



Water Quality Permit Coordinator
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To whom it May Concern,

Thank you for the opportunity to provide comments on the potential to develop a Puget Sound Nutrients General Permit. I am writing on behalf of the five Surfrider Foundation chapters in Washington State to express our strong support for moving forward with a general permit for Puget Sound Nutrient Reduction at wastewater treatment facilities that discharge directly into the Puget Sound. Surfrider Foundation is a grassroots, coastal conservation organization dedicated to the protection and enjoyment of our ocean, waves and beaches. In Washington, our powerful activist network is comprised of community leaders in the Northwest Straits, Seattle, South Sound, Olympia, and Olympic Peninsula chapters, as well as our 500+ statewide members.

As we recall from high school biology, nitrogen is the primary nutrient that drives the growth of phytoplankton in marine waters, such as Puget Sound. Phytoplankton are tiny plant organisms that contain chlorophyll. In the presence of sunlight, they can multiply into massive plankton, or algae, blooms. These algae blooms appear as colorful blotches of green, brown or orange when viewing Puget Sound from the sky or a stand up paddleboard. Some of these algae blooms contain phytoplankton species that release toxins into the water or are accumulated up the food chain. These Harmful Algal Blooms devastate the local food web in Puget Sound, put public health at risk and can decimate regional shellfisheries.

Even non-toxic blooms wreak havoc on the local aquatic ecosystem, because when the phytoplankton and the zooplankton that eat them eventually die, the process of decomposition uses up most and sometimes all of the available oxygen in the water column creating deadly low oxygen, or hypoxic, zones.

A similar process occurs with cyanobacteria, or blue-green algae, in freshwater environments, where warm water and excess nutrients lead to cyanobacteria blooms that can migrate downstream into marine environments. In addition to creating an oxygen-starved environment, these cyanobacteria and phytoplankton blooms can have further wide-ranging effects on the ecosystem, from disruption of the food web that is critical for shellfish, forage fish, salmon and the Southern Resident Killer Whales, to becoming harmful algal blooms that release dangerous toxins, endangering freshwater supplies, recreational aquatic users and increase the prevalence of shellfish poisoning, to even exacerbating local ocean acidification.

Research now confirms that local land-based contributions are a likely significant driver of marine water quality conditions in some locations of Puget Sound. The 2017 Salish Sea Model demonstrates that while variability exists overall, local nutrient sources significantly contribute to local ocean acidification conditions in certain areas of Puget Sound. This is an advancement in our understanding of what drives

acidifying conditions at the local level. The 2012 Blue Ribbon Panel on Ocean Acidification reported that land-based nutrient and carbon reduction programs would be important in addressing ocean acidification, but the 2017 Salish Sea Model shows us just how significant these local actions can be. The model provides new rationale for focusing on state and local nutrient and organic carbon control programs in the fight against ocean acidification.

Chapter 5 of the original 2012 Blue Ribbon Panel report outlines the importance of reducing inputs of nutrients and organic carbon from local sources. Given the impacts of ocean acidification and the multiple benefits of nutrient and carbon source reduction, the Panel recommended enhanced actions to control and reduce local sources. To achieve this, the Panel set forth a two-tier approach for moving forward on nutrient and carbon reductions:

- The first tier (Strategy 5.1) constitutes a set of actions that build on existing programs to reduce nutrient and organic carbon inputs in ways that provide near-term economic and environmental benefits.
- The second tier (Strategy 5.2) recognizes that more stringent controls of nutrients and organic carbon pollutants will be required if additional data confirm that these inputs are contributing significantly to ocean acidification.

Reducing nutrients from WWTPs with a general permit would implement these Blue Ribbon Panel recommendations. Ecology's modeling effort has clearly identified that even highly treated wastewater discharging to Puget Sound and the Salish Sea decreases dissolved oxygen because there is still significant levels of nitrogen and other nutrients in the effluent which contribute to low-oxygen events and worsens acidification, creating cumulatively a degraded ecosystem.

Washington Department of Ecology has identified water-quality violations related to low oxygen in 143 designated areas within 39 bays, inlets and open-water sectors throughout Puget Sound. In recent years Bull Kelp, especially in South Puget Sound, has experienced significant declines and has completely disappeared from specific sites. While a range of stressors are believed to contribute to this decline, nutrients are suspected as a major player by contributing to decreasing water clarity and supporting increased growth of non-native algae. More info in the report from DNR:

https://www.dnr.wa.gov/publications/aqr_nrsh_bullkelp_sps_2019.pdf?sinxo

In total, the 87 sewage-treatment plants release a daily average of about 38 tons of dissolved inorganic nitrogen into Puget Sound, according to a report from the Department of Ecology. Two-thirds of that total comes from the four largest plants: West Point in Seattle, King County South near Renton, Tacoma Central and Everett.

Installing the equipment at all treatment plants in Puget Sound could lead to a 40-percent reduction from current nitrogen loads. These nutrient reductions could help alleviate the issues listed above and help Washington prevent both nuisance and Harmful Algae Blooms and better meet the Department of Health recreational guidelines for microcystin, a notably harmful cyanotoxin.

With expected population growth of the Puget Sound region, as well as worsening impacts from climate change in the years to come, the time to move forward with the general permit approach is now and we urge you to adopt this approach. We must move forward on an accelerated timeline during this permit cycle, and include numeric criteria being set for Nitrogen and Phosphorus, as well as implementation of proven nutrient reduction technologies. We must also move forward simultaneously with further nutrient reductions from land based source such as agriculture and forestry, septic systems, non-point source pollution and storm water as these all are significant contributors as well. We look forward to helping support this effort in the years to come, and working in collaboration with the agency, communities and elected officials to secure necessary funding to prioritize this important work.

Respectfully submitted,

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