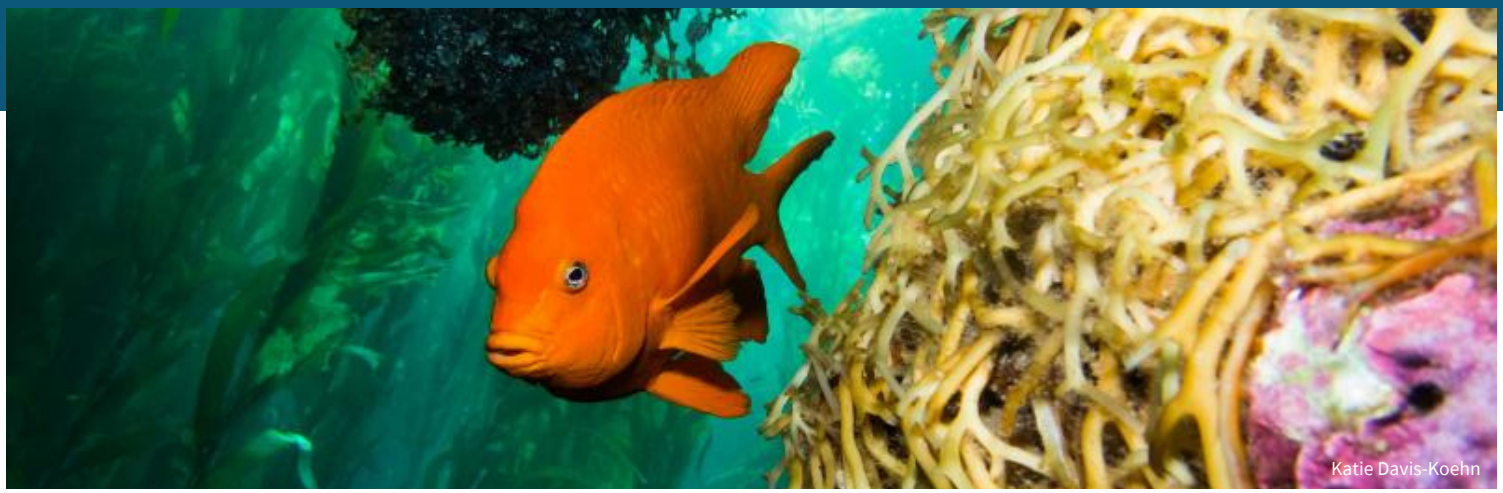
ECOSYSTEM SERVICES OBSERVATION NETWORK

A National Science Foundation Coastlines and People Project



This project aims to **conceptualize and design a framework to guide the establishment of an Ecosystem Services Observation Network** (ESON) along the central and southern California coast. This biological observing network will monitor coastal ecosystems and ecophysiological stressors to understand the changing condition of our coastal ocean and the services it provides to support ecosystem-based management.

Coastal ecosystems are changing due to climate change, pollution, and overfishing. California's fisheries, coastal tourism and recreation, and overall coastal community health depend on the well-being of marine ecosystems. While physical measurements, such as temperature, salinity, and oxygen, can be readily measured, there is no comprehensive network to understand how marine life is responding to these changes on faster timescales. Obtaining adequate spatial and temporal data is necessary to reveal regional and global shifts in marine communities.

By creating a comprehensive monitoring network and standardizing ecological measurements, new biophysical links, dynamics, and emergent stressors could be detected. These new insights will help build and validate models to forecast future ecosystem change, which will improve our capacity for science-based decision-making for resource management and mitigation efforts.

PROJECT OVERVIEW

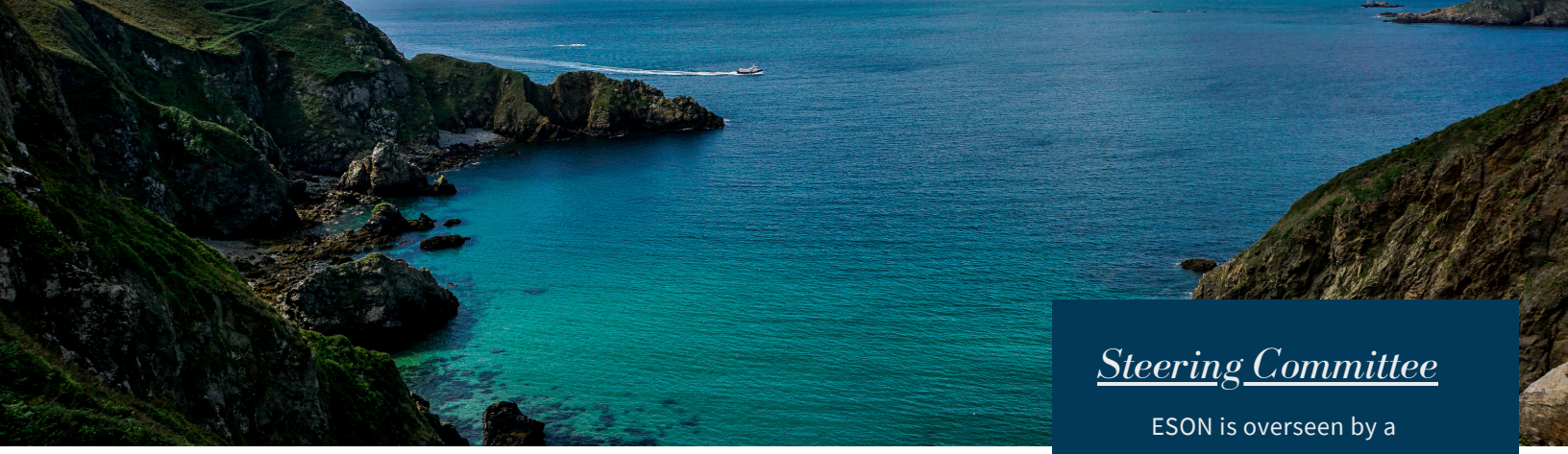
Overarching Question:
What is the condition of our coastal oceans and the services they provide?

Goal:
Design an integrated sensor network to monitor ecosystem health

Objectives:

- Determine key species and ecosystem functions to monitor that are sensitive to change
- Integrate and build upon existing monitoring networks and new technologies
- Host a workshop series to design ESON for central and southern California

For questions or more information, contact the ESON Committee Lead Bob Miller at ***rjmiller@ucsb.edu***



Through a workshop series, over the project's 3-year cycle, we are collaborating with a diverse network of marine scientists, modelers, and engineers from academia and industry in collaboration with stakeholders and managers to design ESON. These workshops will identify and prioritize ecosystem indicator variables, identify knowledge gaps, and ways to close those gaps with novel technology within 3 key domains: ***Biodiversity, Animal migration***, and ***Ecosystem function***. Each workshop may have additional smaller working groups to support the overall workshop goal.

Workshop 1

Hosted in June 2021, a diverse group met to distill their ecosystem monitoring needs and help articulate the societal need for ESON.

* A full report can be found on our website

Workshop 2

Hosted in February 2022, participants explored various technologies to monitor coastal ecosystem health in California.

Workshop 3

Create a sensor network spatial model for each variable and prioritize which models are the most impactful and efficient.

Workshop 4

Complete an end-to-end plan for ESON, scoping the infrastructure and funding requirements for the prioritized sensor network.

We hope that ESON will provide critical insight into the health of California's marine ecosystem. To learn more and stay up-to-date with the ESON activities, signup for our newsletter on our website and follow us on Instagram and Twitter.

Steering Committee

ESON is overseen by a multidisciplinary committee

Bob Miller, UCSB
Committee Lead

Erika Eliason, UCSB

Nick Nidzieko, UCSB

Clarissa Anderson, SCCOOS/ Scripps

Corey Garza, CSU Monterey Bay

Barbara Block, Stanford

@CA_ESON
http://eson.msi.ucsb.edu

For questions or more information, contact the ESON Committee Lead Bob Miller at ***rjmiller@ucsb.edu***