Puget Sound - Georgia Basin
Large Aquatic Ecosystem (LAE)

The **Puget Sound-Georgia Basin** LAE spans the Washington State border with British Columbia. Part of the Salish Sea, it is the ancestral home of numerous Coast Salish Indian Tribes and First Nations who have lived in this region for thousands of years. EPA Region 10 is addressing threats to this valuable ecosystem through several interrelated efforts: participation in the Puget Sound National Estuary Program (NEP) Management Conference, coordination of relevant federal and transboundary (with Canada) activities, implementation of EPA's applicable programmatic authorities, and fulfillment of our trust responsibilities to the 19 Federally-recognized Tribes in the greater Puget Sound Basin.

Puget Sound has had a Comprehensive Conservation and Management Plan (CCMP) since 1991. The Puget Sound Partnership (Partnership), established by Washington State in 2007, oversees implementation of the current CCMP and leads the Management Conference's efforts to reverse Puget Sound's decline and restore it to health by 2020. The Management Conference includes representatives of federal, State, Tribal and local governments, as well as various public and private interest groups.

The Puget Sound Federal Caucus was created in 2007 at EPA's instigation to coordinate federal programs relating to the Puget Sound ecosystem and work with the Management Conference. Thirteen federal agencies have signed a *Memorandum of Understanding* to formalize their commitment to work collaboratively to restore and protect Puget Sound.

International agreements are in place with Canada to address issues such as air quality, migratory birds, transboundary waters and transport of hazardous waste. These agreements provide the foundation for the *Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem*, signed by the Administrator of the EPA and the Minister of Environment Canada in 2000.

Challenges

With the current population of over eight million people projected to increase to almost 11 million by 2025, the Puget Sound-Georgia Basin faces many ecosystem challenges. The following examples are based on Puget Sound data but are relevant to the Georgia Basin as well.

Threats to Habitat: Huge development pressures exist in the Puget Sound lowlands. Land use and development activities alter hydrology, water quality, and habitat. Loss of the critical nearshore, shallow, and estuarine habitats is a major threat to fish, marine mammals, and marine bird populations.

- Inter-tidal salt marsh habitat has declined by 75 percent since the 1800s.
- Most of Puget Sound's shoreline has been altered through development; approximately one third has been armored.

Threats to Species: Species at many levels in the food chain are in decline, signaling broader ecosystem problems. Forty Puget Sound species have federal and State protections. Puget Sound chinook salmon, Hood Canal summer chum and bull trout are all threatened.

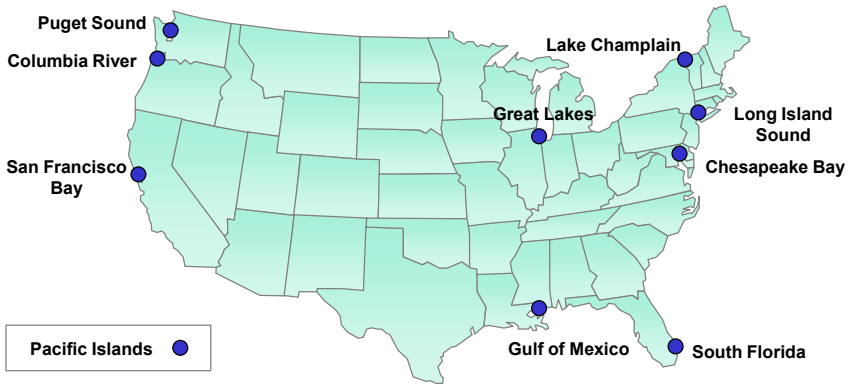
- Southern resident orca, which favor chinook salmon as food and numbered at 97 in 1996, currently number in the 80s.
- Harbor seals have high levels of contamination of polychlorinated biphenyls and dioxin.

Threats to Water and Submerged Lands: Low flushing rates and poor mixing make Puget Sound vulnerable to build up of toxics, nutrients and pathogen pollution.

- One million pounds of toxics are released to water and 4 million pounds to air, each year. Polychlorinated biphenyls, polybrominated diphenyl ethers, polycyclic aromatic hydrocarbons, metals, pharmaceutical and personal care products all contribute to contamination of sediments, habitats, groundwater and biota.
- An estimated 5700 acres of submerged lands are classified as contaminated; another 24,000 acres are classified as partially contaminated.
- Nutrient pollution is exacerbating low dissolved oxygen conditions and pathogen pollution has resulted in the closure of more than 10,000 acres of productive shellfish beds.

Large Aquatic Ecosystems

Program Offices



United States Environmental Protection Agency

*The **Puget Sound - Georgia Basin** Program was designated a member of the US Environmental Protection Agency's Large Aquatic Ecosystem Council (LAE) in 2008. The Puget Sound Program joins nine other geographic-based efforts that focus on protecting and restoring the health of critical aquatic ecosystems. The LAE Council seeks to merge geographically-based efforts with national water programs to advance the health of the Nation's large aquatic ecosystems and strengthen national water programs.*

Priorities

- Control stormwater run-off.
- Protect and restore shorelines, wetlands and other critical areas that provide important watershed and ecological functions.
- Conserve and recover orca, salmon, forage fish, and groundfish.
- Prevent nutrient and pathogen pollution caused by human and animal wastes.
- Reduce toxic contamination and prevent future contamination.
- Cleanup contaminated sites and sediments.

Accomplishments

Since 2007, dozens of State and local agencies, Tribes, and other entities have been awarded nearly $100 million in EPA funding to address critical threats to Puget Sound. New tools and resources are being applied at the local level for watershed planning, salmon habitat restoration, and climate change mitigation. Partners are refining monitoring and performance management and accountability systems to track the outputs and outcomes of these efforts and adaptively manage restoration and protection strategies. The interconnected network of federal and non-federal partners has accomplished much. Measureable accomplishments achieved between 2006 and 2010 include:

- Improvement of water quality sufficient to enable the upgrade of harvest status of 4,453 acres of shellfish bed growing areas.
- Restoration and/or protection of 10,063 acres of tidally- and seasonally-influenced estuarine wetlands.
- Improvement of ecosystem-wide science and policy communication through the bi-annual "Salish Sea Ecosystem Conference."

Future Direction

EPA and the Management Conference are currently refining longer term ecosystem targets and implementing strategies. EPA recently awarded a number of cooperative agreements to State and Tribal entities with relevant authorities to act as lead organizations with increased capacity to provide expertise, strategic thinking, and enhanced implementation to this effort. The resulting strategy refinements will be published in an updated Action Agenda and Science and Monitoring plans by December 2011.

The Puget Sound Facts
Watershed Size: 38,000 square miles
Waterbody Size: 6,000 square miles (marine waters only)
Population: approximately 8.7 million
EPA Region: 10 (British Columbia, Canada)
EPA LAE Contact: Tom Eaton

LAE Program Web Sites

Chesapeake Bay Program
www.chesapeakebay.net

Columbia River Basin
www.epa.gov/region10/columbia

Great Lakes
www.epa.gov/glnpo

Gulf of Mexico Program
www.epa.gov/gmpo

Lake Champlain Basin Program
www.lcbp.org

Long Island Sound Study
www.longislandsoundstudy.net

Pacific Islands Office
www.epa.gov/region09/islands

Puget Sound - Georgia Basin
www.epa.gov/pugetsound/index.html

San Francisco Bay Delta Estuary
www.epa.gov/region9/water/watershed/sfbay-delta/index.html

South Florida Geographic Initiative
www.epa.gov/region4/water/southflorida/index.html

EPA Office of Wetlands, Oceans, and Watersheds

www.water.epa.gov/aboutow/owow/programs/large_aquatic.cfm

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