

Focus on: Reducing Nutrient Pollution in Puget Sound



Why it matters

Puget Sound water quality is degraded by excess nutrients from people living in the region.

We can see and measure the problem, and we use modeling to help us understand the effects of nutrient pollution and plan for reducing human sources of nutrients.

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Special accommodations

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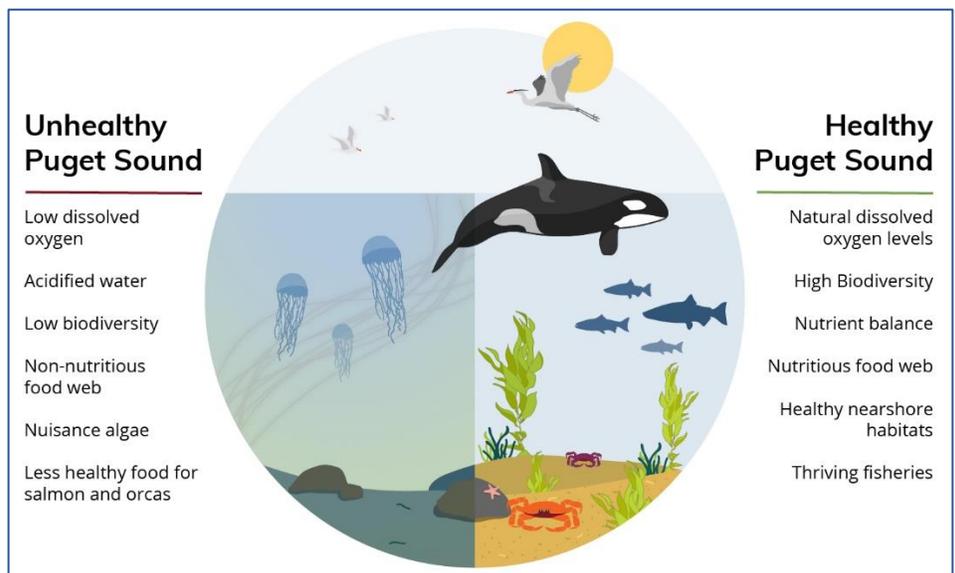
People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.

Excess nutrients lead to an unhealthy Puget Sound

Science shows human sources of nutrients are leading to lower dissolved oxygen levels and unhealthy water quality in Puget Sound. Excess nutrients act like a fertilizer, causing excessive algal and plant growth. More plants sound like a good thing, but when these algae and plants die, their decomposition uses up oxygen. Just like humans, aquatic organisms need oxygen. Because of excess nutrients, many parts of Puget Sound do not have enough oxygen for marine life to thrive.

Signs of nutrient pollution in Puget Sound include:

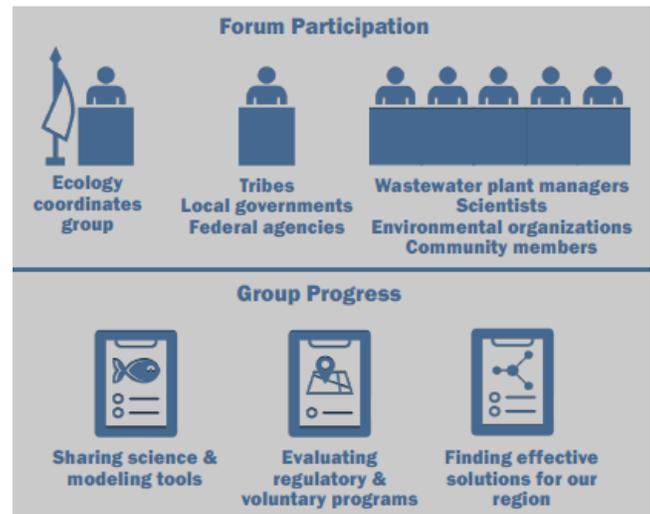
- Fish kill events in sensitive areas of Puget Sound, like shallow bays and inlets.
- Increased acidity of the water, which threatens shellfish.
- Shifts in the marine food web that compromise salmon and orca recovery.
- Increases in harmful algal blooms and nuisance species like jellyfish.



Coordinated approach to reducing nutrients

The [Puget Sound Nutrient Source Reduction Project](#) is our collaborative effort to address human sources of nutrients. Building on over a decade of research, modeling and community engagement, we convened the Puget Sound Nutrient Forum in 2018, to engage regularly with stakeholders and the public on the latest science and find solutions for nutrient reduction in Puget Sound.

Since convening, the Forum has hosted regional scientists to present their research on nutrient impacts. We have also worked with the Forum to develop modeling scenarios to help understand when, where, and how these impacts occur. The Forum and scientific community are integral in helping us develop solutions for reducing nutrients to Puget Sound.



What we've learned from modeling

Our strategy for nutrient reduction is guided by the results of the Salish Sea Model. The model is a computer tool we use to understand human impacts and to help us identify potential human source reductions to improve Puget Sound water quality. Our modeling results, peer-reviewed and published in our 2019 Bounding Scenarios Report, show that:

- Nutrients discharged from wastewater treatment plants (WWTPs) directly to marine waters cumulatively contribute to dissolved oxygen impairments in Puget Sound.
- Human sources of nutrients in Puget Sound watersheds also contribute to this problem. We need nutrient reductions all sources of excess nutrients.

Our second phase of modeling (2021-2023) will inform how we set nutrient load targets in the Puget Sound Nutrient Reduction Plan. This plan focuses on reducing human sources of nutrients, including WWTPs and watershed sources. A draft will be released for public comment in 2023. We will continue to engage the Forum and solicit feedback on elements of this plan as we develop it. Further investigations into watershed sources will be described in the Plan and will continue over the coming years.

Using science to find solutions

Wastewater treatment plants (WWTPs)

In January 2020, after hearing stakeholder feedback, we decided to develop a general permit as the best regulatory mechanism to reduce nutrients in WWTP discharges. We formed a representative stakeholder advisory group to develop recommendations for this general permit and asked for feedback on early permit concepts in January 2021. In June 2021, Ecology released a draft permit for public comment.

Visit ecology.wa.gov/nutrientpermit for more information.

Watershed sources

Our near-term strategy to address watershed sources of excess nutrients is to strengthen and focus our ongoing efforts to identify and control non-point pollution sources, such as agricultural runoff, failing septic systems, and unmanaged stormwater. We also plan to conduct scientific studies and develop watershed models to help us prioritize and adaptively manage our efforts to reducing watershed sources of nutrients.

Visit ecology.wa.gov/PSNRP for more information.