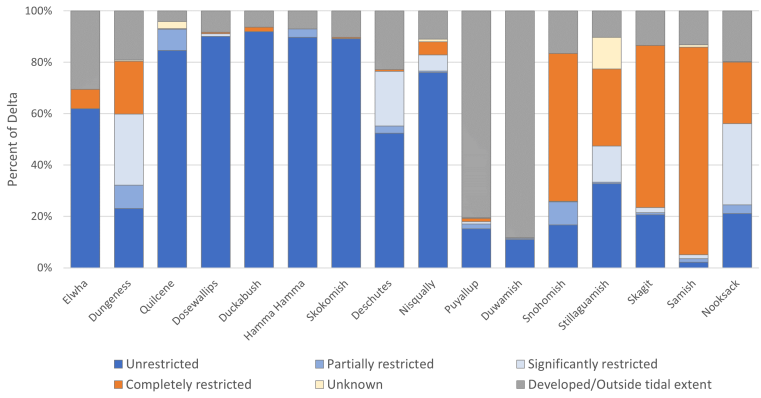
PUGET SOUND
VITAL SIGNS

INDICATOR
ESTUARY AREA IN FUNCTIONAL CONDITION

This indicator measures the amount (acres and percent) of estuarine surface area in functional condition in Puget Sound's 16 large river deltas. Estuary function is measured by the extent of connected tidal wetlands. Functional estuaries provide many ecosystem services and are critical to the recovery of the region's salmon populations.



Percentage of delta area for each category of tidal wetland connectivity under 2020 conditions. Tidal connectivity is categorized as unrestricted (all surrounding and downstream wetlands are open to tidal flooding), partially restricted, significantly restricted, or completely restricted. Areas that have been developed, filled, or are outside of the tidal extent were excluded from tidal wetland mapping. In some cases, wetland connectivity could not be determined and is classified as unknown.

Key Vital Sign Indicator Results

- Puget Sound contains 16 large river deltas, covering approximately 100,200 acres. Within these boundaries, 76,500 acres are mapped as current or potential tidal wetland habitat (excludes areas that are developed or outside of tidal extent). 28 percent of the wetland habitat has unrestricted tidal connectivity (all surrounding and downstream wetlands are open to tidal flooding). Nine percent of the wetland area is tidally influenced habitat, but connectivity is either partially or significantly restricted. 61 percent of Puget Sound's delta wetland area has been completely blocked from tidal connectivity.
- Tidal restrictions, such as dikes/levees, roads, railways, and armored banks, restrict or prohibit tidal connectivity and wetland function. Cramer Fish Sciences mapped over 760 miles of restrictions that completely block tidal connectivity in Puget Sound's large river deltas. This includes approximately 455 miles of roads and railways, 220 miles of dikes/levees, and 87 miles of armored banks.
- Removing tidal restrictions and improving the connectivity of tidal restriction features represent the best opportunities to increase functional and accessible tidal wetland habitat in Puget Sound.
- Since 2006, restoration activities have reintroduced or improved tidal connectivity to 3,420 acres in Puget Sound's large river deltas. Most restoration occurred in the Snohomish, Nisqually, Skagit, Stillaguamish, and Skokomish deltas.
- A change analysis comparing tidal wetland connectivity between 2011 and 2020, showed gains in estuary function from restoration. The analysis did not identify any wetland loss or new restrictions to tidal connectivity over the 10-year period. While this points to improving progress in estuary function, extensive areas of historical habitat remain lost or degraded in many Puget Sound deltas.
- The extent and composition of functional estuary area varies by Puget Sound delta. Please see the Interpretation of Results section for more detailed summaries.

Indicator Trend

GETTING BETTER

Target

No targets are currently set for this indicator.

Data Source

Cramer Fish Sciences Puget Sound Tidal Restrictions and Wetland Mapping (PRISM Project #18-2250) and Spatial Database

Washington State Recreation and Conservation Office's Project Information System (PRISM)

Vital Sign Indicator Reporter

Kenna Kuhn
kenna.kuhn@psp.wa.gov
Puget Sound Partnership

Indicator Details

Click below for more information about this indicator, including Maps, Charts, Indicator Importance, Methods, Interpretation of Results, and Additional Resources.

Complete Indicator Report

Last Updated

08/04/2023

CONTRIBUTING PARTNERS

CRAMER FISH SCIENCES
An Employee Owned Consulting Company

Washington Department of FISH & WILDLIFE

PUGETSOUND PARTNERSHIP

TO LEARN MORE ABOUT THE VITAL SIGNS VISIT: **vitalsigns.pugetsoundinfo.wa.gov**