PUGET SOUND RESTORATION FUND

Founded in 1997, Puget Sound Restoration Fund (PSRF) restores marine species and habitats, with a special focus on native oyster, abalone, and kelp recovery efforts. We operate a conservation hatchery to rebuild and research shellfish and kelp, and we spearhead multiple actions to mitigate ocean acidification. Within the broader landscape of Puget Sound recovery, PSRF focuses on restoring living marine habitats that sustain a healthy ecosystem and support human habitation along our shores.

Blue Ribbon Panel Participation

In 2012, PSRF served on the Blue Ribbon Panel on Ocean Acidification, which had a galvanizing effect on our operations. We are currently helping to advance six BRP recommendations, including:

- ***Operate a conservation hatchery*** ***Action 6.3.4***

Established with NOAA in 2014, the hatchery cultures Olympia oysters, Pinto abalone, sea cucumbers, and native kelp species to support restoration and provide a hub for research on impacts to marine resources due to ocean acidification.

- ***Launch a 5-year kelp cultivation investigation*** ***Key Early Action 6.1.1***

With funding from the Paul G. Allen Family Foundation, PSRF is leading a team of scientists to investigate the ability of kelp to improve seawater conditions (2015-2019).

- ***Restore kelp populations*** ***Action 6.3.1***

PSRF is leading the development of bull kelp restoration methods and collaborating on a kelp recovery plan. Our kelp lab can propagate kelp for both restoration and mitigation.

- ***Help create refuges*** ***Action 6.3.2***

PSRF's conservation hatchery is well positioned to help the State proactively create refuges in priority locations by applying a suite of remediation strategies that require hatchery propagation, including producing native kelp species and Olympia oysters.

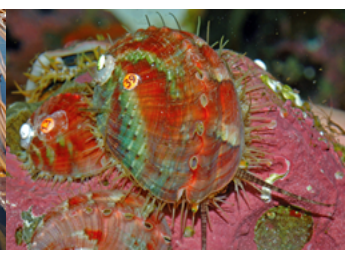
- ***Restore native Olympia oysters*** ***Action 6.3.3***

Olympia oyster seed produced at PSRF's hatchery helps rebuild breeding populations in 19 priority locations in Puget Sound to support on-the-ground restoration efforts.

- ***Investigate selective breeding approaches for OA tolerance*** ***Action 6.3.5***

Private researchers at PSRF's hatchery are focused on identifying and producing resilient strains of several shellfish species.



THE POWER OF KELP

Investigating Kelp Cultivation as a Strategy for Mitigating Ocean Acidification

A collaborative team led by *Puget Sound Restoration Fund* has been investigating the power of kelp to improve seawater conditions locally. With increasingly corrosive conditions ahead, the project tests the efficacy of using native vegetation to buffer the pH of seawater in places with important shellfish resources. The 5-year project implements a key recommendation of the Blue Ribbon Panel on Ocean Acidification with funding from *The Paul G. Allen Family Foundation*, the *U.S. Navy*, and the involvement of leading-edge OA scientists.

To put the idea to the test, sugar kelp was cultivated at a 2.5-acre site north of the Hood Canal Bridge leased by *Hood Canal Mariculture*. During the growing season, kelp consumes CO_2 and nitrogen from the surrounding seawater - the same way that trees absorb CO_2 from the atmosphere. When harvested, the carbon and nitrogen that are removed from the marine environment can be transformed into food, fertilizer, feed, and other products.

On the assessment side, scientists at *University of Washington, NOAA,* and *Washington Department of Natural Resources* measured the effects of kelp cultivation on pH, carbonate chemistry, biology, and fish utilization. Data were then integrated into a computer model created by *System Science Applications* to visually illustrate the effect of kelp on seawater conditions. An Advisory Team packed with kelp experts and an OA specialist with *Washington Sea Grant* have been on hand to assist with kelp analysis and outreach.

During the first year of full-scale cultivation and assessment in 2017, 14,000 lbs. of kelp was harvested and transported to *SkyRoot Farm* on Whidbey Island for direct soil enrichment trials. In 2018, 10,000 lbs. of kelp was delivered to a no-till vegetable farm in Quilcene for compost.

PUGET SOUND
RESTORATION FUND

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