PugetSoundPartnership
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The Puget Sound Partnership Presents:
Draft Action Area Profiles

An important part of the Puget Sound Partnership's work is connecting with citizens, watershed groups and local governments. The legislation that created the Partnership established seven geographic action areas around the Sound to address and tackle problems specific to those areas.

Each of the seven action areas plays a unique role in sustaining the Puget Sound ecosystem. Distinct natural features and ecological process, urban and rural centers, wildlife populations, economics and history, and stressors on the environment characterize the different areas. In an effort to broadly describe the individual areas and ultimately develop tailored solutions to problems, the Partnership compiled information about each action area into an informative overview. The profiles are not meant to be detailed summaries of each action area; rather they are guided tours of what gives it a sense of place and the unique role in the ecosystem. The profiles will be refined to reflect the management actions needed to address threats in each area and be included in the Action Agenda.

The profiles are made up of three sections: the narrative, the action area map, and the action area concept diagram.

- Narrative
    - physical characteristics, demographics, land use, ecosystem characteristics and assets, and threats/stressors
- Action area map
    - base map for each action area, the incorporated and urban growth areas, public lands, tribal reservations, and major landmarks that are described in the text, and points of interest
- Action area concept diagram
    - graphic representation of the narrative related to ecosystem services and stressors

Please take some time to read through these action area profiles and familiarize yourself with an area you may or may not know much about. This is an opportunity to gain some insight and understanding as to how each action area is unique and why it needs attention.

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The Puget Sound Partnership Presents:
Whidbey Action Area Profile

Physical Description

With three out of the five largest river systems in Puget Sound and thousands of miles of river, stream and saltwater shorelines, the Whidbey Basin is a fertile center of productivity for high-profile members of the ecosystem's food web including salmon, whales, herring, eagles, and people. Foremost among Puget Sound rivers in volume and length is the Skagit system, with 2,989 identified streams totaling approximately 4,540 linear miles. Fed by glaciers on Mt. Baker and Glacier Peak, the Skagit has a different seasonal flow pattern from the other major river systems in the area. Second only to the Skagit is the Snohomish River system, originating in the central Cascades and flowing through the Skykomish and Snoqualmie Rivers before entering Puget Sound between Everett and Marysville. The 5th largest freshwater system in Puget Sound is the Stillaguamish River, which drops from an elevation of 6,854 feet on Three Fingers Mountain to sea level at Port Susan and Skagit Bay. The Samish River, a smaller drainage comprised of mostly lower elevation terrain, enters Samish Bay at the northern boundary of the Whidbey Basin.

The input of freshwater from all four river systems flows into the Puget Sound estuary along the east side of Whidbey Island. Skagit Bay, Saratoga Passage, Port Susan, and Possession Sound have constantly changing levels of salinity as the incoming fresh water from the rivers forms an upper layer and is mixed with saltwater by tidal action and variable winds. The Whidbey basin has a range of shoreline and nearshore features including eelgrass beds, vertical feeder bluffs, sand spits, and pocket estuaries. Whidbey, Fidalgo, Camano, and Guemes Islands shelter the river mouths and bays from storms. Although much of Whidbey Island is relatively dry, with only 20 inches of rain per year, the mountain areas are much wetter and often have average annual precipitation exceeding 100 inches. The basin experiences the seasonal weather phenomenon known as the "Puget Sound convergence zone"–where air flowing in from the Strait of Juan de Fuca and up from South Puget Sound come together creating unusual, localized rain and snow events.

Whidbey Island is approximately 40 miles in length from its northern tip at Deception Pass to Possession Point, and is connected via the Deception Pass Bridge to Fidalgo Island and the mainland portion of Skagit County. Anacortes is located on Fidalgo Island, and is the marine terminal for ferry access to the San Juan Islands.

Land Use, Population, and Economy

An estimated one million people currently make their homes in Skagit, Island, and Snohomish Counties and the Snoqualmie watershed portion of King County. Growth rates are projected to exceed 30% in the coming decades. In general, the region has experienced a shift from resource-based economies (forestry, fishing, and agriculture) to other economic sectors such as housing, light industrial, and technology, including aerospace. Symptomatic of this transition is

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the pending replacement of former pulp mills in the Snohomish estuary by waterfront condominiums. Port activities are a major shoreline land use, particularly in the Port of Everett and vicinity. Fishing for salmon, crab, and shellfish is an important commercial and recreational activity. Fishing is also a cultural focus and important source of food for the tribes who have fishing rights in the Whidbey basin area. The Tulalip Tribes, Swinomish, Sauk-Suiattle, Upper Skagit, Stillaguamish and Snoqualmie all have reservation lands in the region. Major cities include Everett, Mount Vernon, Anacortes, and Oak Harbor which is located near the Whidbey Island Naval Air Station.

Agriculture is still a major land use in the river delta areas of Skagit and Snohomish counties; 58% of the Stillaguamish floodplain is in agricultural use. The renowned annual tulip festival in the Skagit provides tourism as well as farm revenues. Community supported agriculture (where city dwellers purchase regular weekly shipments of produce) and local and organic markets are increasing in the Snoqualmie Valley, Whidbey Island, and other areas. Recreation and tourism are also important economic sectors, with opportunities for float trips, eagle watching, kayaking, camping, hunting, and backpacking. There are seven designated wilderness areas. The North Cascades National Park, and Ross Lake National Recreation Area protect the headwaters of the Whidbey Basin, and extensive areas of public and private forest, and several popular state parks provide habitat protection and allow for low impact outdoor recreation.

Unique ecosystem characteristics and assets

The rivers and streams of the Whidbey Basin are major producers of salmon, and support Chinook, chum, coho, bull trout, pink and steelhead. Producing more salmon than any other river system in Puget Sound, the Skagit is home to six distinct populations of Chinook out of the 22 threatened populations in Puget Sound. Chinook populations in the Cascade, Sauk, and the Suiattle Rivers in the Skagit system have unique early timing characteristics and return to the river as early as April. The Baker River has the only sockeye population in the Whidbey basin. The Skagit system also supports 26 out of the 52 local populations of threatened bull trout, and has the largest pink salmon run in Washington. The Snohomish River is the largest producer of coho salmon in Puget Sound. Juvenile salmon from many rivers in Puget Sound use the pocket estuaries and nearshore areas of the Whidbey Basin to forage and rear as they adapt to saltwater conditions, and the region is a major producer of forage fish such as herring, sand lance, and surf smelt. Eelgrass beds in Padilla and Fidalgo Bays and in the Snohomish River delta area are among the largest found in Puget Sound.

Other important fish species in the Whidbey Basin include Pacific hake, rockfish, Pacific cod, and herring. The area is also an important migratory area for marine mammals. A small group of six to ten gray whales spend spring and summer feeding on ghost shrimp and tubeworms on beaches on southern Whidbey and Camano Islands and the east side of Port Susan. Gray whales that are emaciated from poor ocean feeding conditions occasionally arrive in the region, and dead whales are sporadically found stranded on the beach. Active shellfish culture occurs throughout the inside of Whidbey Island and Samish Bay for mussels, clams, and oysters. Commercial and recreational fisheries occur for Dungeness crab and shrimp throughout the

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basin. Important marine bird populations reside on area islands, including a population of 900 pigeon guillemots on Whidbey Island. The deltas and flood plain farm lands of the three major rivers support overwintering populations of 10s of thousands of snow geese and ducks, 1,000s of swans, and many raptors and passerines. Upper reaches of the Skagit, Stillaguamish and Snohomish systems support numerous resident and overwintering populations of eagles and other raptors. Approximately 158.5 miles of the Skagit River and its tributaries are designated as wild and scenic river.

Several collaborative efforts have been made to protect some of the critical nearshore habitat. The Tulalip Tribes, Port and City of Everett, Washington Department of Fish and Wildlife, and Snohomish County have acquired more than 2,500 acres in the estuary. The northern portion of Port Susan is owned by The Nature Conservancy and is one of the largest privately-owned marine nature preserves in the world. Several other land trusts and conservancy organizations are working to protect habitat and farmland in the action area. Island County has designated the entire western portion of Port Susan as a marine stewardship area. Island County also has 57 publicly-owned beaches and 22 privately-owned beaches that allow some public use.

Ecosystem Stressors

The first dike in the LaConner flats was constructed in 1863 by pioneers who recognized the enormous potential in the fertile soil of the Skagit River delta. Extensive drainage and diking transformed the Skagit, Stillaguamish, and Snohomish, along with other river deltas throughout Puget Sound and created valuable farmland, but at the expense of lost saltmarsh and wetland habitat. An estimated 80-90% of the Snohomish and Skagit estuaries were diked and ditched, cutting off tidal marshes and channels that supported salmon, marine birds and other species. In some agricultural areas of the Snohomish basin, the land has subsided over one meter in the past century, resulting in drainage problems that constrain the economic viability of the farms.

Dam construction began early in the Skagit system as well. Two dams were constructed on the Baker River in the 1890s and led to the construction of the first hatchery in western Washington in 1896. The Baker Lake dam caused a loss of approximately 60 miles of Chinook habitat. Other dam-related issues such as the de-watering of Chinook redds (nests) have been improved in the last decade due to better dam operations. Three other major dams in the mainstem Skagit River are located at and upstream of Gorge Falls. The dams provide an important portion of the power to Seattle and other cities in Puget Sound.

Another limiting factor for salmon is the loss of forest cover, which has affected slope stability, temperature, sedimentation, stream structure, and the frequency and magnitude of high stream flows. River gage records for the North Fork of the Stillaguamish River show that peak flows have increased sharply in the last 27 years. It is expected that climate change and continued development in the region will result in higher peak flows, less snow pack, early spring runoff, and lower summer flows. Other water quantity challenges include saltwater intrusion in island and low-lying communities as a result of water withdrawals from aquifers

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and sea level rise. The location of several towns along the rivers and the configuration of the deltas have cause repeated flooding.

Many of the streams and tributaries in the Skagit, Snohomish, and Stillaguamish River systems do not meet standards for fecal coliform, dissolved oxygen, ammonia, nutrients, or other measures. In Island County, creeks and bays including Penn Cove and Holmes Harbor have failed to meet standards, resulting in closures of beaches to recreational swimming and the harvest of shellfish. Several shoreline communities in Island County have old and inadequate on-site sewage systems which are failing. Poorly sited and designed development is considered to be a major threat throughout the Whidbey Action Area. Complaints from longstanding rural property owners over stormwater impacts from adjacent or uphill developments have increased in the last two years in the Stillaguamish basin.

Despite the protected areas, marine shorelines have been substantially modified by development. An inventory on Whidbey Island indicated that 22% of the shoreline had been altered. Numerous residential developments have been constructed on sand spits and 80% of the parcels along the Island County shoreline have been developed or are slated for development. The BNSF railroad is a key factor limiting the healthy function of nearshore areas between Everett and Mukilteo. As with other areas of Puget Sound, the construction of bulkheads, docks, overwater structures and other shoreline development constrain the processes that form and sustain habitat in nearshore areas, and the region is impacted by legacy toxic deposits, invasive species, and habitat fragmentation.

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Whidbey Basin Action Area
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July 11, 2008

Cities (Incorporated Areas)
Anacortes
Arlington
Burlington
Carnation
Concrete
Coupeville
Darrington
Duvall
Everett
Gold Bar
Granite Falls
Hamilton
Index
La Conner
Lake Stevens
Langley
Lyman
Marysville
Monroe
Mount Vernon
Mukilteo
North Bend
Oak Harbor
Sammamish
Sedro-Woolley
Skykomish
Snohomish
Snoqualmie
Stanwood
Sultan

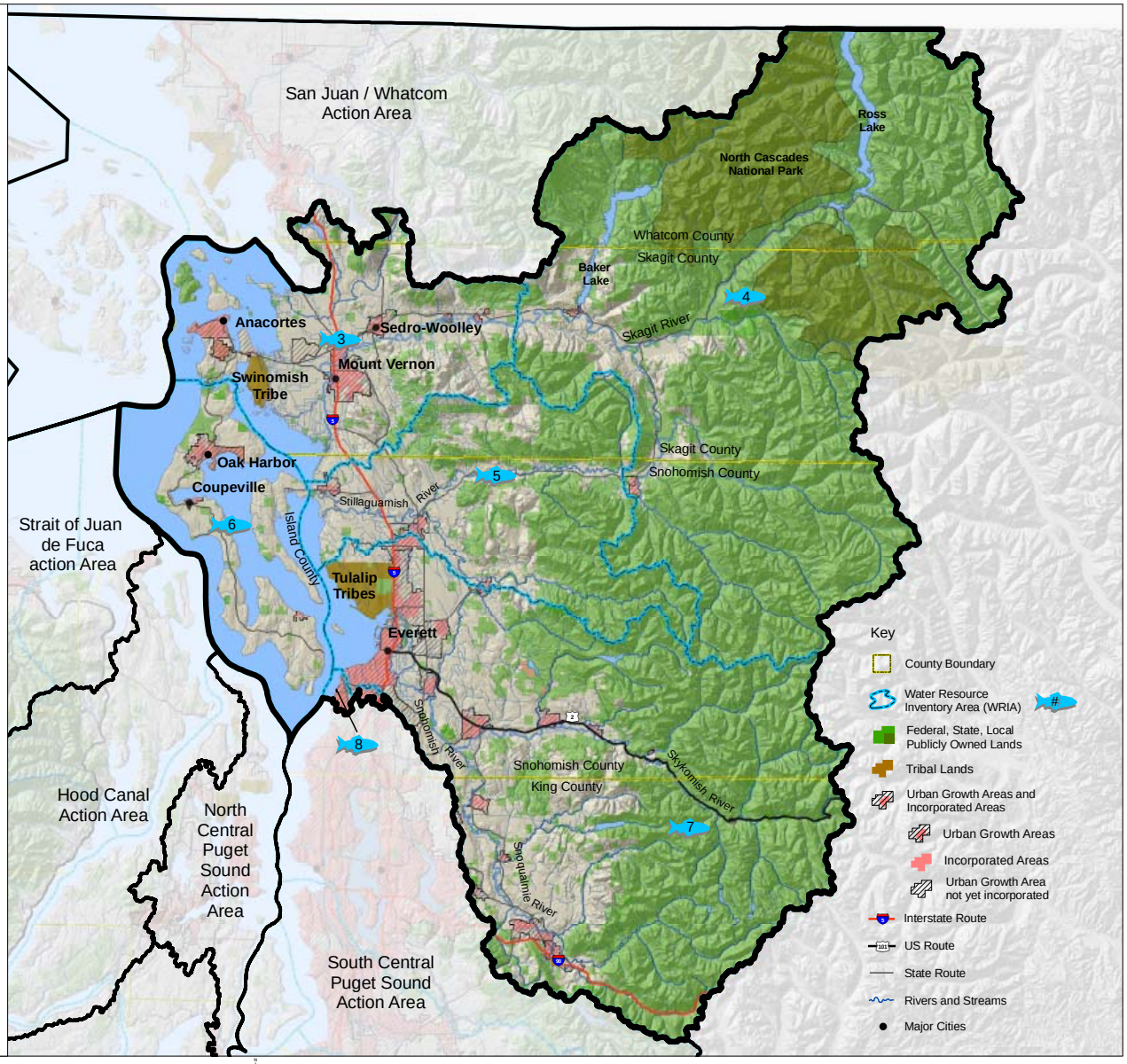
Counties
Island
King
Skagit
Snohomish
Whatcom

WRIAs
(3) Lower Skagit / Samish
(4) Upper Skagit
(5) Stillaguamish
(6) Island
(7) Snohomish
(8) Cedar-Sammamish

Tribal Lands
Swinomish Tribe
Tulalip Tribe

Places of Interest
Al Borlin Park
Alpine Lakes Wilderness
Anacortes Community Forest
Bald Eagle Wildlife Natural Area
Bayview State Park
Birdsview Hatchery
Boulder River Wilderness
Burrows Island State Park
Cama Beach State Park
Camano Island State Park
Cape Sante Park
Carnation Marsh Natural Area
Cedar River Watershed
Cherry Valley Wildlife Area
Chinook Bend Natural Area
Chuckanut
Cone Islands State Park
Conway Park
Deception Pass State Park
Dougherty Farm Park
Dugualla Bay State Park
Duthie Hill Park
Duvall Park
Ebey's Landing State Park
Fall City Natural Area
Fall City Park
Forks Of The Sky State Park
Fort Casey State Park
Fort Ebey State Park
Glacier Peak Wilderness
Grand Ridge Park
Griffin Creek Natural Area
Henry M Jackson Wilderness
Huckleberry Island State Park
Jim Creek Naval Radio Station
Joseph Whidbey State Park
Kettles Recreation Area
Lake Champlain Watershed
Lake Hancock Nature Preserve
Larabee State Park
Mary Leach Natural Area
Meadow Brook Farm
Memorial Park
Mitchell Hill Forest
Moss Lake Natural Area
Mount Baker National Recreation Area
Mount Baker Wilderness
Mount Pilchuck State Park
Noisy-Diobsud Wilderness
North Cascades National Park
Ollalie State Park
Pasayten Wilderness
Patterson Creek Natural Area
Plantation Rifle Range
Portage Creek Wildlife Preserve
Preston Mill
Raging River Natural Area
Rasar State Park
Rockport State Park
Ross Lake National Recreation Area
Saddlebag Island State Park
Samish Park
San Juan Islands National Wildlife Refuge
Skagit Wildlife Area
Skykomish River Centennial Park
Snohomish County PUD Watershed
Soaring Eagle Regional Park
South Whidbey State Park
Stillwater Natural Area
Three Forks Natural Area
Tokul Creek Hatchery
Tollgate Farm
Tolt River John MacDonald Park
Tolt River Natural Area
Tolt River Watershed
Treemont Natural Area
Twin Rivers
Two Rivers Wildlife Area
Wallace Falls State Park
Wallace River Hatchery
Washington Park
Wenatchee National Forest
Wenberg State Park
Whidbey Island Naval Air Station

Puget Sound Action Areas



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