# PUGET SOUND VITAL SIGNS

## INDICATOR FLOATING KELP BED AREA

The indicator assesses long-term trends in the extent of canopy-forming kelp forests at sampling locations throughout Washington State by tracking the area of kelp beds on the water surface. Results at each location are considered in conjunction with other information to determine an overall assessment of floating kelp status within 11 sub-basins defined by oceanography.

#### Indicator Progress

#### **Target Status**





#### **Target**

No targets are currently set for this indicator.

#### **Data Source**

The Kelp Forest Monitoring Alliance of Washington State (KelpForestsWA)

Samish Indian Nation

Northwest Straits Commission

Washington Department of Natural Resources

#### **Indicator Lead**

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#### **Last Updated**

10/13/2025

| Floating_Kelp_VS_map_25Sept2025.jpg   |  |
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| TO LEARN MORE ABOUT THE VITAL SIGNS VISIT: vitalsigns.pugetsoundinfo.wa.gov OR CONTACT: vitalsigns@psp.wa.gov |  |
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Long-term trends in floating kelp bed area at locations are denoted by points, categorized as: increasing, decreasing, no trend, total loss, no floating kelp, or limited data. The sub-basin status assessment integrates

results at locations and other information sources into an overall classification. The time span varies by dataset, with 2023 the most recent year for all datasets.

### **Key Vital Sign Indicator Results**

- There are observed declines in floating kelp bed area in many parts of Puget Sound. Thus, we consider this
  indicator to be "GETTING WORSE."
  - Declines have been documented in Central and South Puget Sound, with total loss at a number of sites.
     Over a century time scale and longer, historical ecology studies indicate that floating kelp has disappeared from approximately 63-80% of the shorelines where it was observed.
  - There is substantial concern that floating kelp has declined in the San Juan Islands, based on Indigenous Scientific Knowledge and other reports.
  - Total loss of floating kelp has been observed along some shorelines at the entrance to Possession Sound, which leads to concern about the state of floating kelp in Saratoga and Whidbey sub-basin. However, data gaps prevent sub-basin assessment.
  - In Admiralty Inlet and North Puget Sound, spatial and temporal data gaps preclude assessment.
     Monitoring results at a limited number of locations did not raise major concerns.
- Along the northern open coast and Strait of Juan de Fuca, floating kelp populations are stable in the long-term, though show high interannual variability. The majority of locations in these three sub-basins show no long-term trend or increases over decades. One exception is the eastern Strait of Juan de Fuca near Protection Island, where substantial losses have occurred along some shorelines.
- Although approximately one half to one third of floating kelp locations in Washington are classified as stable, the impact of multiple stressors such as climate change, heatwaves, nutrient imbalances, and urbanization warrants caution and prompt additional research.
- The sub-basin status assessment broadly identifies scientific and management priorities at the sub-basins scale. Where floating kelp is stable, conservation is a priority. Where substantial declines occurred, stressor abatement and restoration are priorities. Areas with insufficient data need increased monitoring.
- This is the third report for this indicator, and it was made possible by a unique collaboration among a diverse
  group of organizations and individuals, including State agencies, Tribes, community scientists, and NGOs.

#### CONTRIBUTING PARTNERS













