Restoration**

Recommendations in the Puyallup River Flood Control Management Plan for the entire Segment E include flood proofing the existing structures, acquiring the land and removing any structures, upgrading the existing flood control structures, and constructing a setback levee. At Salmon Creek (E-1), immediately north of the REI warehouse, the shoreline is a thin riparian strip bounded by agricultural fields to the north and a dirt access road and the REI warehouse to the south.

Where the dirt road crosses the stream, a substandard culvert currently hinders obstructs fish passage. This area offers opportunities to enhance and expand the stream buffer by re-planting the dirt road with native vegetation, and possibly to incorporate a culvert replacement or bridge with any future plans to develop the agricultural land.

#### Segment F. Right Bank Public Land

- F-1 Opportunity Areas

##### **Protection and Restoration**

City-owned land along the length of the right bank offers opportunity for habitat preservation and restoration (F-2). This segment appears to function as significant rearing habitat for salmonids and therefore is a candidate for preservation. Riparian vegetation can be enhanced throughout this segment. The tailrace and drainage ditch offer potential surface water connections to wetland areas. Flow from the tailrace could be diverted through a separate channel through City-owned farmland, allowing the development of relatively natural meanders, and pool and riffle sequences. Diversion of water from these sources into created or enhanced wetland and stream channel areas could provide off-channel and rearing fish habitat in areas where there is adequate fish passage to the site. According to the Puyallup River Flood Control Management Plan, at the 10-year flood level the river floods the immediate overbank area, and at the 100-year level across most of the valley.

##### **Restoration**

Similarly, the two other areas, F-1 and F-3, contain wetlands as well as remnant riparian forested areas, and offer potential to reconnect the river channel to its floodplain by breaching and setting back the revetments. This could allow for the re-creation of side channel habitat where fish could take refuge from high velocity flows in the main river channel. This would also help to alleviate overbank flooding.

#### Segment G. Service Area

- G-1 Opportunity Areas

##### **Protection and Restoration**

A culvert barrier has been identified in area G-1 along Jovita Creek. Jovita Creek and the associated riparian forest within shoreline jurisdiction is of significance for wildlife habitat, providing water, food, and cover. Improvements to the culvert barrier in Segment G have a high potential to improve salmonid habitat, as this portion of stream is used as rearing habitat by juvenile salmonids that enter from the White River during periods of high water. A hanging culvert at the mouth of the stream precludes the upstream migration of juvenile fish during low water. This substandard culvert hangs approximately two feet above the stream bed and discharges to a boulder splash pad. High velocities in the undersized 16-inch diameter culvert are likely a migration barrier to adult and juvenile fish during high-flow periods.

This area also offers significant forested cover and has been identified for potential preservation. The Priority Habitats and Species<sup>1</sup> data indicate the potential for this area to be used for spawning by winter steelhead and coho salmon in the area identified as G-2. Protection and restoration of this area would offer significant benefits to salmonid species, through the protection of a potential spawning area and protection from future development or buffer encroachment. According to the Puyallup River Flood Control Management Plan, at the 10-year flood level the river floods the immediate overbank area, and at the 100-year level across most of the valley, on both sides of the river. Recommendations in the Puyallup River Flood Control Management Plan for the entire Segment G include flood-proofing the existing structures, constructing a ring levee around the existing development, upgrading the existing flood control structures, or constructing a setback levee.

### **Recommendations**

The inventory of existing conditions provides the basis for making preliminary recommendations for updates to the City's Shoreline Master Program. Recommendations address both steps to protect and contribute to long-term recovery of properly functioning conditions, and efforts to address data gaps through monitoring and adaptive management.

#### **Recommendations to Protect and/or Contribute to Restoration of Properly Functioning Conditions**

- Conserve remaining forested riparian areas within the shoreline management zone.
- Enhance and restore the ability of forested areas to contribute large woody debris and nutrients to the river channel through vegetation management practices (i.e., removing invasive non-native plant materials such as Himalayan blackberry and reed canarygrass) and enhancing undeveloped shoreline areas with under-plantings of coniferous vegetation.
- On publicly-owned land and undeveloped land along the White River, explore opportunities to re-create off-channel habitat.
- Conserve wetlands in the shoreline area through conservation and maintenance of adequate buffers. Explore opportunities to re-establish connections between floodplain wetlands and the river channel to re-create off-channel habitat.
- Encourage access to the river using alternative measures. Limit the use of over-water or in-channel structures such as docks and piers to provide access to the river.

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<sup>1</sup> The Washington State Department of Wildlife (WDFW) maintains a Priority Habitats and Species (PHS) program to inventory potential state or federal proposed, threatened, or endangered species as well as other "priority" species of state concern.

- Reduce the quantity of hardened riverbank. Explore the use of alternate bank treatments or eliminate the need for bank hardening through appropriate site planning or facilities design. Reduce reliance on the construction of bulkheads and physical hardening of shorelines. Focus shoreline stabilization, when necessary, on bio-stabilization techniques. Explore opportunities to replace existing concrete revetments with bio-stabilized banks or a more natural shoreline profile.
- Stormwater facilities and stormwater outfalls should be designed to provide adequate water quality treatment appropriate for the use of the site. Opportunities to provide regional or retroactive treatment should be explored and incorporated into new construction where possible.
- Work with Puget Sound Energy when future work is planned on the tailrace or powerhouse to assure constancy with conservation and restoration goals in other areas of Sumner.
- Incorporate general recommendations from the Puyallup River Flood Control Management Plan, including coordinating with Pierce County ordinance requirements to ensure the floodplain is regulated similarly throughout the watershed, implementing a public education program, and acquiring floodplain property. Explore opportunities to coordinate shoreline restoration and enhancement with floodplain management activities.
- Because many of the factors affecting the function and condition of Sumner's shorelines are caused by activities out of Sumner's jurisdiction, the City should seek ways to coordinate and partner with other local, state, and federal agencies with jurisdiction over the river.