Olympia Oyster Enhancement

The Washington State Department of Ecology (Ecology) is funding an Olympia oyster enhancement project to be carried out by the Puget Sound Restoration Fund (PSRF). The project includes enhancing native oyster habitat and producing Olympia oyster seed, Washington's only native oyster, for planting in Port Gamble Bay. This project brings together federal, tribal, state, local, and non-profit sectors. It will also deploy Ecology's Washington Conservation Corps crews consisting of AmeriCorps members to assist with habitat restoration and hatchery construction.

Click here for a detailed project description.

Examples of work to be completed in Port Gamble Bay

Photo Credit to Puget Sound Restoration Fund

Detailed Project Description

The National Oceanic and Atmospheric Administration's (NOAA's) Native Oyster Restoration Hatchery located at the Manchester Laboratory is being constructed under the auspices of the Washington Shellfish Initiative (http://www.nmfs.noaa.gov/stories/2011/12/shellfish.html), a convergence of the National Shellfish Initiative and the State's interest in promoting a critical clean water industry. The overall goal of the Washington Shellfish Initiative is to restore 100 acres of dense native oyster beds in Puget Sound by 2020 to provide structured habitat for a diverse community of aquatic organisms.

As part of this project, Ecology is funding an Olympia oyster enhancement project to be carried out by the Puget Sound Restoration Fund (PSRF). The PSRF, in cooperation with NOAA, will augment and operate a hatchery capable of accommodating seed production for Port Gamble Bay and other native oyster experiments. The hatchery will include an indoor facility and an outdoor nursery and grow-out space. Ecology's Washington Conservation Corps crews consisting of AmeriCorps members are assisting with habitat restoration and hatchery construction. This will be the only hatchery in Washington State devoted to producing restoration-grade seed that meets conservation genetic standards.

The objectives of this project include:

- Producing 5,000,000 Olympia oyster seeds for outplanting in the bay.
- Spreading shell on approximately 10 acres of tidelands in the bay.
- Assessing oyster growth, recruitment, and survival.

The PSRF will also collect data over time to assess native oyster restoration and the role that shell hash and dense assemblages of native oysters can play in mitigating ocean acidification, both of which were recommended actions of the Blue Ribbon Panel's report on ocean acidification (http://www.ecy.wa.gov/water/marine/oceanacidification.html).

Methodology

Seed production at the Native Oyster Restoration Hatchery, using genetic protocols co-developed with the Washington Department of Fish and Wildlife (WDFW), will augment shell enhancement and strengthen recruitment. As part of these efforts, the PSRF will produce a total of 2,000 bags of seeded cultch (1,000 bags in 2014 and 1,000 bags in 2015). Cultch bags will include approximately 250 shells per bag and approximately 10 seed per shell. This hatchery-propagated seed will be spread over and within the shell enhancement area to increase recruitment and support re-colonization.

The project will also enhance approximately 10 acres of native oyster habitat by increasing settlement structure in the lower intertidal area. Work includes spreading an average of 150-200 cubic yards per acre of clean Pacific oyster shell on tidelands with suitable habitat conditions. Shell enhancement involves spraying bulk shell off a barge at high tide within pre-determined enhancement boundaries. This approach is consistent with WDFW recommendations and guidelines. Similar enhancement techniques have been used successfully to restore 20 acres of tidelands in Liberty and Dogfish bays. The

goal is to restore a significant habitat feature in the lower intertidal (-1 MLLW to -3 MLLW) that is no longer present today.

Monitoring includes biological characterization and resource assessment from +3 feet to -3 feet, MLLW (species richness, biodiversity for emergent flora, fauna and infauna, beach slope, sediment profile and mapped intertidal zonation), assessment of juvenile recruitment and adult population structure, and post enhancement surveys.

Schedule

The hatchery build was completed in February 2014. The PSRF is collecting and conditioning brood oysters. Seed production for the first year will be completed in June/July 2014, and in June 2015 for the second year. Oyster shell will be spread between July and August of 2014.