PUGET SOUND
VITAL SIGNS

VITAL Sign
GROUNDFISH AND BENTHIC INVERTEBRATES

Groundfish and benthic invertebrates include dozens of resident marine fish that live on or near the seafloor as well as crabs, shrimp, and other invertebrates. This Vital Sign tells us about the abundance and distribution of groundfish and benthic invertebrates in Puget Sound. Many of these species are important to commercial and recreational fisheries and play a critical role in the region's marine food web.

Photo credit: Adam Obaza (Paua Marine Research Group)

VITAL SIGN > INDICATOR	PROGRESS	STATUS
Groundfish and Benthic Invertebrates		
Abundance and biomass of groundfish	MIXED RESULTS	NO TARGET
Abundance and biomass of benthic marine invertebrates	MIXED RESULTS	NO TARGET

Related Strategies

- Awareness of Effects of Climate Change
- Climate Adaptation & Resilience
- Education Partnerships
- Funding
- Invasive Species
- Research & Monitoring
- Responsible Boating
- Salmon Recovery
- Stewardship & Motivating Action
- Strategic Leadership & Collaboration

Vital Sign Reporter

PSEMP Forage Fish and Food Webs Work Group

Last Updated

11/05/2025

KEY VITAL SIGN MESSAGES

- Since monitoring began in the late 1980's, **English Sole** biomass has steadily increased - particularly within the first few decades. **Pacific Cod** biomass has been variable with no directional trend, though the increase in very recent years is encouraging.
- **Spot Prawn** biomass has been increasing since a low was observed in 2007. Female **Dungeness Crab** biomass appears to be variable but decreasing since a high in the mid-2000s
- The marine waters of Washington State are home to over 90 species of groundfish (or bottomfish), including rockfishes, Pacific cod, Pacific tomcod, Pacific hake (whiting), walleye pollock, sole, flounders, halibut, lingcod, ratfish, sablefish, cabezon, greenling, sculpins, red Irish lord, wolfeel, wrymouth, plainfin midshipman, sharks, skates, and perches.
- The fish species groups comprising groundfish populations occupy a variety of habitat types, from complex boulder and steep rocky reefs to cobble and sand and fine sediments. Quantifying the available habitats is important to understanding strategies for recovery actions. Forage fish are also important food resources for many groundfish species.
- A number of natural and human-induced factors are responsible for the overall decline in abundance of many groundfish species. These include historical over-harvest in the commercial and recreational fisheries, habitat loss from nearshore development, water quality, and shifts in food web resources.
- Studies show that the abundances of many groundfish populations in Puget Sound are below historical levels. Some of the species once common in fisheries declined to depressed or critical levels, resulting in reduced catches. However, in the fisheries monitoring data there are now some early signs of recovery.
- There are over 250 species of benthic invertebrates in Puget Sound, including a number of commercially and recreationally important species such as Dungeness crab and spot shrimp. Other species include sea stars, anemones, clams, and urchins. These species overlap with groundfish in habitat use and food resources.
- Twenty-eight species of rockfish are found within the Salish Sea, with two listed under the Endangered Species Act (ESA), yelloweye rockfish (threatened) and bocaccio (endangered). NOAA Fisheries has proposed listing the Sunflower Sea Star. Several other groundfish species are identified as Species of Greatest Conservation Need by the WDFW.

BACKGROUND DOCUMENTS

This is a new Vital Sign and we are working with our partners to compile and report indicator status and trends. The Washington Department of Fish and Wildlife (WDFW) has conducted systematic scientific bottom trawling in the Salish Sea since 1987. These surveys collect abundance and distribution data for a broad range of groundfish and invertebrate species and will help inform the Vital Sign indicators.

- WDFW Scientific Bottom Trawl Surveys in the Southern Salish Sea: Species Distributions, Abundance, and Population Trends https://wdfw.wa.gov/publications/02140
- Lowry, D, Pacunski, R, Hennings, A, Blaine, J, Tsou, T, Hillier, L, Beam, J, and Wright, E. 2022. Assessing bottomfish and select invertebrate occurrence, abundance, and habitat associations in the U.S. Salish Sea using a small, remotely operated vehicle: results of the 2012-13 systematic survey. Fish Program Technical Report No. 22-03. Washington Department of Fish and Wildlife, Olympia, WA. 67 pp.
- Quantification of bottomfish populations, and species-specific habitat associations, in the San Juan Islands, WA employing a remotely operated vehicle and a systematic survey design https://wdfw.wa.gov/sites/default/files/publications/02179/wdfw02179.pdf

OTHER RESOURCES

- WDFW: Bottomfish Management
- NOAA Fisheries: Yelloweye and Bocaccio Rockfish Recovery
- Pacific Marine and Estuarine Partnership: State of the Knowledge of U.S. West Coast Nearshore Habitat Use By Fish Assemblages and Select Invertebrates (2022) pdf

CONTRIBUTING PARTNERS

Washington Department of FISH & WILDLIFE