

## **THE ROLE OF SOCIOECONOMIC DATA IN DESIGNING AND EVALUATING MPA NETWORKS—CALIFORNIA'S MARINE LIFE PROTECTION ACT PROCESS**

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Commercial and recreational fisheries support coastal communities and economies the world over; they are pursued by vessels of all shapes and sizes, which use a variety of gear types and fishing strategies and cover a large part of the coastal ocean. In general, this spatial extent of fishing activities is relatively poorly understood. U.S. state and federal agencies collect a variety of data to monitor and enforce fisheries and set harvest allocations; however, the thematic, temporal and spatial resolution of these data sets varies considerably. Clearly, basing management decisions on the spatial information contained in these existing data sources is undesirable.

The alternative, then, is to collect new information about the spatial extent of fishing activities. In the absence of comprehensive observer coverage, vessel monitoring systems or other fishery-independent data collection devices, by far the best source of information about commercial and recreational fishing grounds is the fishing fleet itself. To that end, we built on existing approaches to collect and analyze fishermen's expert knowledge on their fishing grounds and operations with two goals: 1) to provide spatially explicit socioeconomic information to the California MLPA process and 2) to develop standardized, transferable and broadly applicable methods and tools for collecting spatially explicit socioeconomic data and integrate them into marine protected area (MPA) planning processes.

To that end, we use data layers characterizing the spatial extent and relative stated importance of fishing grounds created from local knowledge interviews with fishermen. This study focuses on work done in the North Central Coast Study Region, where data were collected for eight commercial and four recreational fisheries. This information was collected from 275 fishermen using a participatory GIS application, Open OceanMap. These data were then used to evaluate the potential impacts on commercial and recreational fishing grounds and conduct a socioeconomic impact analysis on commercial fisheries in order to assess the relative effects of the various MPA proposals.

We discuss how the results of these analyses were used in the evaluation of multiple rounds of MPA proposals and, more specifically, how various MPAs may have different effects on different fisheries. We also briefly highlight what the evaluation process could have looked like in the absence of local knowledge interviews and the related analyses.

Finally, we report on methodological innovations, lessons learned and reflect on future modifications to the development and use of socioeconomic data in other MPA planning processes.

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