



Rocky Intertidal

IMPORTANCE

Some of the best examples of rocky intertidal habitat in southern California occur at parks in the Mediterranean Coast Network. The rocky intertidal zone is an area between marine and terrestrial habitats where organisms living within this zone are well adapted to alternating exposures to both the air and sea. The “undisturbed tidepools” are unique features specifically mentioned in the enabling legislation establishing Channel Islands National Park.

Despite the intertidal community’s resistance to the drying sun and pounding surf, it is vulnerable to impacts caused by humans. The diversity of species offers visitors a chance to experience a relatively pristine intertidal marine community. Cabrillo National Monument in San Diego hosts tens of thousands of visitors to the tidepools each year. However, visitors can cause damage through trampling, rock turning, or removal of organisms. Pollution is also a major threat to intertidal organisms, being particularly vulnerable to major oil spills.

Because the rocky intertidal community is a major significant ecosystem on the islands and is susceptible to human-caused disturbances, Channel Islands National Park began long-term monitoring of the rocky intertidal zone in 1982 and Cabrillo National Monument began monitoring in 1990.

OBJECTIVES

- Determine the long-term trends in percent cover of thirteen key sessile organisms in the rocky intertidal ecosystem
- Determine population dynamics of black abalone (*Haliotis cracherodii*), owl limpets (*Lottia gigantea*), and ochre sea stars (*Pisaster ochraceus*)



Channel Islands National Park began monitoring rocky intertidal habitat in 1982; Cabrillo National Monument began in 1990.



Channel Islands National Park and Cabrillo National Monument are home to some of the most pristine rocky intertidal habitat in southern California.

MONITORING EFFORTS

Twenty-one sites on five islands are monitored twice each year by park researchers.

- Fixed photoplots and point-intercept transects are used to monitor the percent cover of core species
- Circular plots and timed searches are used to collect information on size distribution and relative abundance of owl limpets, black abalone and ochre sea stars
- Data are submitted to the Multi-Agency Rocky Intertidal Network (MARINe), a regional consortium of government and non-government entities established to standardize the collection of rocky intertidal data throughout the Pacific coast

MANAGEMENT IMPLICATIONS

- Results from monitoring are used to improve our understanding of rocky intertidal zone ecosystems, identify seasonal patterns to inform management decisions concerning visitor use, identify marine ecosystem issues (*i.e.* disease, effects of climate change, fishery impacts), and inform regional assessments of sensitive species status.
- Monitoring has confirmed depletion of several marine populations and supported management actions including the closure of black abalone fishery in southern California.
- Monitoring showed the dramatic effects El Niño could have on ochre sea stars and mussels (*Mytilus californianus*).

For more information:

Dan Richards, dan_richards@nps.gov
Benjamin Pister, benjamin_pister@nps.gov