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

June 25, 2025: Knowledge and Data to Support Fisheries and Ocean Management

Presentation 1: Future Seas III: Ensuring resilience and adaptive capacity of California Current System fisheries under climate-driven ecosystem shifts

The Future Seas project is a collaborative effort to understand past and future climate impacts on the California Current marine ecosystem, fisheries, and fishing communities. Previous phases of Future Seas focused on understanding changing ocean physics, biogeochemistry, and species distributions for species such as swordfish, tunas, sardines and anchovies. Additional work investigated how these changes will affect fish population dynamics, predator dynamics, and fishing fleets operating out of major West Coast ports. Recent and ongoing work within Future Seas continues to refine these areas of research, while further testing for harvest, monitoring, and stock assessment strategies that are robust to climate. Finally, we are incorporating new data and expertise to quantify past and present adaptive fishing behavior and management options that increase resilience of fleets and communities. Future Seas is supported by NOAA's Climate and Fisheries Adaptation program, and includes team members from NOAA Fisheries, University of California Santa Cruz, and additional partners.

Webinar Presenter: **Isaac Kaplan** is a Research Fishery Biologist at NOAA's Northwest Fisheries Science Center in Seattle, Washington. He is a member of the Conservation Biology Division and the Ecosystem Science Program. His research focuses on the development of ecosystem models that simulate food webs, fisheries, and oceanography. With Mercedes Pozo Buil, Desiree Tommasi, and Barbara Muhling, he is a co-PI on the Future Seas project that he'll highlight today. Isaac received his PhD from University of Wisconsin-Madison in 2005.

Presentation 2: Northeast Climate Integrated Modeling (NCLIM)

The Northeast U.S. shelf ecosystem is a complex, rapidly changing region that supports a wide array of living marine resources and resource-dependent human communities. Commercial and recreational fisheries are key contributors to the economy of the region, contributing billions in economic value and generating hundreds of thousands of job opportunities. This economic productivity is threatened by the rapid changes underway in this ecosystem, and the limited use of climate data in the assessment and management process amplifies the challenges facing the fishing industry and the communities that rely on it. Due to the rapid pace of change in the region, there is a critical need to develop and apply science knowledge and tools that can help support decision-making in our fisheries. The Northeast Climate Integrated Modeling Initiative (NCLIM) is a multi-institutional, multi-disciplinary collaboration focused on applying climate integrated modeling to improve fishery resource decision making in a changing Northeast U.S. shelf ecosystem. The NCLIM team has identified on-ramps for climate information to move into management and applied climate-integrated modeling to inform real-world fisheries decision challenges.

Webinar Presenter: **Lisa Kerr** leads research that informs sustainable management of marine fisheries and ecosystems. Her current work is focused on integrating climate information into fishery stock assessment and management to support climate resilience of fisheries and ecosystems. She is particularly motivated to understand the role complex population structure and connectivity play in the productivity and stability of local and regional populations. Lisa employs a diverse skill set to address critical ecological questions that

are also directly applicable to fisheries management. Her expertise includes structural analysis of fish hard parts (e.g. otoliths, vertebrae) and the application of the chemical methods (stable isotope, radioisotope, and trace element analysis) to these structures. She also uses mathematical modeling as a tool to understand how biocomplexity within fish stocks (e.g., spatial structure, connectivity, life cycle diversity) impacts their response to natural climatic oscillations, climate change, fishing, and management measures. Lisa teaches undergraduate and graduate courses in fisheries science.

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.