



Statewide Expansion of the California Collaborative Fisheries Research Program

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Objectives

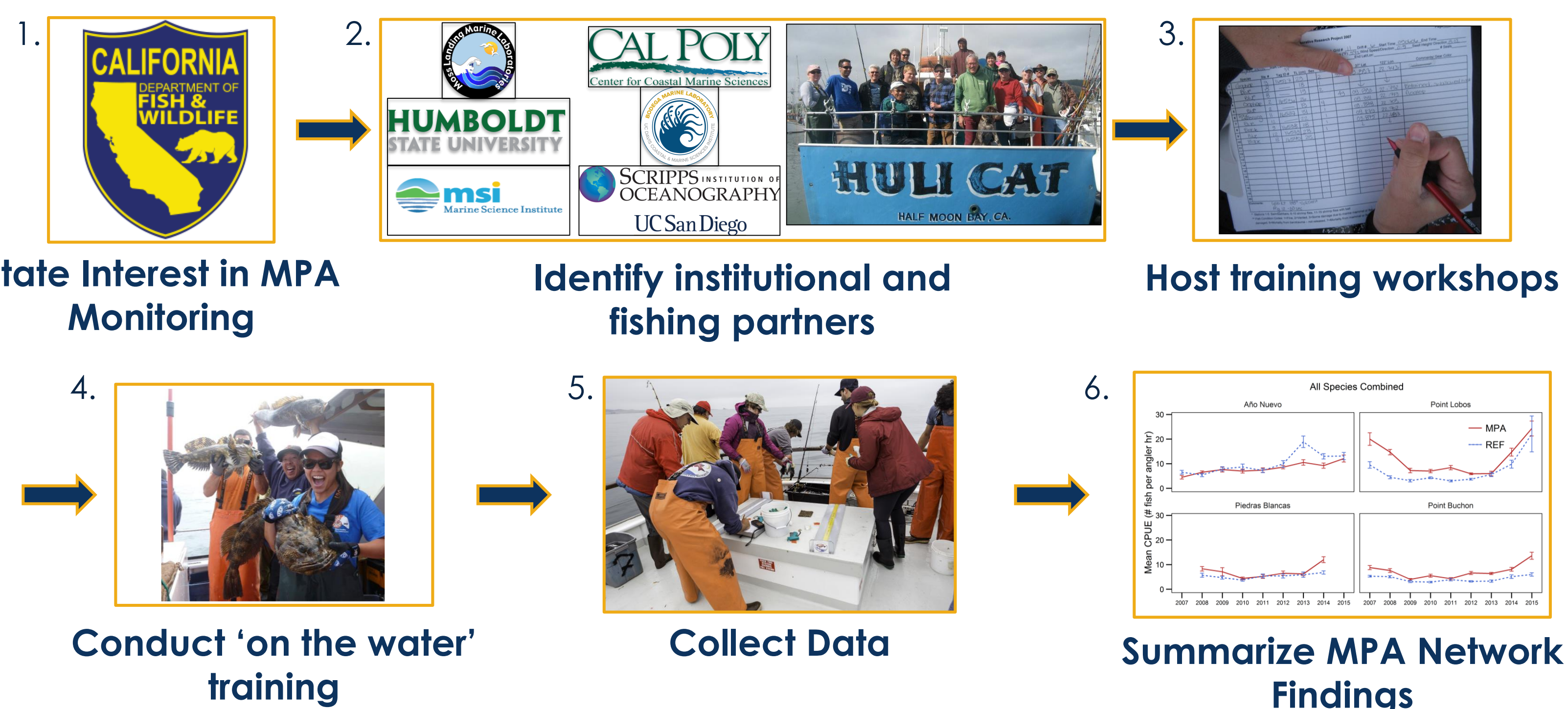
To establish a Statewide collaborative hook and line MPA monitoring program through institutional partnerships to:

1. Provide data to resource management agencies about California's nearshore groundfish species
2. Engage California's fishing communities in generating a long-term data set for use in stock assessments and monitoring the effectiveness of California's MPAs
3. Use these data to assess the impact of changing ocean conditions on fish stocks and fishing communities
4. Build collaborative partnerships among fishers, scientists, and resource managers

Expansion Process

Statewide CCFRP

From 2007 to 2016, CCFRP scientists at Moss Landing Marine Laboratories (MLML) and Cal Poly worked with volunteer anglers and the commercial passenger fishing vessel fleet (CPFV) to collect fisheries-independent data from central California. In 2017, MLML and Cal Poly partnered with four additional academic institutions to expand the CCFRP monitoring effort to include four of the California CDFW management regions. The expansion from a regional MPA monitoring effort to a statewide effort involved the following steps:



Methods

The study design utilized a random stratified sampling design incorporating standardized hook and line methods aboard CPFVs. Sample areas (e.g., Point Lobos) were divided into adjacent MPA and reference (REF) sites, further divided into 500 m x 500 m grid cells. Four grid cells were randomly sampled at a site during a survey day. CPFV captains picked three separate spots to fish in each grid cell (drifts) and volunteer anglers fished for 15 minutes during each of these three drifts. Individual fish were identified to the lowest taxonomic category, measured, tagged (when appropriate), and released (Photos 1 – 3).



Photo 1. Volunteer angler using standardized fishing gear to catch nearshore species at Point Buchon.



Photo 2. Devices used to descend fish with barotrauma: A. Weighted crate, B. SeaQualizer - releases fish at a set depth.



Photo 3. Tagging fishes: A. science crew tagging an Olive Rockfish and recording the species, length, physical condition, and the latitude and longitude of where the fish was caught. B. tagged Canary Rockfish.

Acknowledgements

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Results & Conclusions

➤ Species compositions differed along a latitudinal gradient in California.

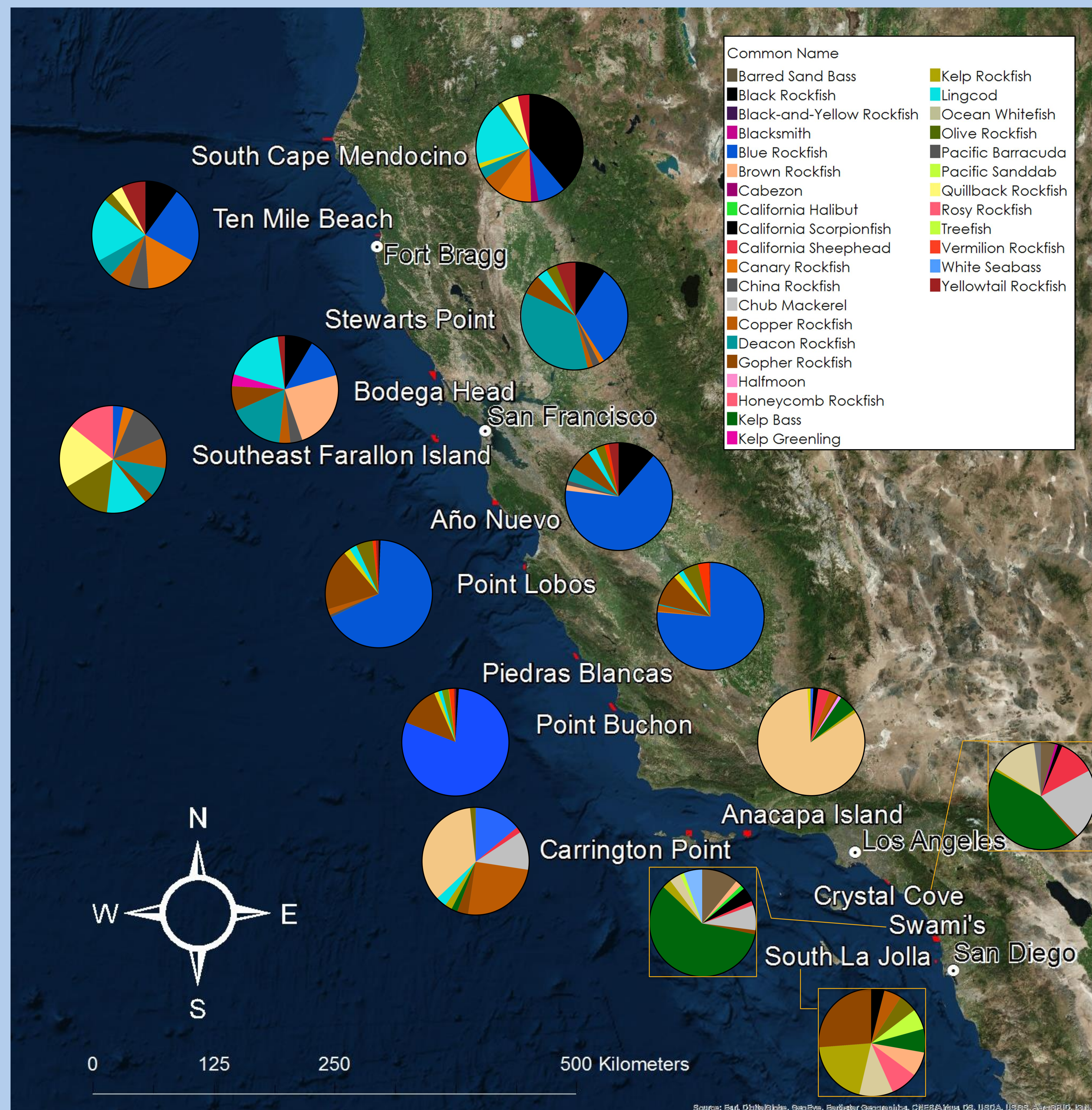
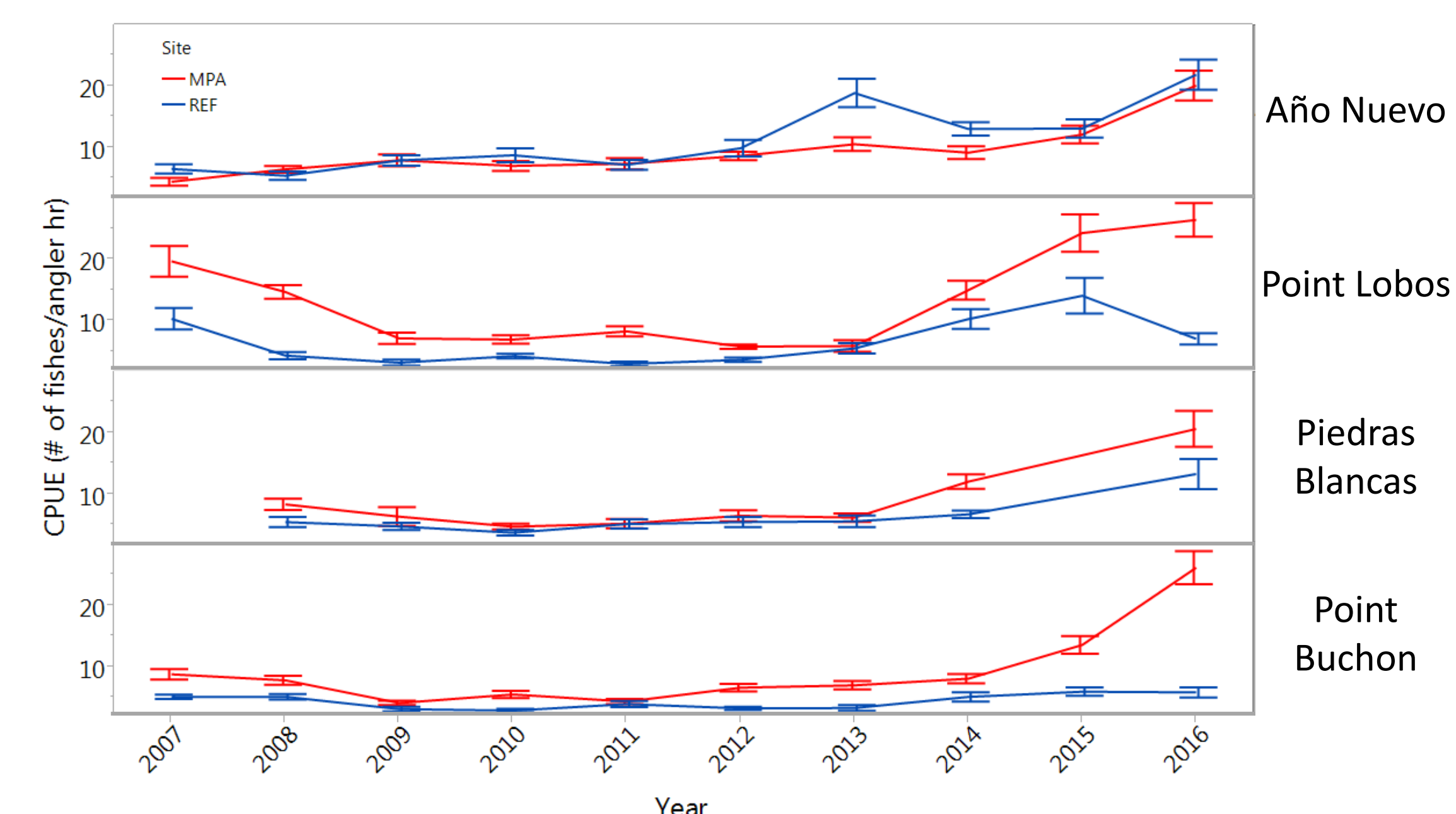


Figure 1. A map showing CCFRP sampling areas and the percent composition of the 10 most frequently caught species from 2017 for each area. The percent composition charts include data from both MPA and REF sites.

A Decade of MPA Monitoring in Central California

2007 – 2016

- Long-term hook and line data collected from a statewide MPA monitoring program can be used to assess the performance of MPAs relative to open fishing areas
- CCFRP data may be able to detect the effects of changing ocean conditions and other long-term environmental perturbations to nearshore groundfish populations
- Differential responses between MPA and reference areas suggest that the performance of a single MPA should not be used as a proxy for other MPAs in the same region



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