

PUGET SOUND VITAL SIGNS

VITAL SIGN ESTUARIES

A functioning, resilient Puget Sound ecosystem is defined to include tidally-influenced wetland habitats at the estuaries of Puget Sound's major rivers that provide ecosystem functions, goods, and services. 75 percent of river delta tidal wetlands have been lost or degraded in Puget Sound. River delta estuaries, a unique environment where freshwater mixes with salt water and sediments collect, provide important feeding and resting habitat for young salmon, migratory birds, and many other species that cannot find these unique benefits in any other place in our landscape. These wetlands consist of several distinct habitat types ranging from tidal forests to unvegetated mudflats, all of which have a unique ecological role. Tidal wetland habitat also contributes to the Puget Sound ecosystem through the production of plant material, which fuels a rich food web as it decays. These areas are also highly valuable for people: they have been heavily developed and they provide some of the most fertile agricultural lands in the region. The Estuaries Vital Sign tracks indicators of restoration in the 16 largest river deltas in Puget Sound.

Reporting Lead

Tish Conway-Cranos (WDFW).
Reviewed by the PSEMP
Nearshore workgroup.
Tish.Conway-Cranos@dfw.wa.gov

Last Updated

11/15/2019

VITAL SIGN > INDICATOR	PROGRESS	STATUS
Estuaries		
Area of estuarine wetlands restored to tidal flooding	GETTING BETTER	BELOW 2020 TARGET
Estuary restoration meeting salmon recovery goals	INSUFFICIENT OR NO DATA	INSUFFICIENT OR NO DATA

Key Messages

- There has been extensive historic loss of tidal wetland habitat in Puget Sound. While much of this loss has been in the large river deltas, smaller estuaries are also currently a fraction of their historic extent.
- Estuarine habitat is shaped by the influences of tides, freshwater, sediment transport and sediment deposition. Restoration efforts that target these ecological processes maximize resilience and help to sustain continued ecosystem function in the face of change.
- The estuaries of North Puget Sound (Nooksack, Samish, Skagit, Stillaguamish and Snohomish) historically made up over 80 percent of the tidal wetland habitat in Puget Sound. However, these large river deltas have experienced the greatest absolute loss of tidal wetlands and recovery at the Puget Sound scale is not possible without substantial restoration in this region. A number of watershed-based local teams, in collaboration with tribal and agency partners, are working to accelerate the pace of estuary restoration while maintaining landscape-scale benefits for agriculture, waterfowl and shellfish management, flood hazard reduction, and recreational use of these large deltas.
- Since 2006, approximately 3,178 acres of estuarine wetland have been [restored to tidal flooding](#) in the 16 largest river deltas in Puget Sound, which is 43 percent of the recovery target set for 2020. Large gains have been made in the Nisqually, Snohomish, Skagit and Skokomish deltas in this time period, with the Nisqually and Skokomish being notable because they represent large proportions of the historic tidal extent for these deltas. Early restoration progress often represents the least expensive and challenging projects in the region comparatively, with future actions increasing in cost and complexity.



Skokomish Estuary (Photo WDFW)

- The number of large-scale estuary restoration projects implemented depends on a successful combination of funding, available land, community support, knowledge, project development, and permitting.

Strategies, Actions, And Effectiveness

- Estuary recovery is a [priority focus area](#) for the Partnership's 2018 Action Agenda (*scroll to the bottom of the page to view and download activities in the 2018 Action Agenda*).
- [Estuaries Implementation Strategy](#)
- Restoration and protection projects funded by the National Estuary Program that are associated with the Estuaries Vital Sign (*in the Puget Sound Info National Estuary Atlas*)
 - [Developing tools for multi-benefit project selection and sequencing in the Snohomish River Basin](#)
 - [Dungeness River Habitat Survey](#)
 - [Hood Canal Shellfish Initiative](#)
 - [Integrated Mapping and Decision Tools for Land Use Planning in Puget Sound](#)
 - [Skagit HDM Priority Projects](#)
- What is working to improve Puget Sound estuaries? View effectiveness [fact sheets](#) for estuary restoration projects.

Background Documents

- [Leadership Council Resolution 2011-12, Adopting a 2020 ecosystem recovery target for estuaries \(PDF\)](#)
- [Estuary Restoration Target briefsheet \(PDF\)](#)
- [Estuaries Vital Sign report March 2019](#)
- [Puget Sound Nearshore Ecosystem Restoration Project Technical Reports](#)

Other Resources

- Articles related to [estuarine habitat](#) in the [Encyclopedia Of Puget Sound](#)
- [State of our Watersheds Report by the Northwest Indian Fisheries Commission](#)
- [State of Salmon](#)
- [Estuary common indicator results and maps](#)
- [Estuary common indicator protocol](#)
- [Publication on mapping maximum extent of tidal wetlands \(Brophy et al. 2019\)](#)

Contributing Partners

