Marine Protected Area Long-term Monitoring Program

Assessment of Rocky Intertidal Habitats

across California's MPA Network

Photo: Sandra Fogg

MPA Monitoring

California's Marine Protected Area (MPA) Network is approaching its first-ever 10-year review. California will lean heavily on its MPA monitoring program to show progress towards meeting the goals of the Marine Life Protection Act, the founding legislation of the MPA Network. Researchers and community scientists have been tracking California's marine ecosystems since MPA implementation, in some cases as far back as 2007. Learn more about this MPA monitoring program below and read the full technical report on California Sea Grant's website.

Program Overview

While California's rocky intertidal habitats are rare, they are found statewide and are highly important when considering biodiversity, and recreational, cultural, and economic value. However, being located at the land-sea interface makes them very vulnerable to impacts from urban development and climate change. The data collected through this project show population, community, and species distribution changes that point to the effects the MPA Network may have in intertidal habitats across the state. The team also developed web-based tools available for free online to share data with other researchers, resource managers, and the public.

Partner Institutions

UC Santa Cruz, UC Irvine, Cal Poly Pomona, CSU Fullerton, UC Los Angeles, UC Santa Barbara, National Park Service, Long-term Monitoring Program and Experimental Training for Students (LiMPETS), Multi-Agency Rocky Intertidal Network (MARINe)

Access all of California's MPA data: California MPA Monitoring Portal.

Photo: MARINe

Program Highlights: 2004-2020

161
MPA and reference sites surveyed

295
biodiversity surveys conducted

1,562
surveys conducted as part of long-term monitoring

1,066
surveys focused on abalone due to concern for the species

412
species sampled in intertidal surveys

CALIFORNIA MARINE PROTECTED AREAS

Sea Grant California

Key Findings from MPA Monitoring

Rocky Intertidal Habitats

1 Positive Responses

Across all regions, more species responded **positively** to **MPA implementation** relative to unprotected sites. Other than a few species that are commonly harvested (e.g., abalone and limpets) there are no clear species-specific predictions relating to regulatory protection. However, results showed that invertebrate communities were **more species rich and diverse in MPAs** than reference sites.

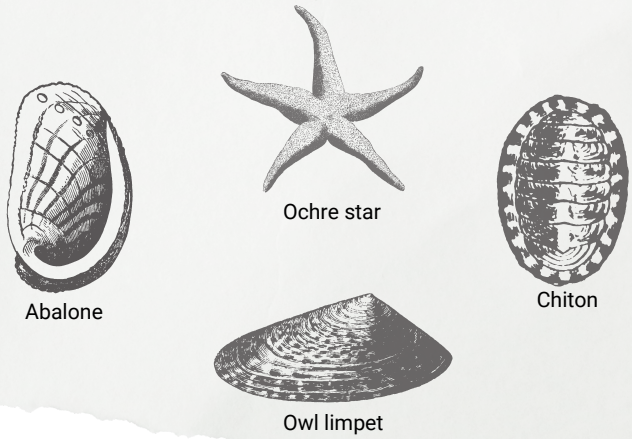
2 Resilient Species & Communities

For both individual species and communities, MPAs **may provide climate resilience**. Results show that intertidal zones were more resilient to the 2014-2015 marine heatwave in MPAs than unprotected reference sites, especially in the Central and South Coast regions. At individual species levels, some **species responded positively inside MPAs** relative to reference sites following the marine heatwave, but it is important to note other considerations can influence these results.

Photo: Burnaford

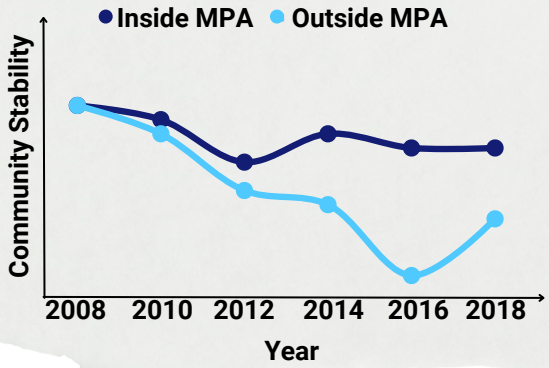
3 Bigger Invertebrates

The average size of invertebrates had varied results since MPA implementation. While red abalone, black abalone, and chitons grew **bigger** both inside and outside of MPAs, the **magnitude of change** was **bigger in MPAs** than in unprotected areas. Meanwhile, owl limpets and ochre stars decreased in size both inside and outside of MPAs.



4 More Stable Communities

Results showed more **stable** communities in Central Coast MPAs after a **heatwave**. Ecologically connected MPAs were **more stable** through the **marine heatwave**. Researchers found that during and after the heatwave **increasing connectivity** was associated with **increasing community stability** in the Central Coast region.



For more information about MPA long-term monitoring and the Decadal Management Review, please visit:

- Rocky Intertidal Habitats technical report
- California Sea Grant website to access all 7 MPA long-term technical reports
- CDFW's MPA Decadal Management Review webpage