

Coastal Fishing Communities Project

Update on Efforts Related to Staff Recommendation #10

November 4, 2020

Recommendation: Continue to develop an understanding of climate change impacts on coastal fisheries and coastal fishing communities.

Overview: Science is still evolving regarding how fish populations and fisheries are affected by and respond to changing climate dynamics, including short-term, extreme ocean events. Developing successful fisheries management response strategies that meet both biological and socioeconomic needs is still nascent. Increased understanding of what is often referred to as “climate-responsive fisheries management” or adaptable management structures is needed.

Progress by Focal Area

Commission and Department Initiatives

- *Science Institute:* The Department’s Science Institute has [ongoing research and education projects relevant to climate change and management](#), including the [Climate College initiative](#), which could serve as resources to MRC and the Commission. The [2014 Climate College](#) focused on marine resources, and therefore may be particularly relevant.
- *Master plan:* Chapter 11 of the 2018 [master plan for fisheries](#) recommends conducting community vulnerability assessments to improve management of fisheries vulnerable to climate change, and would require building a community-specific understanding of climate impacts.
- *Urchins:* The Commission and Department have begun to undertake projects relevant to climate effects on marine resources, which will require information gathering. An example is the recent proposals for sea urchin removal as a management strategy for combating loss of kelp, a biogenic habitat; kelp loss has resulted from climate-driven ocean conditions exacerbated by abundant sea urchin populations.

Collaborations and Partner Efforts

- *Climate effects assessment:* Section 3.2 of [California’s Coast and Ocean Summary Report](#), from California’s Fourth Climate Change Assessment conducted in 2018, contains an in-depth overview of the known science surrounding fisheries and climate change in the state. The report includes summaries of scientific literature and case studies on specific effects of climate change that have already begun to affect California’s fisheries and fishing communities. Commission staff served on the advisory group for this effort.

Relevant External Actions and Models

- *California Ocean Science Trust (OST):* OST’s 2017 guidance document, [Readying California’s Fisheries for Climate Change](#), provides a high-level overview of climate

change impacts on state-managed fisheries, with recommended management approaches to guide preparations for managing fisheries impacted by climate change. The recommendations include many provisions for increasing understanding of climate change impacts.

- *California Sea Grant*: The goals of California Sea Grant's [2018-2021 strategic plan](#) include supporting ongoing research on fisheries relevant to climate and communities. Commission staff have previously worked with Sea Grant's extension staff on other parts of this fisheries research and the Commission may wish to pursue this collaboration further.
- *California Ocean Protection Council (OPC)*: The recently-released [OPC strategic plan for 2020-2025](#) includes objectives and targets relevant to building a better understanding of climate change, including research funding, reflecting alignment between goals of OPC and this Commission staff recommendation. For example, Objective 1.3 is to "Improve Understanding of Climate Impacts on California's Coast and Ocean", with an underlying target, 1.3.1, to "Identify and continue to fund and house needed climate-related data collection, research, and dissemination...".
- *Grants for vulnerability assessments*: The California Natural Resources Agency's [Safeguarding California Plan 2018](#) includes grants for community-based climate vulnerability assessments (CVAs) and, specifically, CVAs on marine fisheries and related socioeconomic groups, and integration of assessments into management and outreach to marine resource users.
- *Federal assessments*: The National Marine Fisheries Service (NMFS) is conducting [CVAs](#) on a species, system, and community basis. A Pacific Salmon CVA has been completed; a West Coast Fish Stock CVA and a Pacific Marine Mammal CVA are also in progress. These CVAs will build our understanding of how specific fisheries upon which communities depend may be impacted. A fishing community CVA for the eastern and gulf coasts of the U.S. provides a model for how fishing community social vulnerability can be assessed.
- *Federal tools*: PFMC held a January 2020 workshop in conjunction with The Nature Conservancy as a part of the [Climate and Communities Initiative](#), which detailed a set of climate scenarios and potential fishery impacts that could be used in conversations with fishermen in community resilience planning. These scenarios could be used in building our understanding of impacts.
- *Climate-specific tools*: The U.S. Climate Resilience Toolkit is an inter-agency initiative designed to help people find tools and expertise for building climate resilience. The [Fisheries and Coastal Communities page](#) provides an overview of potential climate impacts to coastal fishing communities in the U.S., links to case studies of fishing communities adapting, and an example strategy for communities responding to change. These tools can help local communities define needs and strategies for adaptive management and could help build our understanding of future impacts.
- *International symposium*: The 4th International Symposium on the Effects of Climate Change on the World's Oceans, held in 2018, included an exploration of climate-

induced changes impacting fisheries across the U.S. and internationally. Select sessions focused on approaches to [climate resiliency in fisheries management](#), which can be found in [Volume 76, issue five of the ICES journal of marine sciences](#). This wealth of global expertise could serve to inform local understanding of climate change impacts.

Potential Next Steps

Reach out to the research community to build a better understanding of available and ongoing research on climate change and marine fishing communities, and reach out to fishing community members to learn from their observations. As more is understood about climate change impacts on ocean ecosystems and fisheries in particular, adapt the strategies for the other SRs.

Linkages to Other Staff Recommendations

This recommendation could potentially tie into all other recommendations (SRs 1-9), as increasing our understanding of climate change impacts would inform priorities for implementing other recommendations.