

# A Future for Oysters along the Pacific Coast

## Project Location

San Francisco Bay National Estuarine Research Reserve, California

Elkhorn Slough National Estuarine Research Reserve, California

## Project Lead

Matt Ferner, San Francisco Bay Reserve, [mferner@sfsu.edu](mailto:mferner@sfsu.edu)

Kerstin Wasson, Elkhorn Slough Reserve, [kerstin.wasson@gmail.com](mailto:kerstin.wasson@gmail.com)

## Targeted End Users and Products

- *Final report*
- *Needs assessment for Alaska regional workshop*
- *Proceedings of the Alaska regional workshop*
- *West Coast Guide to Olympia Oyster Restoration and Conservation*
- *Central California Guide to Olympia Oyster Restoration and Conservation*
- *"Do-it-yourself" site evaluation tool for Olympia oyster restoration*

## Project Partners

- *Elkhorn Slough Reserve*
- *San Francisco Bay Reserve*
- *California Department of Fish and Wildlife*
- *San Francisco State University, Romberg Tiburon Center for Environmental Studies*
- *State of California Coastal Conservancy*
- *Smithsonian Environmental Research Center*
- *University of California Davis, Bodega Marine Laboratory*

### 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. Learn more at [www.nerrsciencecollaborative.org](http://www.nerrsciencecollaborative.org)

## Overview

Oysters are the tiny superheroes of coastal environments. They enhance water quality, create habitat, and protect shorelines from storms and erosion. Along the Pacific Coast, native oysters are in decline, due in part to sedimentation, inadequate protection, and unsustainable harvests. Planning for a future that includes healthy native oyster populations depends on our ability to select sites for restoration that not only account for these challenges, but also the impacts of a changing climate. A team led by the Elkhorn Slough and San Francisco Bay reserves helped to meet this need by developing science-based planning tools that decision-makers along the Pacific Coast can use to select local "sweet spots" for restoration in which oysters can thrive under current and future conditions.

## Project Benefits

- Science-based tools to help Pacific Coast decision-makers and restoration practitioners select optimal sites for Olympia oyster conservation under current and future climate conditions.
- An oyster restoration guide for Central California and west coast.
- An excel-based tool to evaluate a sites' restoration potential and conservation value.
- Leveraged the reserve system to share project outcomes, methodologies, and experiences with coastal managers and restoration practitioners from southern California to Alaska.
- Spurred a citizen science monitoring program that involves local high schools in the long-term monitoring of water-quality and oyster populations in San Francisco Bay.

## Project Approach

The Elkhorn Slough and San Francisco Bay reserves collaborated to lead a multidisciplinary team that explored the influence of human activities and climate change on Olympia oyster populations in coastal California and, in the process, improve oyster restoration in the face of climate change.

## Project Approach (continued)

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- Laboratory and field work: Researchers conducted field and laboratory experiments to explore how environmental stressors caused by human activity and climate change influenced oyster growth and survival in two estuaries along the central California coast.
- Data comparison: They compared shell chemistry from various oyster beds to understand how different oyster populations connect to, and support one another. Using these data, the team characterized and identified estuarine sites that can support successful oyster restoration.
- Stakeholder Engagement: The team conducted surveys and interviews and hosted stakeholder workshops with individuals involved in oyster restoration to identify stakeholder needs and priority management issues.

