

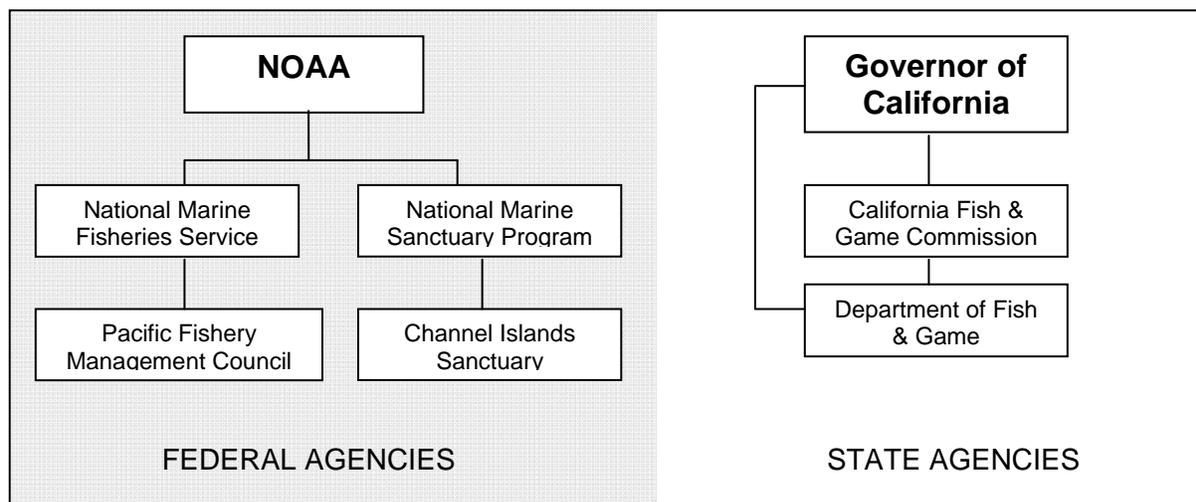
California's Channel Islands: Establishing Marine Protected Area Networks¹

Introduction

San Miguel, Santa Rosa, Santa Barbara, Santa Cruz and Anacapa Islands are the northern Channel Islands, located off the coast of southern California.² The Channel Islands are home to one of the largest marine protected area networks in U.S. waters, covering 320 square miles. The creation of this network was the result of an eight-year public process and a coordinated effort between the federal National Oceanic and Atmospheric Administration (NOAA) and the state of California.

Political Jurisdictions

The Channel Islands are an area with overlapping oceanographic regimes and political jurisdictions, as outlined in the figure below. In the U.S., a state generally has authority over the submerged lands and waters out to three nautical miles from shore. The area from three to 200 nautical miles out falls in the jurisdiction of the federal government. There are some exceptions to the three mile rule, for example, fish that swim across state lines may be managed by a federal fishery management council in both state and federal waters. The Channel Islands were also designated a National Marine Sanctuary in 1980, which applies to the waters out to six miles from shore around the islands. Although the Sanctuary Program and the Fisheries Service both reside in NOAA, the two offices have very different mandates.



¹ Case study prepared by Kate Wing & Melanie Nakagawa, February 15, 2008.

² A map of the islands, including the MPA boundaries, is included at the end of this case study.

The Public Stakeholder Process

In 1998, the California Fish and Game Commission received a petition to establish no-take marine reserves in 10% of the shore waters around the Channel Islands. The petition was submitted by the Channel Islands Marine Resources Restoration Committee, a non-profit sportfishing group led by Jim Donlon, a local, legendary sport fisherman. At this time the Channel Islands National Marine Sanctuary (“the Sanctuary”) was about to begin a process to revise their management plan with the participation of their Sanctuary Advisory Council, a constituent group that advises the sanctuary manager. The sanctuary manager urged the Commission to consider a joint effort between the federal sanctuary and the state Fish and Game Commission.

In 1999, the Commission approved a joint state-federal process to consider the designation of marine reserves in the Channel Islands National Marine Sanctuary. The Sanctuary Advisory Council developed a list of public stakeholder categories and invited nominations. They selected 17 members for the panel, called the Marine Reserve Working Group (MRWG), co-chaired by the federal Sanctuary manager and the director of the state Department of Fish and Game’s marine region. The MRWG members included representatives from sport and commercial fishing, diving, tourism, environmental groups, education, and science. The Sanctuary Advisory Council sought to have relative parity between members representing consumptive and non-consumptive interests on the MRWG. The MRWG was charged with providing a consensus recommendation to the Sanctuary Advisory Council. Members of the MRWG also agreed to consider only no-take marine reserves and not other types of MPAs, in part because fishermen did not want to favor one fishery over another.

While the stakeholder process was initially projected to last one year, the MRWG ultimately held 24 meetings over a two-year period as well as four major public forums, each attended by 2-300 members of the public. A federal facilitator was hired, and at the request of fishing representatives, an additional “local” facilitator was added. If any MRWG member strongly opposed a particular action, they were required to propose an alternative action that they honestly believed could be supported by a majority of the stakeholder group. While this was not always successful, it did result in a number of creative proposals; over forty different potential marine reserve networks were considered by the group.

Scientific and Socioeconomic Technical Support

The Sanctuary Advisory Council also convened a sixteen member Scientific Advisory Panel to assist the MRWG by evaluating ecological and physical data and providing advice on marine reserve design. The Scientific Advisory Panel members were selected to provide local knowledge, a breadth of disciplines, and geographic and institutional balance. Because of fishermen’s concerns about ‘bias’, the Sanctuary

Advisory Council excluded any scientists who had published papers on marine reserves.

A five member Socioeconomic Panel evaluated existing studies, records of catch from commercial and recreational industries in the region and gathered new economic data on non-consumptive uses. The Panel created a confidential process that allowed commercial fishermen to identify their individual favorite fishing areas and then aggregated that data into a generalized map for each major fishery. The Socioeconomic Panel also interviewed long time fishermen and other local mariners. Finally, the Panel conducted an impact analysis study to estimate the impact of various reserve options.

Project Goals & Objectives

A consensus problem statement was the first major product of the MRWG. The problem statement said:

The urbanization of southern California has significantly increased the number of people visiting the coastal zone and using its resources. This has increased human demands on the ocean, including commercial and recreational fishing, as well as wildlife viewing and other activities. A burgeoning coastal population has also greatly increased the use of our coastal waters as receiving areas for human, industrial, and agricultural wastes. In addition, new technologies have increased the efficiency, effectiveness, and yield of sport and commercial fisheries. Concurrently there have been wide scale natural phenomena such as El Nino weather patterns, oceanographic regime shifts, and dramatic fluctuations in pinniped populations.

In recognizing the scarcity of many marine organisms relative to past abundance, any of the above factors could play a role. Everyone concerned desires to better understand the effects of the individual factors and their interactions, to reverse or stop trends of resource decline, and to restore the integrity and resilience of impaired ecosystems.

To protect, maintain, restore and enhance living marine resources, it is necessary to develop new management strategies that encompass an ecosystem perspective and promote collaboration between competing interests. One strategy is to develop reserves where all harvest is prohibited. Reserves provide a precautionary measure against the possible impacts of an expanding human population and management uncertainties, offer education and research opportunities, and provide reference areas to measure non-harvesting impacts.

The five major marine goals and objective adopted by the MRWG were:

- Ecosystem Biodiversity: To protect representative and unique marine habitats, ecological processes, and populations of interest.
- Socioeconomics: To maintain long-term socioeconomic viability while minimizing short term socioeconomic losses to all users.

- Sustainable Fisheries: To achieve sustainable fisheries by integrating marine reserves into fisheries management.
- Natural and Cultural Heritage: To maintain areas for visitor, spiritual, and recreational opportunities that include cultural and ecological features.
- Education: To foster stewardship of the marine environment by providing educational opportunities to increase awareness and encourage responsible use of resources.

Each of the above goals included a set of 4-6 objectives that further clarified each goal.

Ecological Criteria & Network Design

During the first year of the MRWG, the scientific team collected all the available information on the ecology and natural processes in the region, resulting in a document called the “Species of Interest” report. The report detailed the status of 119 major species within the Channel Islands, including seaweeds, invertebrates, fishes, birds and seals. The Science Panel also provided the MRWG with a recommended set of ecological criteria that should be used for the establishment of marine reserves. The criteria included:

- Biogeographical representation – Including at least one reserve in each of the three biogeographical regions of the islands.
- Connectivity – Achieve interconnected networks through replication at several sites including those with high potential for larval export or retention.
- Habitat representation – Inclusion of representative and unique habitats, classified by depth, exposure, substrate type, and plant assemblages.
- Human Threats and Natural Catastrophes – Setting aside additional areas to compensate for the destructive human activities or natural catastrophes.
- Species of Special Concern – Protecting sensitive habitats such as seabird rookeries and pinniped haul-outs.
- Vulnerable Habitats – Including giant kelp, eelgrass and surfgrass.

The MRWG asked the Science Panel to create a set of maps to illustrate various marine reserve options that would meet the MRWG goals and objectives and incorporate the ecological criteria recommended by the Science Panel. To produce these maps, the Science Panel used a Geographic Information System and a computer model that divided the Channel Islands into a grid of 1500 planning units at a scale of 1 mile by 1 mile. The size of the planning units was selected to match the scale used by the socioeconomic advisory team to collect economic data on commercial and recreational fishing activity.

The Science Panel evaluated the status of fishery resources in the Channel Islands and the MRWG goals for conservation and fisheries management. They also evaluated the existing literature on marine reserve design. Based on this evaluation the Science Panel recommended that 30-50% of Sanctuary waters—at least 30% of each major habitat type—should be included in marine reserves to achieve the conservation and

fishery goals of the MRWG. This recommendation was a surprise to many of the stakeholders, particularly those who had thought choosing scientists without a 'bias' on marine reserves would guarantee a small network. Several highly contentious meetings followed between the MRWG and representatives of the Science Panel where actively challenged by commercial and sport fishermen actively challenged the recommendation. Ultimately, the MRWG moved on to designing proposals using a computer decision-making tool, which analyzed alternatives as to:

- 1) How well it protected adequate portions of each representative habitat,
- 2) The estimated maximum potential economic impact on various commercial and sport fishing activities.

In their assessment of alternative reserve designs, the MRWG sought to balance the goals of maximizing the ecological benefits and habitat representation while minimizing the short term economic impact to the fishing industry. During the process, the MRWG became familiar with the competing uses along every major portion of each island. The MRWG members conducted several design sessions where different combinations of 3-5 MRWG members would sit at a computer and design reserve network options. These options were then presented to the full group and critiqued by all. This process enabled all participants to better understand the various stakeholder priorities and conflicts at different sites.

There was significant debate over how much economic impact was acceptable. Fishing industry leaders argued that network of reserves should not create an adverse economic impact exceeding 10% while other MRWG members suggested that a 15-20% short term impact was acceptable. Recreational fishing leaders opposed reserves at the two islands closest to shore, which accounted for the largest percentage of recreational fishing at the islands. The estimated maximum potential loss from the final network ranged from 11-16%, depending on the fishery.

A Final Decision

In May of 2001, the MRWG was unable to reach consensus on the size and location of reserves. The environmental representatives argued for a minimum of 30% of island waters in a network of reserves. Commercial and recreational fishing interests argued for a much smaller percentage of coverage. The entire MRWG was able to agree on a core area of reserves that covered about 10% of the island waters, but this agreement failed to cover all habitat types and even omitted some islands. Since a final consensus recommendation could not be provided, the MRWG submitted a final map to the Sanctuary Advisory Council that illustrated both the core area of consensus as well as additional areas proposed by members who sought a larger network. The MRWG also submitted the consensus problem statement, marine reserve goals, objectives and implementation recommendations as well as the complete package of scientific and socioeconomic information.

The Sanctuary Advisory Council then conducted three public meetings to evaluate the work of the MRWG. They concluded that the "process was open, inclusive and

community based". On a vote of 17-1-1 the Council recommended that the federal and state co-chairs of the MRWG craft a final recommendation for delivery to the state Fish and Game Commission. Three months later, the state and federal staff produced a joint "Proposed Project" that placed 25% (approximately 400 square miles) of the Sanctuary in MPAs, including 10 no-take reserves and two partial-take conservation areas. This network is essentially the network in place today, though the size is slightly smaller due to regulatory changes and improved GIS estimates of area.

Over the next year, the Fish and Game Commission conducted four public hearings on the Channel Islands and expanded the range of networks under consideration with new options. The "Proposed Project" remained the frontrunner, due in no small part to the extensive public process that developed it. The California Fish and Game Commission voted in October 2002 to adopt the Proposed Project, and regulations implementing the MPAs in California waters took effect in April of 2003. However, because the state only had jurisdiction over half of the Sanctuary (from 0-3 nautical miles from shore) this action adopted only half of the network.

It took four more years to complete the network in federal waters (3-6 nautical miles from shore), primarily because of debates about proper agency jurisdiction. In 2006, the Fisheries Service designated the federal water portions of the Channel Islands MPAs as "habitat areas of particular concern", which prohibited bottom fishing in the areas. However, this did not include all types of fishing and thus the no-take marine reserves could only take effect once the agency passed regulations under the Sanctuary Act, which they did a year later in July, 2007.

Resources

Many of the documents discussed in this report are available at the Channel Islands Marine Sanctuary's marine reserve document library:

<http://channelislands.noaa.gov/marineres/supplemental.html>

