



SNOHOMISH COUNTY
STATE OF OUR WATERS

Everett Marina

Marine Water Quality Report



ORCA student holding a sensor

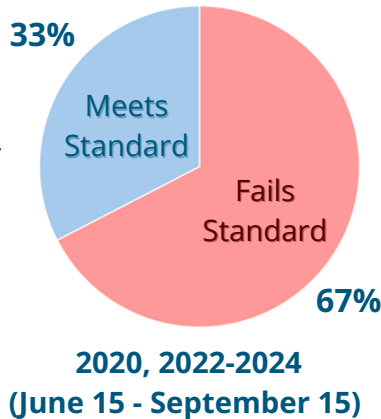
Water quality in Puget Sound depends on numerous properties, including nutrients, pH, and pollutants. This report focuses on temperature and dissolved oxygen, two properties that are critical to marine life for which Washington State sets standards for specific bodies of water.

Learn More:



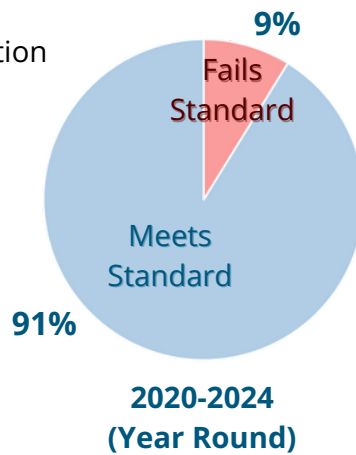
Temperature = < 61° F State Standard

- Temperature impacts the distribution, abundance, and survival of marine life.
- High summer temperatures have the greatest negative impact, so only summer is analyzed for water quality.
- High temperatures can negatively impact reproduction and migration and cause disease and mortality.
- Temperatures at this station often exceed the standard; further research is needed on how and why this happens.



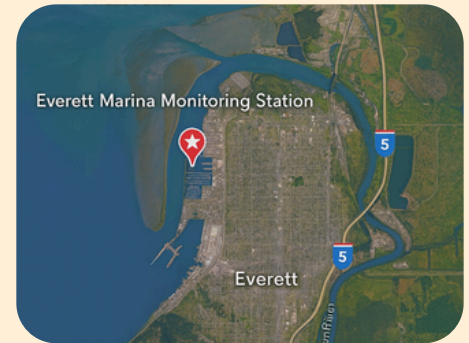
Dissolved Oxygen = > 6.0 mg/l State Standard

- Dissolved oxygen is important for respiration in fish and other marine organisms.
- Without enough oxygen, areas can become hypoxic (<2 mg/L) and stressful to animals.
- Yearly oxygen data are shown since seasonal patterns and impacts have not yet been assessed.
- Generally, dissolved oxygen is most stressful to aquatic life in the fall.



Survey Area

Everett Marina sits at the mouth of the Snohomish River Estuary, where the Snohomish River and Possession Sound meet. The health of this area is affected by upstream land use, including cities, forested land, agriculture, weather patterns, and nearby boat traffic.



Site Facts

- Waters at this station are vertically stratified, with a layer of fresh river water floating atop the salty waters of Possession Sound.
- Deeper, cooler, lower-oxygen water from the Sound flows upstream along the bottom.
- In the summer, excessive warming can cause oxygen levels to drop, which can harm sensitive species.
- This site is in a key salmon migration route from the Snohomish River estuary to Possession Sound. Short episodes of poor conditions can have outsized impacts on salmon survival if they occur during critical migration periods.

Data for this report were collected nearly continuously from 2020-2024 using a floating sensor suspended 2 meters below the surface. Because this site is near a river mouth and the surface, it may not reflect deeper, offshore parts of Possession Sound. Water quality is complex, and these two measurements provide only part of the picture. Some data gaps that may affect the interpretation of results occurred due to equipment issues and COVID. Further explanation of data selection and analysis is available here: <https://tinyurl.com/WQAddendum>

You Can Make a Difference!



Manage Stormwater



Permeable paving and rain gardens help slow and cool storm runoff and prevent pollution that lowers oxygen levels from reaching waterways.



Maintain Shoreline Vegetation



Native trees and shrubs shade and cool waters, filter oxygen-depleting rain runoff, and support wildlife.



Minimize Energy Consumption



Using public transportation and electric home heating/cooling systems helps keep the climate and marine ecosystems cooler.



Manage Human and Animal Waste





Proper septic care and pet waste disposal prevent excess nutrients from causing algal blooms, which reduce oxygen levels.



Practice Natural Yard Care



Chemical fertilizers washing off lawns can cause algal blooms that deplete dissolved oxygen.

 = Impacts Temperature  = Impacts Dissolved Oxygen

About the Partnership



ORCA students on a research cruise

Snohomish County Surface Water Management (SWM) and the Marine Resources Committee (MRC), a citizen advisory group using science to protect Possession Sound, sought to inform the public and local decision-makers about local water quality. To do this, they partnered with Everett Community College's Ocean Research College Academy (ORCA). Located at the Everett waterfront, ORCA is an early college program for high school students with a hands-on marine research focus. ORCA students have been conducting boat-based research in the region since 2004. ORCA collected the data presented here using long-term sensor deployments. Through this partnership, SWM can support key projects without duplicating efforts, and the MRC can better track the health of Possession Sound. This report card is one way we're sharing those efforts with the broader community.

Learn More:

