Topics at the nexus of climate change, fisheries, and blue foods

A webinar series highlighting the impact of climate change on fisheries, aquaculture, and the communities who depend on them

Oct 2025: Ecosystem modeling to inform resilient fisheries

Webinar date/time: Oct. 23, 11:00 am US East Coast (UTC-4)

Presentation 1: Spatiotemporal mapping of the Norwegian wrasse fishery suggests impacts on catch rates for multiple target species

Understanding the distribution and intensity of fishing activity is fundamental to assessing anthropogenic impacts on target species and surrounding ecosystems. Here, we present a method to integrate AIS and VMS data with catch statistics to map inter-annual fishing pressure in a small-scale fishery (SSF; vessels <12 m) across multiple spatial resolutions. We found that the Norwegian wrasse fishery experienced proportional declines in both fished area and reported catch (22% each) over the study period, and that spatial restrictions on fishing activity contributed to marked reductions in regional catch. Inter-annual catch per unit effort (CPUE) and catch per unit habitat for corkwing (Symphodus melops), goldsinny (Ctenolabrus rupestris), ballan wrasse (Labrus bergylta), and total combined catch generally increased at low catch rates but declined significantly at higher CPUE values. We discuss the limitations of integrating multi-source spatial datasets in SSF monitoring and offer recommendations for improving future spatially explicit models of fishing pressure.

Webinar Presenter: **Steven Guidos** is a PhD student at the Norwegian Institute for Nature Research (NINA) and the University of Bergen (Norway). His main focus is on the cascading impacts of fishing pressure within near-shore, marine communities in western Norway. Steven also aims to determine possible impacts of fisheries on terrestrial systems by studying dietary change in semi-aquatic predators related to fishing pressure.

Presentation 2: A Decade of Warming and Declining Productivity in the Gulf of California: Exploring the Drivers

The Gulf of California, Mexico, is a tropical-subtropical ecosystem boasting exceptional species diversity and a zooplankton standing stock surpassing many comparable marine environments. Its mesotrophic conditions drive high primary and secondary production, contributing to 60%–70% of Mexico's total fish catch. However, rising regional and local sea surface temperatures (SSTs) are sparking concern, with studies indicating a significant decline in mean chlorophyll concentration (Chl-a) over the past decade (2014–2024), threatening this marine system. The next step in the research is to identify the factors driving these changes. Since the region's primary productivity is largely influenced by wind-driven upwelling events, it is essential to focus on variables affecting wind strength and direction. These factors are likely key to understanding the underlying causes of the observed shifts.

Webinar Presenter: **Dr. Carlos Robinson** is a biologist who graduated from the Faculty of Sciences at UNAM and holds a Ph.D. from Bangor University, United Kingdom. Since 1994, he has been a researcher at the Institute of Marine Sciences and Limnology (ICML-UNAM), where he currently leads the Fisheries Ecology Laboratory. He served as Director of the ICML from 2019 to 2023. His scientific work has focused on the ecology of the epipelagic ecosystem of the Mexican Pacific and the Gulf of California, with specialization in hydroacoustics, fisheries ecology, and satellite data analysis for studying climate change and ocean productivity. He has participated in over 50 oceanographic research cruises aboard the R/V El Puma. Dr.

Robinson is the coordinator of the project “Resilience of the Gulf of California under a Persistent Anomalous Warm and Low-Productivity Regime”, endorsed by the United Nations as part of the Decade of Ocean Science for Sustainable Development (2020–2031). He has completed sabbatical stays at institutions in the United Kingdom, the United States, and Germany, and is currently applying artificial intelligence to the analysis of multidecadal datasets from the Gulf of California. He is the author of 65 peer-reviewed scientific articles, book chapters, and outreach publications.

This webinar series is jointly hosted by the UN Ocean Decade Programs Blue Food Futures, Fisheries Strategies for Changing Oceans and Resilient Ecosystems (FishSCORE), Sustainability, Predictability, and Resilience of Marine Ecosystems (SUPREME), Sustainability of Marine Ecosystems through Global Knowledge Networks (SmartNet), and Fisheries and Marine Ecosystem Model Intercomparison Project (FishMIP) and endorsed project Basin Scale Events to Coastal Impacts (BECI). This webinar series highlights current efforts and challenges at the climate-fisheries nexus. Presentations and discussions will range from data-driven efforts to better understand oceanographic and biological changes affecting fisheries, to how the results can be used to inform fisheries management, aquaculture, and sustainable food decisions, to the many ways people and broader communities are being impacted by and adapting to changes in marine ecosystems and marine resource use.