Building a Coast-Wide Olympia Oyster Network to Improve Restoration Outcomes

Project Location

West Coast

Project Duration

September 2018 to December 2019

Project Lead

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Project Type

Catalyst – Targeted investment for advancing collaborative science

Products

- Native Olympia Oyster Collaborative website with resources for Olympia oyster restoration, science, and education
- Restoration database of current and historical West Coast Olympia oyster projects
- Interactive story map with locations, photos, and summary data of restoration projects
- Olympia oyster outreach materials and compiled K to 12 resources
- Outreach flier: "Restoring Resilient Native Oysters"

Overview

Although drastic global declines in oyster reefs over the past few centuries have driven significant native oyster restoration efforts on the North American East Coast, the West Coast's Olympia oyster has received comparatively little attention. Since 1999, growing interest in the Olympia oyster has led to restoration projects at a dozen locations along the West Coast, as well as new efforts to promote scientific studies and public awareness of oyster declines and the benefits of restoration.

To build communication, coordination, and information sharing among scientists and restoration practitioners, this project established the Native Olympia Oyster Collaborative, a coast-wide network from Baja California to British Columbia. The project team synthesized past restoration projects, developed an experimental design for future research, and created educational and outreach materials that convey the importance of native oyster restoration on the Pacific coast. These efforts engaged communities in Olympia oyster restoration, provided tools to enhance future restoration outcomes, and strengthened connections among researchers and practitioners to support ongoing collaboration.

Project Approach

This project built on existing relationships to bring together scientists, restoration practitioners, tribal communities, and education and outreach specialists under the umbrella of the Native Olympia Oyster Collaborative. A steering committee of 25 end-users with representatives from all major Olympia oyster restoration projects directed a synthesis of past projects to provide a comprehensive picture of West Coast native oyster restoration efforts. The team completed a survey of 39 sites and compiled data on project methods, monitoring results, physical attributes, human land uses in the watershed, and major restoration challenges. This information was used to create a database of Olympia oyster projects and a story map that offered visual references and restoration approaches to aid information sharing across regions and with the public.

Project Partners

- Autonomous University of Baja California
- California State University, Fullerton
- Centro de Investigación Científica y Educación Superior de Ensenada
- Elkhorn Slough National Estuarine Research Reserve, California
- Hog Island Oyster Company
- Fisheries and Oceans Canada
- Padilla Bay National Estuarine Research Reserve, Washington
- Puget Sound Restoration Fund
- San Francisco Bay National Estuarine Research Reserve, California
- Smithsonian Environmental Research Center
- South Slough National Estuarine Research Reserve, Oregon
- Tijuana River National Estuarine Research Reserve, California
- University of California, Davis
- World Fisheries Trust

Project Webpage

nerrssciencecollaborative.org/project/Wasson18

The project team identified environmental conditions and factors in project design that led to the greatest restoration successes, and shared these lessons learned with West Coast practitioners and stakeholders. Outreach materials and K to 12 lesson plans were developed for West Coast audiences to promote broader awareness of the value of resilient oyster populations to Pacific coast ecosystems. Through the analysis of existing and past projects, the team identified research gaps needed to overcome Olympia oyster restoration challenges, developed experimental designs to meet these needs, and submitted proposals for collaborative research grants to move these investigations forward.

Results

The project has generated new insight into threats to and opportunities for restoration success along the West Coast. The synthesis of past projects identified regional differences in restoration approaches. For instance, Puget Sound projects emphasized natural biogenic habitat, while San Francisco projects focused on artificial reefs to provide shoreline protection. Canada, with few existing projects, and Mexico, with none, are regions with significant potential to expand restoration efforts along the coast.

The project's findings revealed two major threats to restoration success: sedimentation and limited natural recruitment. (Invasive species were found to be less of a factor than anticipated.) The team identified conservation aquaculture as a promising approach to support restoration in recruitment-limited areas. Based on these results, they developed proposals for new experimental research to address key West Coast restoration gaps and challenges: native oyster population dynamics in Mexico and interdisciplinary approaches for conservation aquaculture.

Benefits

- Improved understanding of factors for success in Olympia oyster restoration projects.
- Greater collaboration among restoration practitioners and researchers though the creation of the Native Olympia Oyster Collaborative. Members' efforts to share information within broader scientific and conservation communities have raised the profile of this new coast-wide network and its activities.
- Strengthened partnerships in Baja California in support of ongoing research and oyster restoration.

What's Next

- The Native Olympia Oyster Collaborative has received two grants to conduct new research through September 2021—one from the University of California Institute for Mexico and the United States to build capacity for native oyster restoration in Baja California; the second from the Science for Native and People Partnership to assess risks and benefits of conservation aquaculture in support of Olympia oyster restoration.
- Synthesis of restoration success across projects based on restoration database will be shared in an upcoming peer-reviewed scientific publication.
- Future restoration projects are in development that are informed by the lessons of projects, such as monitoring design, how to mitigate or eliminate negative effects, etc.
- Native Olympia Oyster Collaborative has just launched a collaboration with Pew Charitable trusts to generate the first comprehensive map of oyster distribution along the West Coast. Native Olympia Oyster Collaborative experts are entering observations into an interactive GIS portal developed by Pew scientists.
- Native Olympia Oyster Collaborative expects to conduct future coordinated experiments throughout Olympia oyster range based on framework developed for this research in this project.

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is managed by the University of Michigan's Water Center through a cooperative agreement with the National Oceanic and Atmospheric Administration (NOAA). Funding for the research reserves and this program comes from NOAA. Learn more at nerrssciencecollaborative.org or coast.noaa.gov/nerrs.