

# NOYO CENTER FOR MARINE SCIENCE



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Executive Director

[www.noyocenter.org](http://www.noyocenter.org)





Mission:  
To advance ocean  
conservation through  
education, exploration  
and experience

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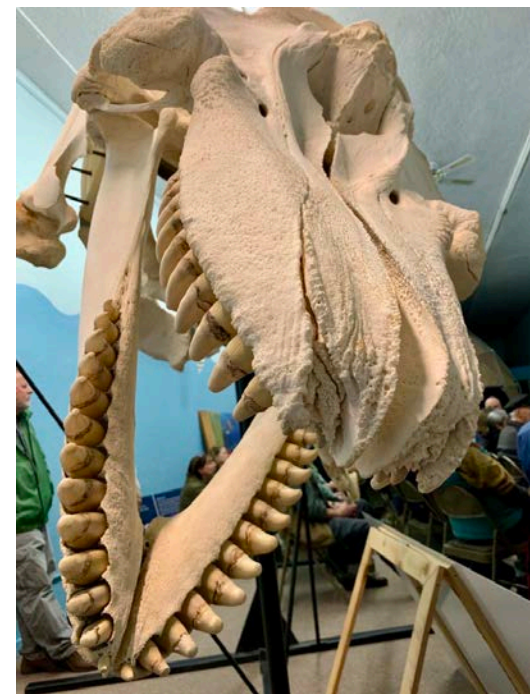


## Crow's Nest Interpretive Center

- All volunteer run
- Open 7 days a week
- Hosted over 5,000 people in 2023



## Field Station in Noyo Harbor



# Noyo Center's Three Locations



## Discovery Center Science Museum

- Open 5 days a week.
- Over 30,000 visitors in 2023



# Education Highlights







Class Field Trips



Summer Camps



Paid Summer Internships





# Talking Trash in Schools





# Fun For All After School Program

## GOALS

- Making the harbor accessible to kids grades 5-8
- Focus on nature-based social and emotional learning after tough covid years.



# Highlights: Marine Mammal Stranding

Frontiers in Marine Science   Sections ▾   Articles   Research Topics   Editorial Board   About journal ▾

BRIEF RESEARCH REPORT article  
Front. Mar. Sci., 13 November 2023  
Sec. Marine Megafauna  
Volume 10 - 2023 | <https://doi.org/10.3389/fmars.2023.1223298>

## Osteofluorosis in free ranging California sea lions (*Zalophus californianus*)

 Margaret E. Martinez<sup>1\*</sup>  Michelle Rivard<sup>2</sup>  Chelsea Sykes<sup>3</sup>  Jaclyn Isbell<sup>1</sup>

 Sarah W. Grimes<sup>4</sup>  Robert Poppenga<sup>3</sup>  Pádraig J. Duignan<sup>1</sup>

<sup>1</sup> The Marine Mammal Center, Sausalito, CA, United States  
<sup>2</sup> SR3 Sealife Response, Rehabilitation, and Research, Des Moines, WA, United States  
<sup>3</sup> California Animal Health and Food Safety Laboratory, School of Veterinary Medicine, University of California, Davis, San Bernardino, CA, United States  
<sup>4</sup> Noyo Center for Marine Science, Fort Bragg, CA, United States

Scientific Paper



latimes.com  
**California seal pups were turning up headless. Expe...**

National News





# Highlights: Marine Mammal Stranding

We have now  
contributed over  
250 specimen to  
the research  
collection





# Highlights: Volunteer Program

2023 Summary

Total Hours: 5,627

Active Volunteers: 111

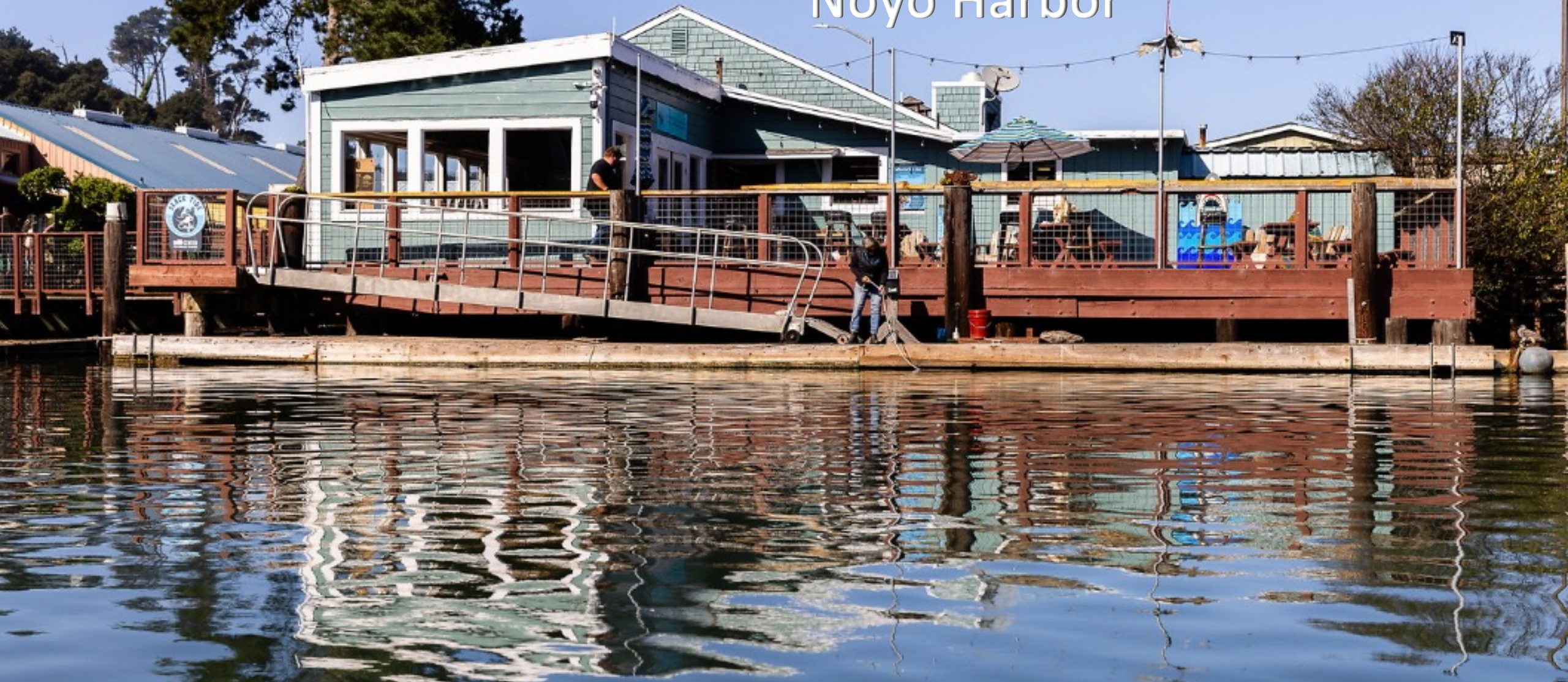
Value to Organization  
(\$15/hr): \$84,405

A photograph of two women crouching on a rocky shore, examining the tide pool. The woman on the left is wearing a grey sweater and black pants, while the woman on the right is wearing a purple jacket and grey pants. They are surrounded by seaweed and rocks. The background is a dark, rocky cliff face.

Beach Cleanups: 136  
Beach Response: 524  
Beach Surveys: 1,105  
Crow's Nest Docent: 1,268  
Discovery Center Docent: 152  
Events: 500  
Pinniped Press: 323  
Slack Tide Café: 941  
Whale Festival: 105

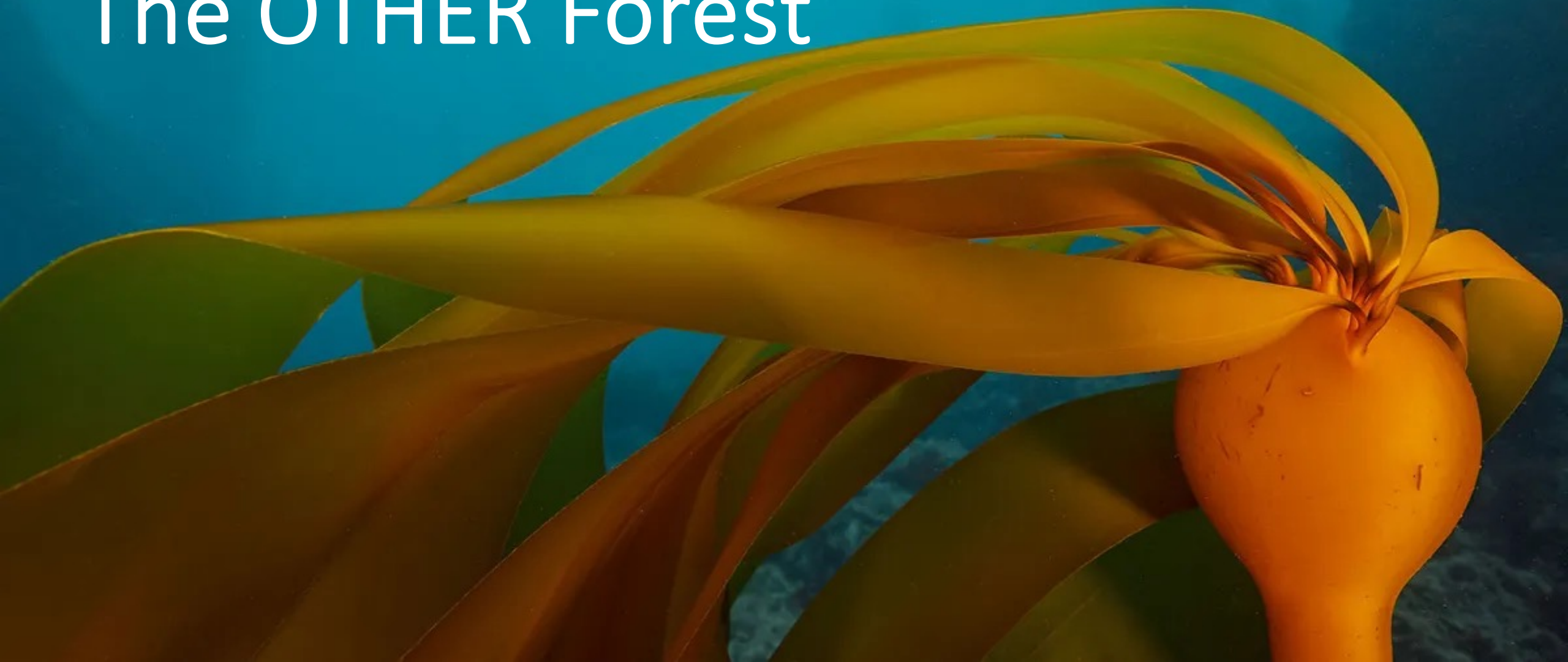


# Marine Field Station Noyo Harbor

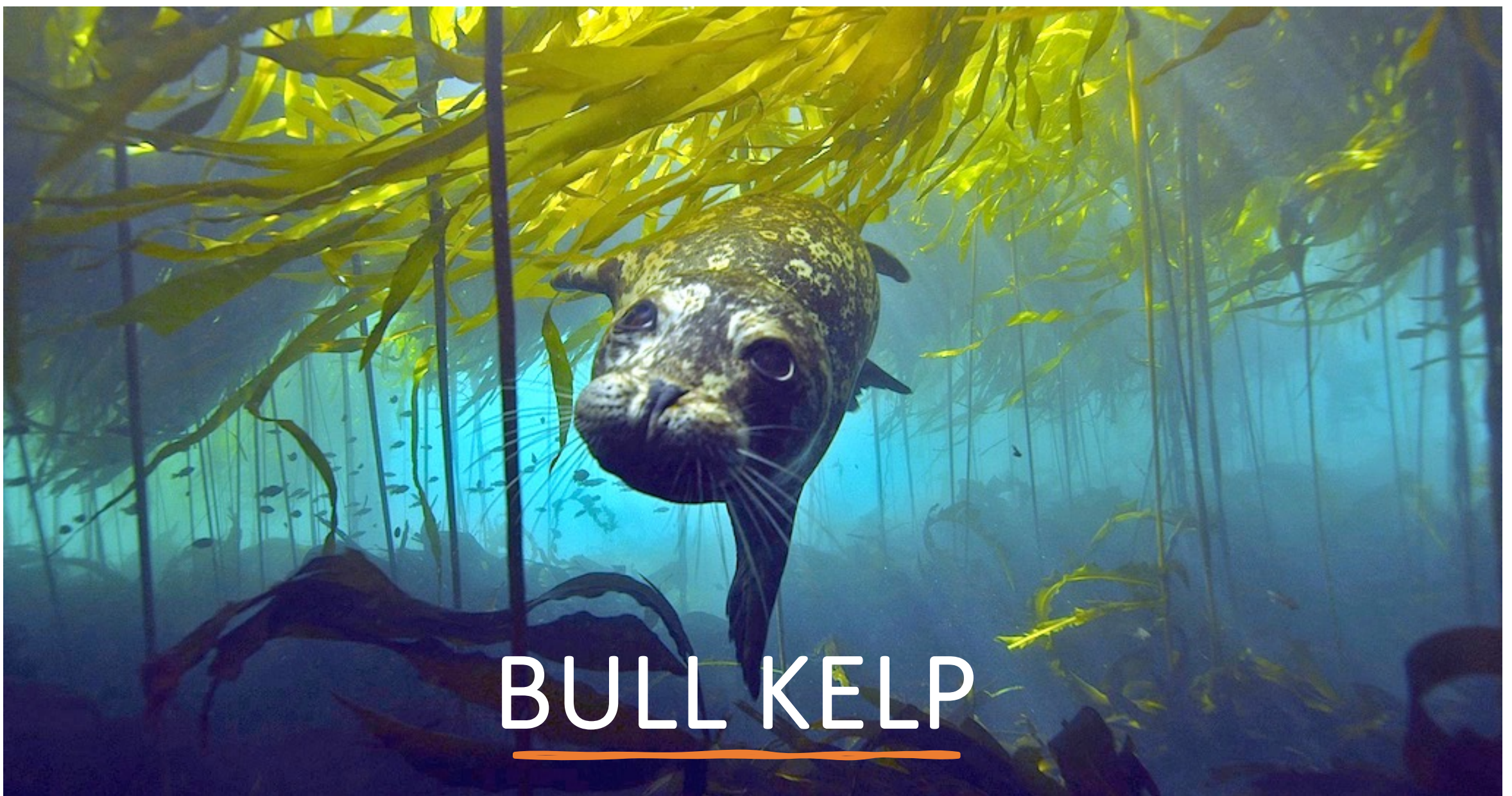




# The OTHER Forest







# BULL KELP

Annual Species  
(April-Oct)

Grows up to 16  
inches per day

Supports over  
800 species

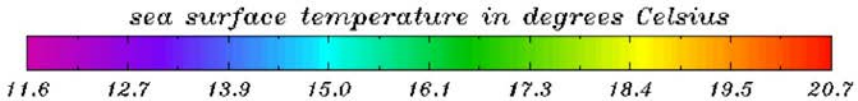
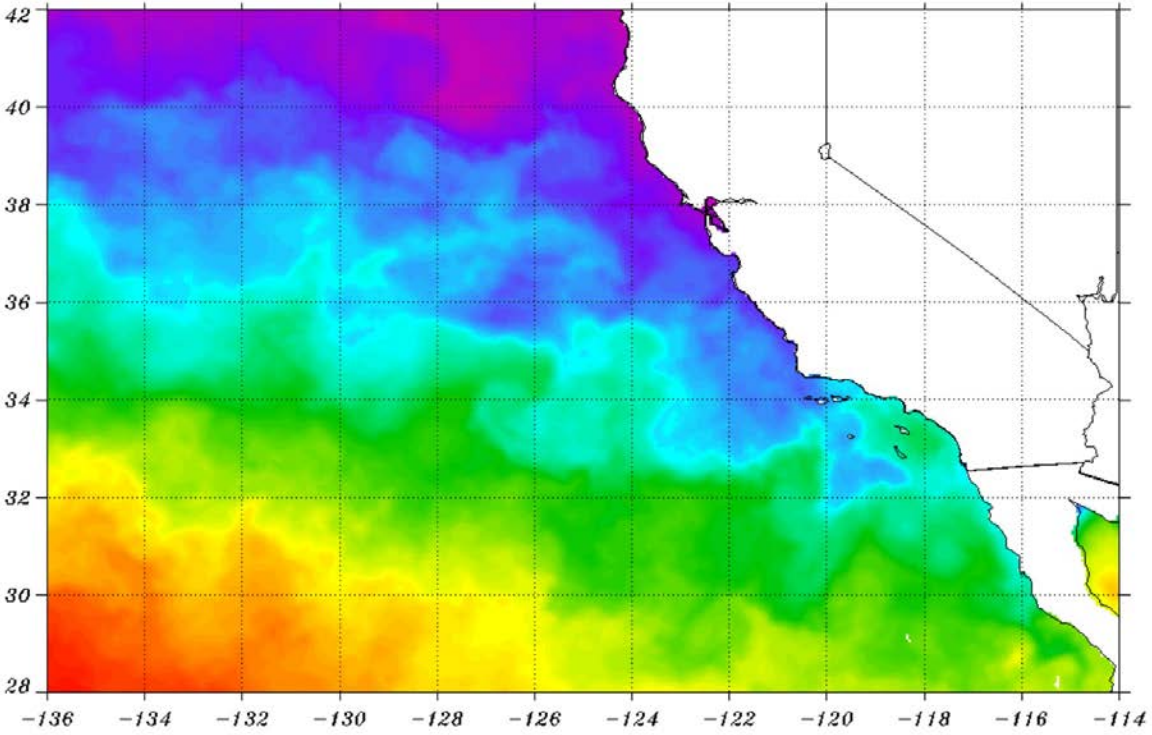
Sequesters  
carbon

Buffers shoreline  
from wave action



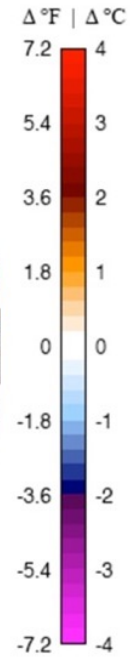
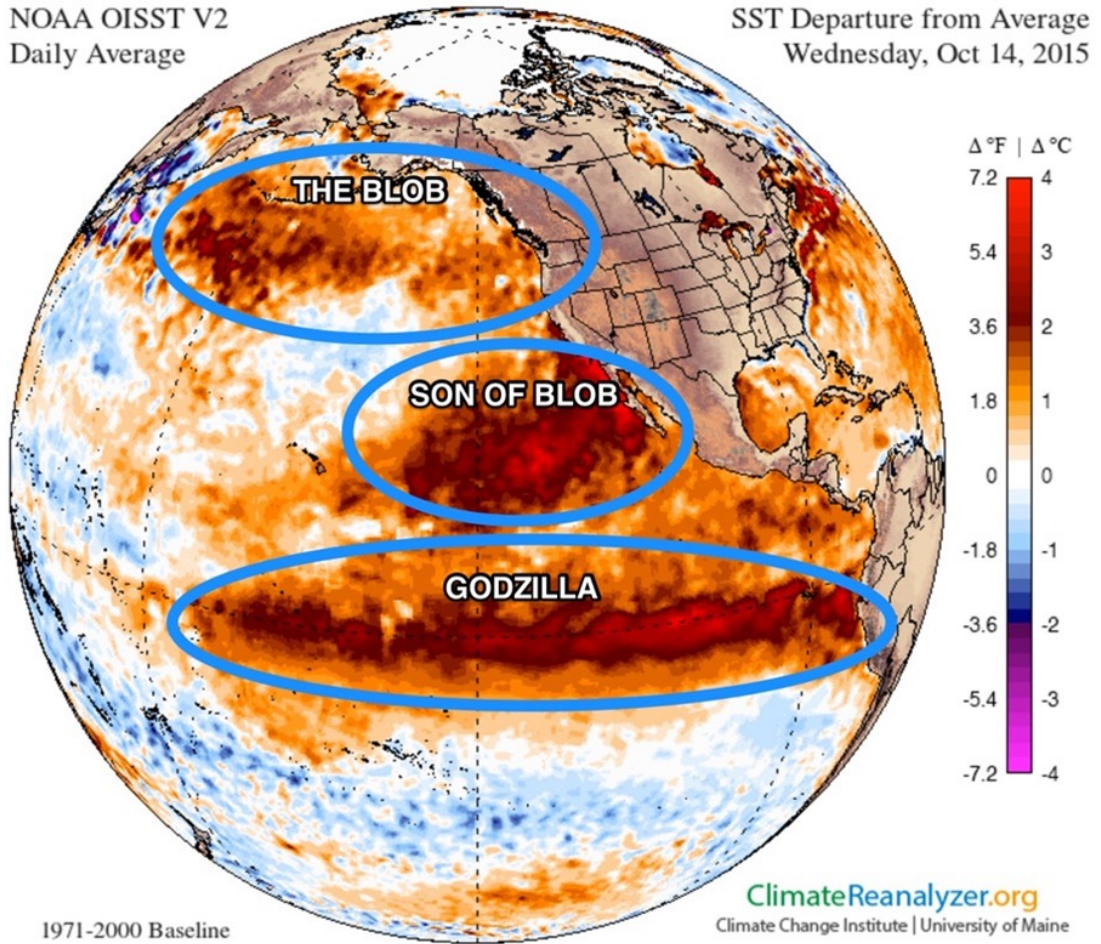
# Upwelling and Marine Heat Waves

NOAA/NESDIS GEO-POLAR BLENDED 5 km SST ANALYSIS FOR THE CALIFORNIA COAST



NOAA OISST V2 Daily Average

SST Departure from Average Wednesday, Oct 14, 2015





# Sea Star Wasting Disease



**Sunflower sea stars** usually have 16 to 24 limbs and up to 3ft across. They are a voracious predator of urchin, but their population was decimated by the sea star wasting disease.



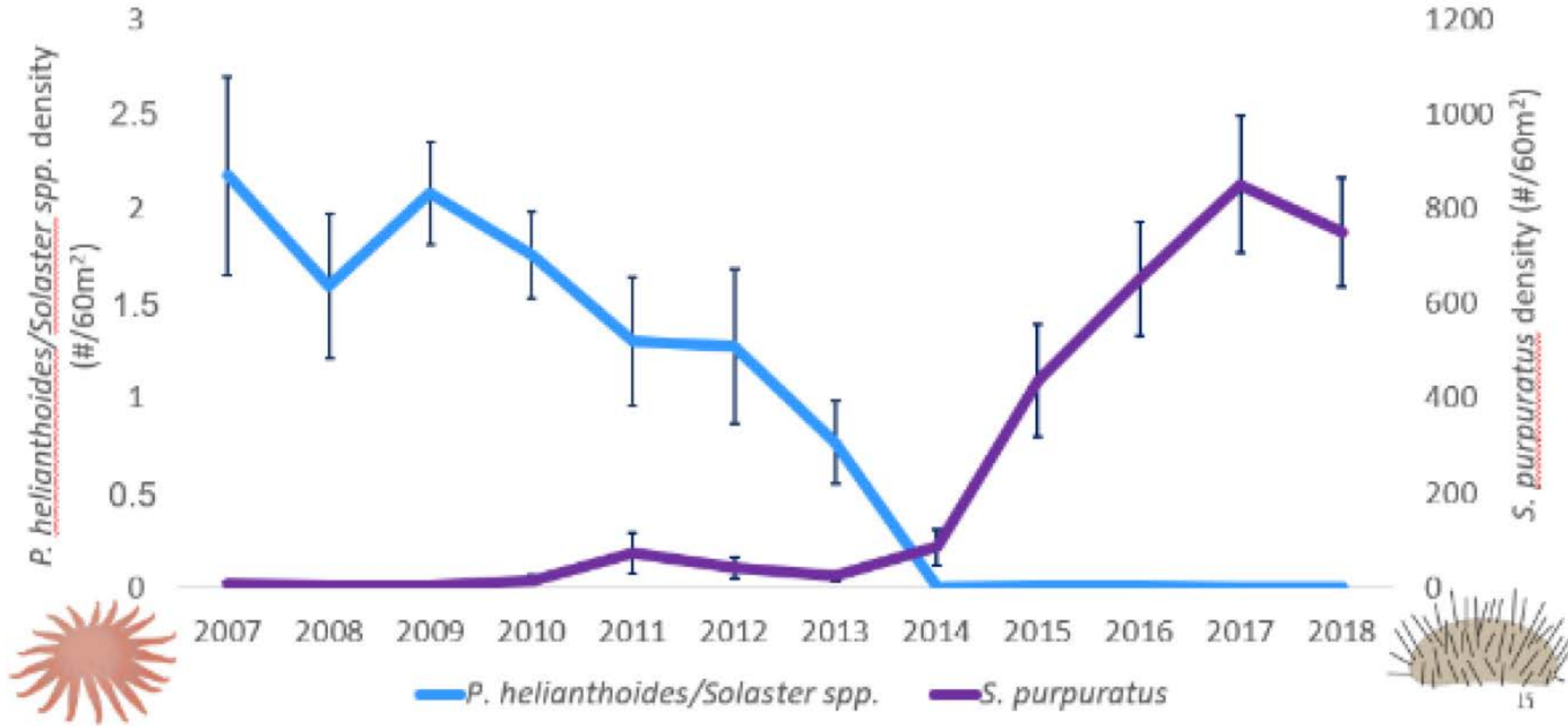




**Purple Sea  
Urchin**



implications for *P. helianthoides*.





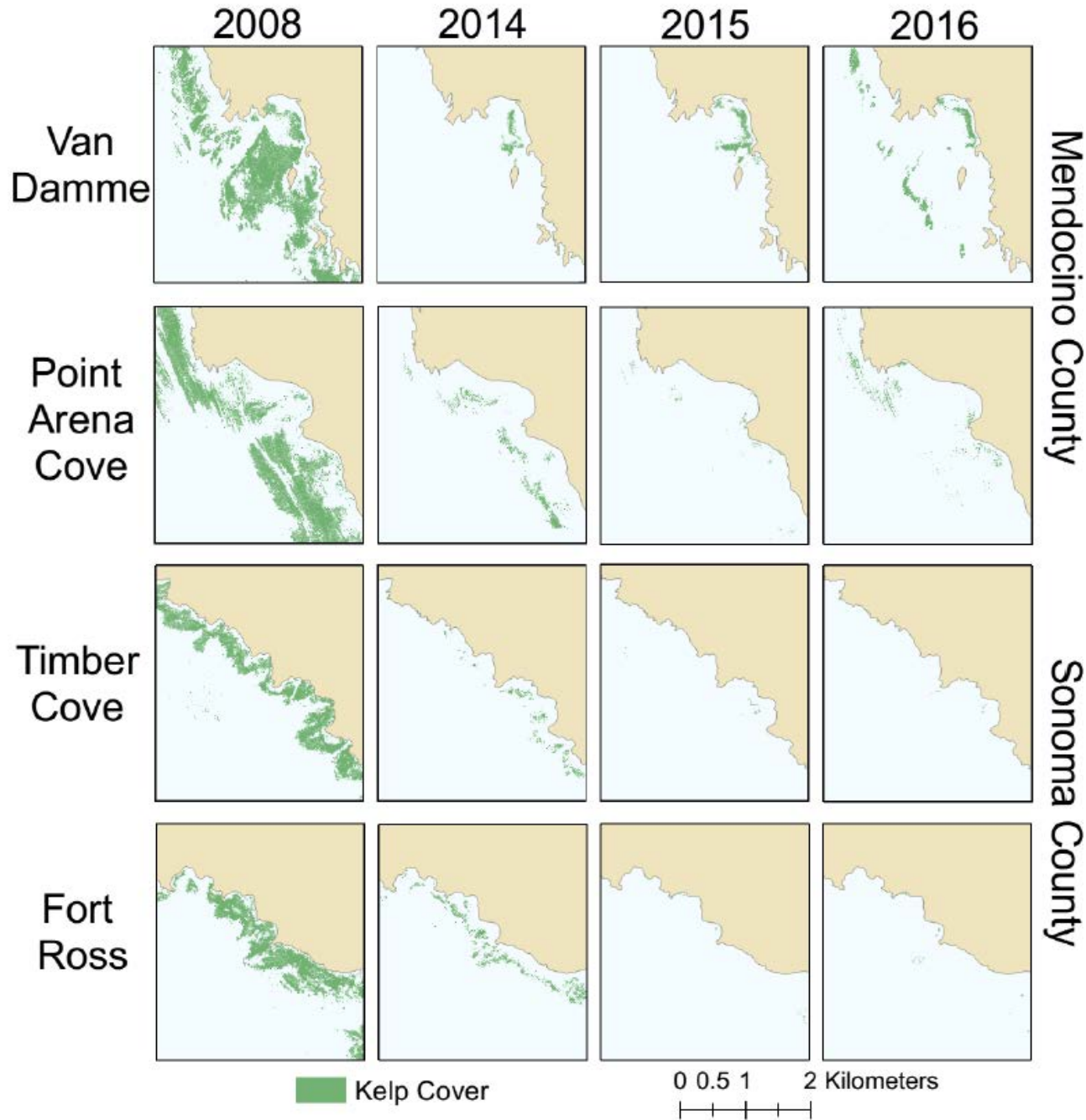




# KELP FORESTS

## Mendocino and Sonoma

(source: CDFW aerial surveys)



>93% kelp loss in 2014

Additional 33% loss in 2015

Very limited growth in 2016-2023





Abalone are weak and  
starving

Fishery closed until 2026

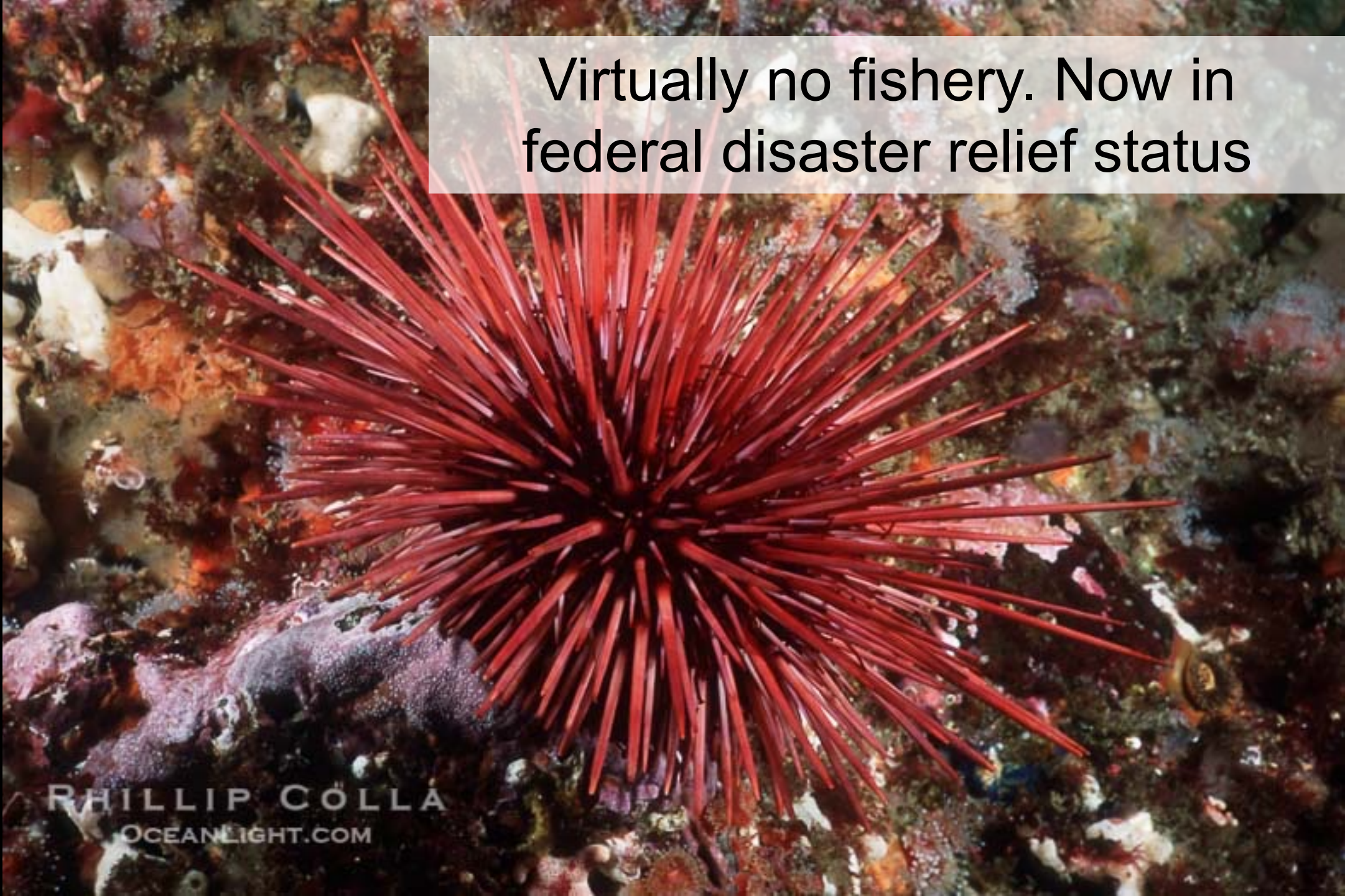


# Red urchin

*Strongylocentrotus franciscanus*

Virtually no fishery. Now in federal disaster relief status

PHILLIP COLLA  
OCEANLIGHT.COM



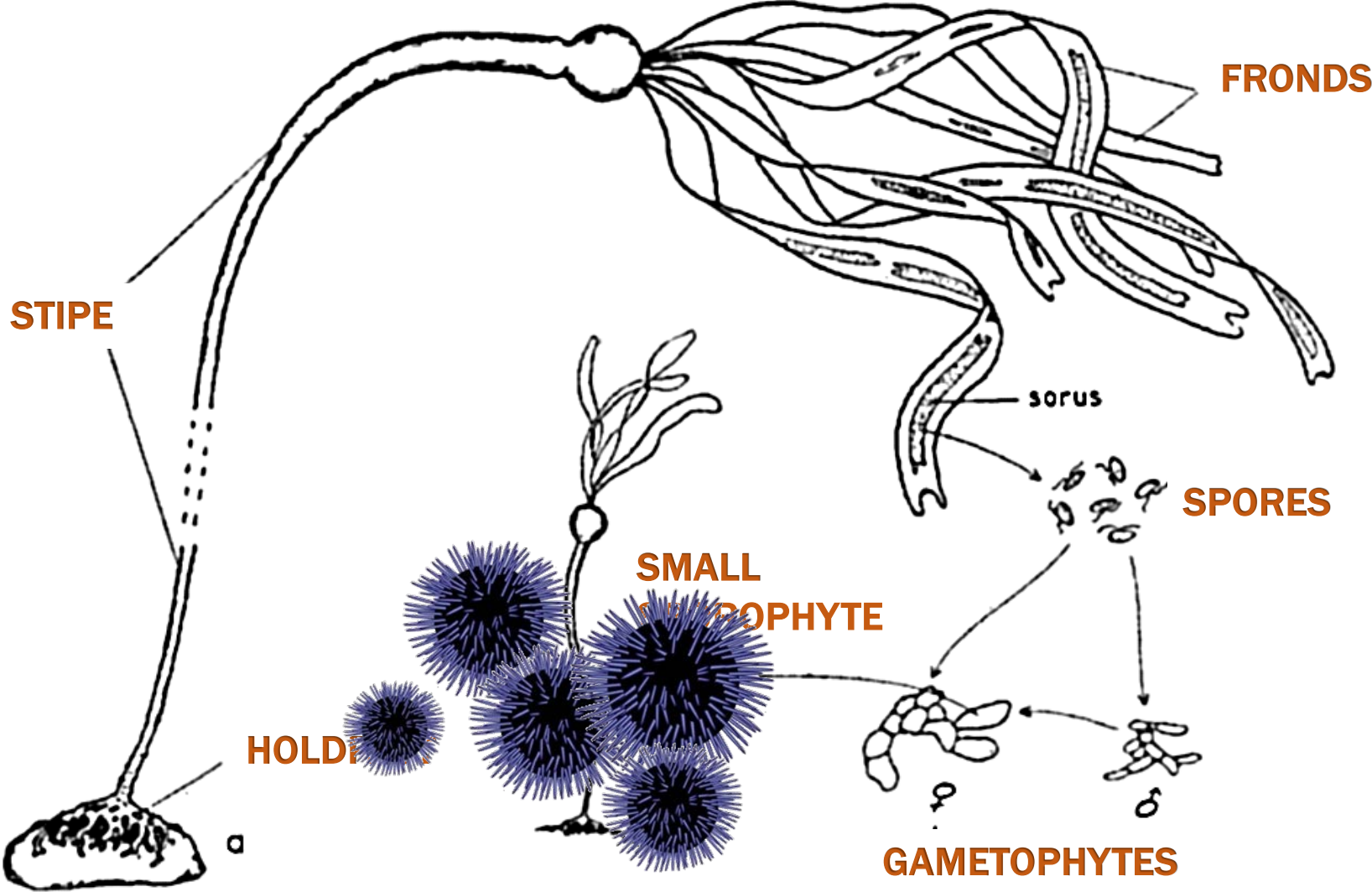


# Bull Kelp (*Nereocystis luetkeana*)

## Life Cycle

Bull kelp is very easy to recognize. They have long stipes that can grow over 30m long, one gas filled bulb at the top to keep it afloat, and long blades the spread out and eventually float on the surface.

Bull kelp is an annual species, and the stipes can grow up to 5 in per day. After summer growth, the blades or fronds begin to release spores, which grow into tiny gametophytes. The gametophytes shed sperm and eggs in winter and early spring. When fertilized, the eggs develop into sporophytes.





# Conservation Aquaculture to Support Recovery





# Urchin Ranching

Turning empty urchin into high quality, restorative seafood to the benefit of our environment and economy.







## GOALS

- Develop a simple aquaculture system with recirculating seawater that can be easily replicated by others in the harbor and elsewhere in our region.
- Showcase restorative seafood through our FS's commercial kitchen; build local markets
- Determine the economic potential of this effort and whether we can scale to commercial production on the headlands property
- Build education program around this: classroom, research, community science





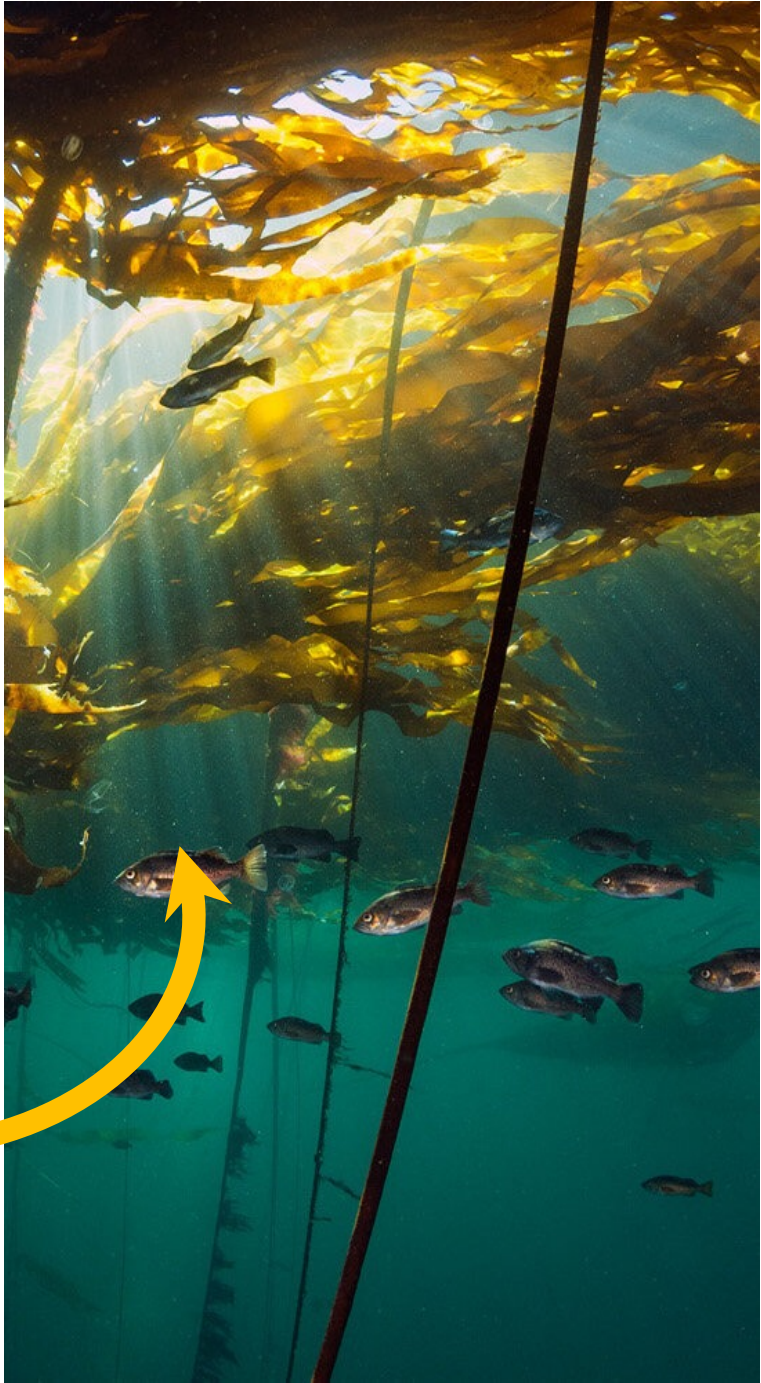
# Abalone Broodstock Program

Partnership with Kashia Band of Pomo and UC Davis

## PHASE 1

Feed starving adults

Create kelp oasis zones for reintroduction





# Abalone Broodstock Program

## PHASE 2

- Grow out juvenile abalone
- Outplant into restoration zones





# BLUE ECONOMY

The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

## RENEWABLE ENERGY

Sustainable marine energy can play a vital role in social and economic development.

## FISHERIES

Marine fisheries contribute more than **US\$270 billion** annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

## MARITIME TRANSPORT

Over **80%** of international goods traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

## TOURISM

Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than **41 million visitors** per year.

## CLIMATE CHANGE

The impacts of climate change on oceans—rising sea-levels, coastal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, **oceans are an important carbon sink** and help mitigate climate change.

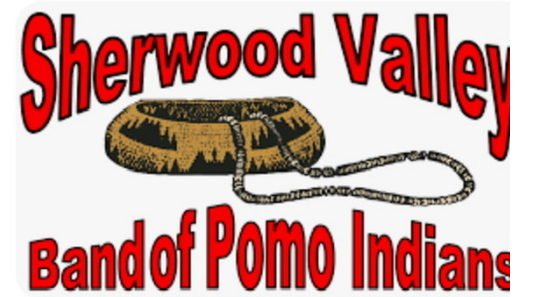
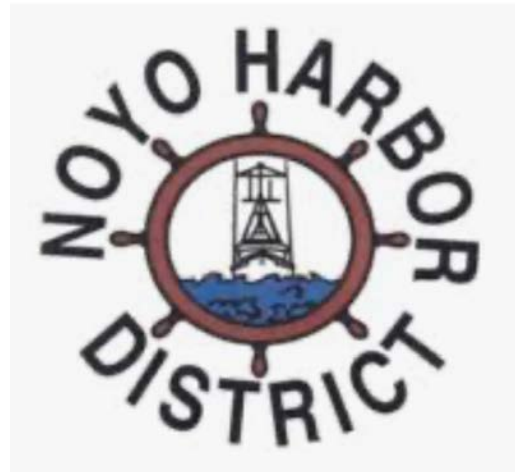
## WASTE MANAGEMENT

**80%** of litter in the ocean is from land-based sources. Better waste management on land can help oceans recover.





# NOYO OCEAN COLLECTIVE







## RIVER ASSESSMENT AND MONITORING

Collaboration with the City of FB and Noyo Harbor District will support Noyo's conservation aquaculture programs



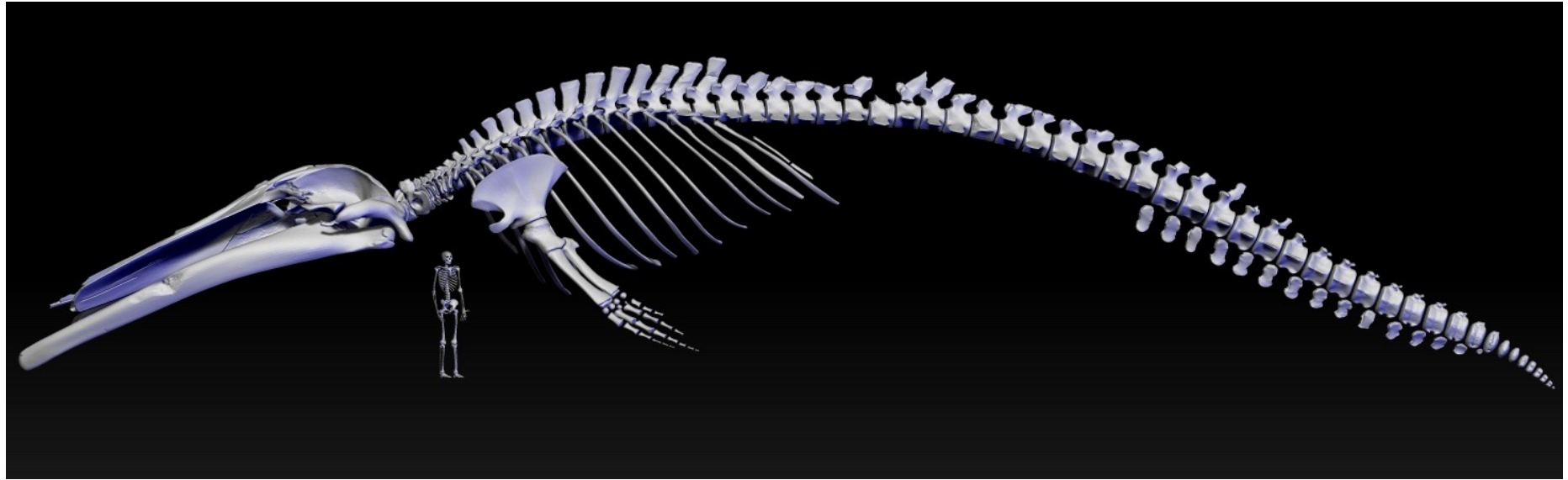
# Noyo Center for Marine Science

Ocean Science  
Center

A net-zero building  
supporting marine  
education and research



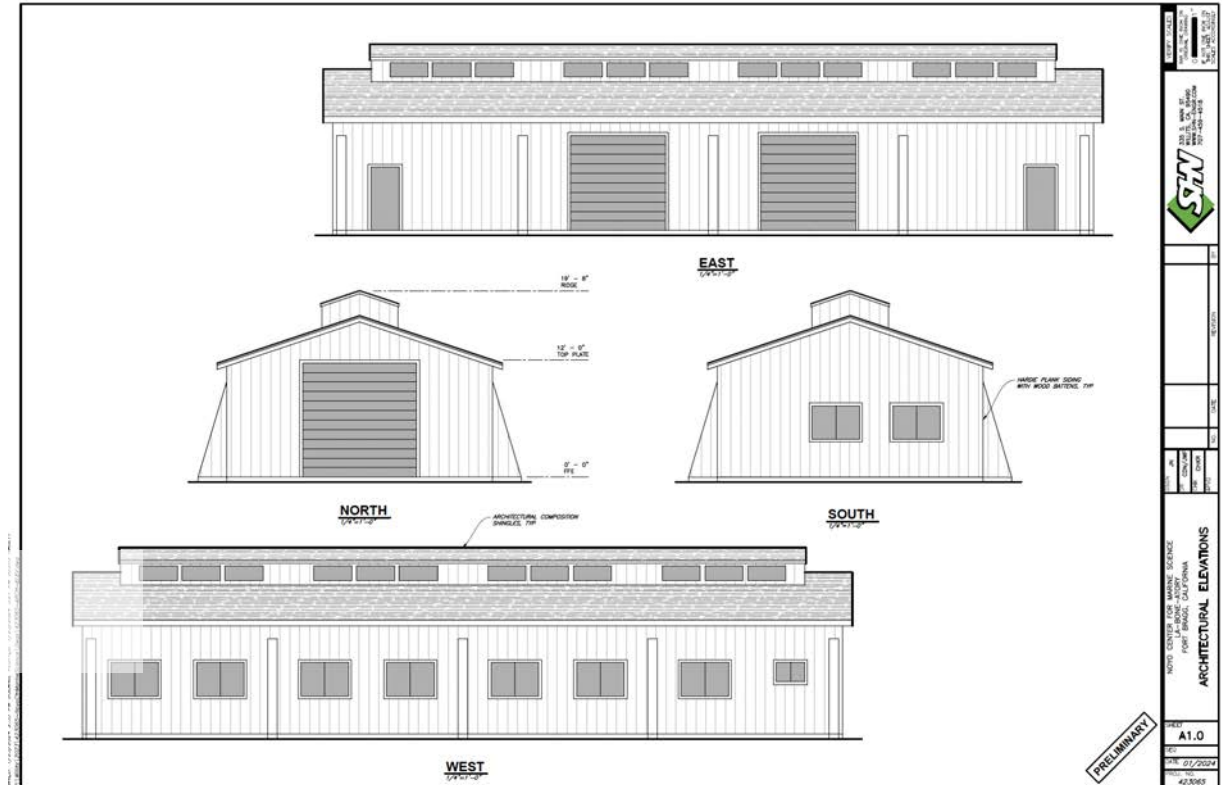




# La-BONE-atory

- Site work and plans with SHN
- Working with the City on CEQA and CDP
- Funding from CA Resources Agency and CA Coastal Conservancy

Hope to break ground in 2024!







# OCEAN SCIENCE CENTER

## EDA Funded Project

- 30% Design – EHDD Architects
- Blue Economy Feasibility Study and Operational Business Plan
- NEPA/CEQA Environmental Review



# Blue Economy Vision for OSC

- Blue-Green Jobs; Regenerative Development
- Research and Restoration; Climate Science
- BE Business Incubation
- Conservation Aquaculture
- STEM Education
- Coastal Tourism
- Ocean Exploration
- Clean Energy





# Property Boundary Adjustment

Objective: locate Ocean Science Center near end of the runway

- Cleared administrative issues with State Coastal Conservancy
- Record conservation easements over wetlands restoration area and establish connectivity with Noyo Headlands Park
- Next steps: survey new boundaries; prepare and record new grant deeds for Ocean Science Center and Noyo Headlands Park parcels





A photograph of a wooden building with a steep gable roof and large glass windows. A vibrant rainbow arches across the sky behind the building. The building has a sign above the entrance that reads "WELCOME TO THE CHOP'S BEST". There are several wooden barrels used as planters in front of the building. The background shows a grassy field and a body of water with a wind turbine in the distance.

# Thank You!

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