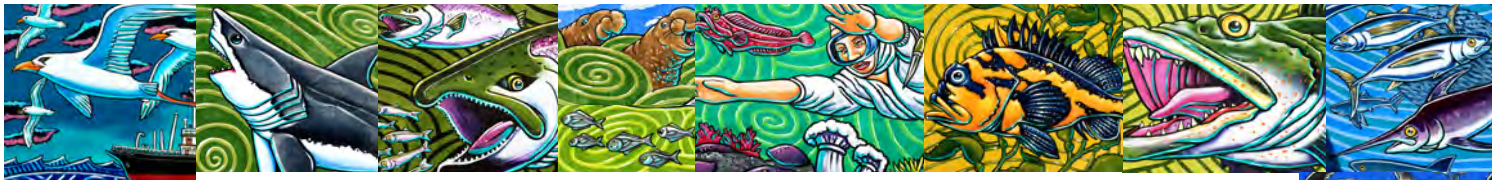


NOAA Fisheries' Pacific Grove Mural

Green Sea / Blue Sea:

"The California Current, Climate Change, and Sustainable Fisheries"

The NOAA Fisheries' Southwest Fisheries Science Center laboratory in Pacific Grove recognizes the long and vibrant heritage of fishing, scientific research, and management in Monterey Bay, and along the entire U.S. west coast, with a vibrant public mural. While conveying the 100-year legacy of the sardine fishery the mural illustrates how fish, marine mammals, sea turtles, and other marine fauna respond to changes in climate and ocean conditions.

Telling the Story

Using green shades to represent high ocean productivity and blue for low ocean productivity – visitors can see the different species that flourish in Monterey Bay, and adjacent waters as ocean conditions change. This is illustrated in the mural by the changing composition of fish, marine mammals, and sea turtles that circle the laboratory.

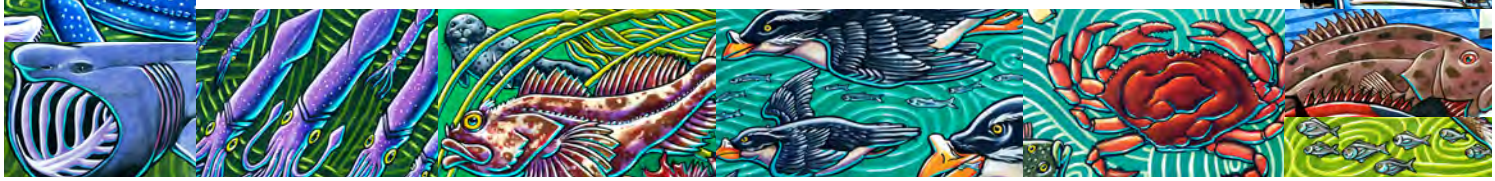
Past and Present

The mural also illustrates historic and current research ships and technologies used by fisheries scientists, and innovations in fishing that have occurred over the past several decades. Together these images depict the connectivity between humans, marine animals, and climate change with the mural following the legendary sardine fishery that crashed off Monterey in the 1940's, and eventually returned as the system recovered through enhanced scientific knowledge, better management, and changing ocean conditions.

Creating the Mural

The mural images were created by renowned artist Ray Troll and painted on 32 separate panels by public artist Roberto Salas and his team. The mural is nearly 400 feet long and is the fourth designated by the city of Pacific Grove's Historical Mural Project. The project was funded by the Southwest Fisheries Science Center and by a grant from NOAA's Preserve America Initiative Grants (PAIG), a program to preserve and showcase NOAA's historical legacy and to make them accessible to the public through innovative programs and community partnerships.

For additional images & information please visit
http://swfsc.noaa.gov/greenseas-blueseas/



The Science Behind the Mural

Changing Climate and Sustaining Fisheries

Natural variations in global climate create alternating periods, or regimes, of high and low ocean productivity in Monterey Bay and the adjacent California Current ecosystem that extends along the west coast. These climate regimes are closely identified with sudden and dramatic shifts in regional fisheries.

During warm, low production regimes – blue panels on the east and west sides of the lab – the **California sardine** is a dominant species. A number of other fish and marine mammal species that feed on sardine, such as **marlin and yellowfin tuna** flourish as well.

As the climate shifts to a cooler regime – green panels on the north and south sides – ecosystem productivity blooms and **northern anchovy** replace the sardine. Other species, such as the **china rockfish**, thrive as well in these cool regimes.

Since these natural variations have repeated many times through history, there is no true beginning or end to the mural.

Managing for Sustainability

We now understand that these changes in ocean conditions contribute to boom-bust cycles in fisheries and marine mammals. NOAA is taking an ecosystem approach to managing these resources. NOAA and fishing interests work together to sustain these populations through poor regimes, which hastens their recovery during productive periods, and maintains their economic, social and ecological value.

Global climate change will affect the status of fish stocks, protected species and ecosystems. Although climate change cannot be controlled, scientific and management tools, such as our understanding of regime shifts, will enable NOAA to predict and mitigate the influence of future climate on Monterey Bay's fisheries.

What is the Environmental Research Division?

The Environmental Research Division (ERD) of the Southwest Fisheries Science Center in Pacific Grove provides innovative scientific analyses, products, and information on environmental variability to meet the nation's research and management needs, and serves NOAA's mission of stewardship of living marine resources and the promotion of healthy ecosystems. ERD scientists assess, understand, and predict the effects of climate change and environmental variability that are important to fish populations, protected species, and marine ecosystems; and deliver scientific information for sound decision-making and ecosystem management.

NOAA Fisheries Service – the Nation's Ocean Steward

NOAA Fisheries Service is dedicated to the stewardship of living marine resources through science-based conservation and management, and the promotion of healthy ecosystems. As a steward, NOAA Fisheries Service conserves, protects, and manages living marine resources in a way that ensures their continuation as functioning components of marine ecosystems, affords economic opportunities, and enhances the quality of life for the American public.