summary: first 5 years of monitoring

Monitoring of marine protected areas (MPAs) is essential for resource managers, scientists, and the public to understand the effects of MPAs on the ocean ecosystem and human society. The California Fish and Game Commission intends to review monitoring data from the Channel Islands MPAs every 5 years and may adjust management based on the findings. The information also will be used for scientific research, education, and public outreach.

Results Show Positive Ecological Effects of Reserves

Many species of fish and invertebrates targeted by fishing outside reserves are bigger and more abundant inside no-take reserves, while non-targeted species' abundances are essentially equal. Marine reserves have greater biodiversity and greater fish biomass than fished areas nearby. Studies of fish movement suggest that even wide-ranging species can benefit from the Channel Islands reserves and that some individuals move from reserves to fished areas. These results show that the Channel Islands reserves and other protected areas may contribute to the goals of protecting and promoting healthy ecosystems.

Monitoring Is Revealing Socioeconomic Changes

The number of boats seen at the Channel Islands has stayed approximately the same, but the boats go to different places. Fishing boats no longer go to the now-protected areas, while more sailboats are observed in those areas. Since MPAs were established, some commercial fisheries (rock crab, spiny lobster, market squid, and red urchin) have grown in value at the Channel Islands, while others (sea cucumber, California sheephead, and rockfish) have declined. Many of these changes also occurred throughout southern California, suggesting that the causes are due to factors other than MPAs. Detailed studies of the lobster fishery suggest some changes in number of fishermen and catch may be linked to the MPAs. The number of party boat trips for recreational fishing has remained fairly constant since MPAs were established.

Will Changes Due to MPAs Continue for Decades?

Initial findings from ecological monitoring at the Channel Islands are consistent with expected outcomes. Studies from MPAs elsewhere indicate that ecological changes still can occur even 30 years or more after an area is protected. Some benefits of protection may not be detected within the first 5 years because many species grow slowly and successful reproduction may be infrequent. Similarly, social and economic changes related to MPAs can take far longer than 5 years to achieve stable results. Long-term ecological and socioeconomic monitoring at the Channel Islands helps managers make informed decisions about how to sustain ocean life and socioeconomic values.

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additional resources

California Department of Fish and Game, Partnership for Interdisciplinary Studies of Coastal Oceans, Channel Islands National Marine Sanctuary and Channel Islands National Park. 2008. Special Session: The First Five Years of Monitoring the Channel Islands Marine Protected Area Network. February 7-8, 2008. Oxnard, CA. www.dfg.ca.gov/marine

Biological Monitoring

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Socioeconomic Monitoring

Leeworthy, V. R., and P. C. Wiley. 2002. Socioeconomic Impact Analysis of Marine Reserve Alternatives for the Channel Islands National Marine Sanctuary. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service Special Projects, Silver Spring, Maryland. April 29, 2002. 118 pages.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). 2003. Socioeconomic Research and Monitoring Recommendations for Marine Protected Areas in the Channel Islands National Marine Sanctuary. NOAA, National Ocean Service, Special Projects, Silver Spring, Maryland. July 2003. 101 pages.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). National Marine Sanctuary Program. 2007. Channel Islands National Marine Sanctuary Social Science Plan (2007–2010): Socioeconomic Research & Monitoring of Marine Reserves and Conservation Areas. Silver Spring, Maryland. 45 pages.

General Information about Monitoring MPAs

Lester, S.E., B.S. Halpern, K. Grorud-Colvert, J. Lubchenco, B.I. Ruttenberg, S.D. Gaines, S. Airamé, and R.R. Warner. In review. Biological effects within no-take marine reserves: a global synthesis.

Partnership for Interdisciplinary Studies of Coastal Oceans. 2007. The Science of Marine Reserves (2nd Edition). www.piscoweb.org. 22 pages.

Pomeroy, R.S., J.E. Parks, and L.M. Watson. 2004. How Is Your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Areas Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK. xvi + 216 pages. http://effectivempa.noaa.gov

Web Tools

The **California Department of Fish and Game** hosts a comprehensive website with detailed maps, descriptions, regulations, and boundary coordinates for the Channel Islands MPAs and all other state MPAs. www.dfg.ca.gov/marine

The **Channel Islands National Marine Sanctuary** provides information about MPAs on their website. http://channelislands.noaa.gov

NOAA's **National Marine Protected Areas Center** hosts a comprehensive website with information about MPAs in the United States, science and analysis of MPAs, a virtual library, and other educational materials about MPAs. www.mpa.gov

The **PISCO Subtidal Community Survey Map** provides online access to data on fish, invertebrates, and seaweeds observed during scuba surveys. The data are searchable by location, time, and species. Summary data and charts are provided for sites in southern and central California. www.piscoweb.org/research