SUPPORTING MATERIALS

Channel Islands National Marine Sanctuary

Section 304(a)(5) Letter

May 25, 2005

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SECTION I: BACKGROUND AND CONTEXT

Section I provides background information on the National Marine Sanctuary Program (NMSP), the Channel Islands National Marine Sanctuary (CINMS), and the CINMS Marine Reserves Working Group process.

The National Marine Sanctuary Program

The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as National Marine Sanctuaries. The primary objective of this law is to protect marine resources, such as kelp forests, coral reefs, sunken historical vessels or unique habitats. The NMSA also directs the Secretary to facilitate all public and private uses of those resources that are compatible with the primary objective of resource protection. Sanctuaries are managed according to site-specific management plans prepared by the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Sanctuary Program (NMSP), within NOAA's Ocean Service.

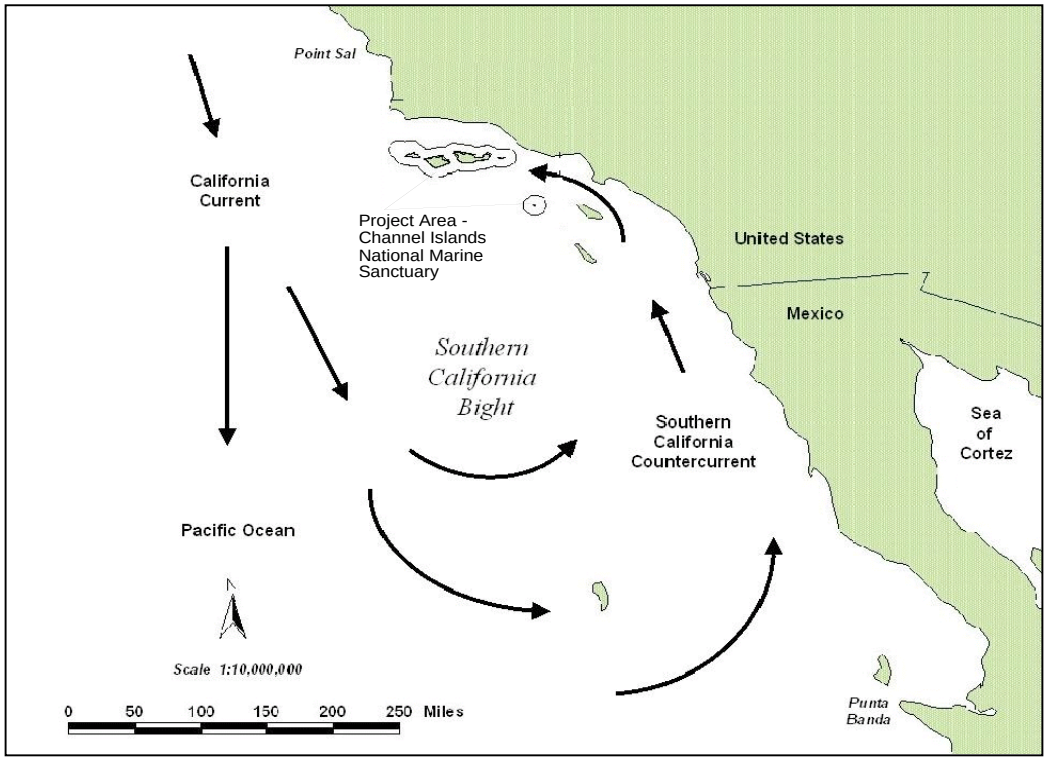
The mission of the NMSP is to serve as the trustee for the nation's system of marine protected areas, to conserve, protect, and enhance their biodiversity, ecological integrity and cultural legacy. Its goals are appropriate to the unique diversity contained within individual sites. They may include restoring and rebuilding marine habitats or ecosystems to their natural condition or monitoring and maintain already healthy areas.

The Channel Islands National Marine Sanctuary

The CINMS was established in 1980 to protect rich and diverse marine life and habitats, unique and productive oceanographic processes and ecosystems, and culturally significant resources. The Sanctuary encompasses approximately 1,252.5 square nautical miles (nm) around the following islands and offshore rocks: San Miguel Island, Santa Cruz Island, Santa Rosa Island, Anacapa Island, Santa Barbara Island, Richardson Rock, and Castle Rock (extending seaward from the mean-high water mark to a distance of 6 nm). The waters surrounding the northern Channel Islands represent a globally unique and diverse assemblage of habitats and species.

The CINMS is part of the larger ecosystem of the Southern California Bight, a marine area that includes the coastal marine ecosystems existing between Point Conception in the north and Punta Banda, Baja California, Mexico in the south (Daily et al. 1993; McGinnis 2000). The confluence of the California Current and Southern California Countercurrent creates three distinct but often inter-related biogeographic regions associated with the CINMS: 1) the cold Oregonian Province; 2) the warm California Province and 3) the transition zone between the two (Harms and Winant 1998).

Figure 1: Southern California Bight and the Project Area



San Miguel Island lies in the cold waters of the Oregonian Province while Anacapa and Santa Barbara Islands are in the warmer Californian Province. The eastern sides of Santa Rosa and Santa Cruz islands are in the transition zone between the two provinces. Point Conception is recognized as the transition zone between the Oregonian and Californian Provinces (Horn and Allen 1978).

The mixing of warmer and colder oceanographic provinces results in a high diversity of marine life as cold water species at the southern end of their range co-exist with warm water species at the northern end of their range (CDFG 2002). The CINMS supports a diversity of marine life that includes over 33 species of marine mammals, over 60 species of seabirds, hundreds of fish species, thousands of invertebrate species, and dozens of marine algae and plant species in a remarkably productive system of ecological relationships.

The CINMS is also host to human uses such as:

- marine wildlife viewing
- commercial and recreational fishing;
- boating, diving and other various recreational activities;
- research, monitoring and education activities; and
- maritime shipping.

The Channel Islands Marine Reserves Process, 1999-to Present

The marine reserves process within the Channel Islands began in 1999. Three distinct phases have characterized this process: 1) the Community Phase; 2) the State regulatory phase; and 3) the Federal regulatory phase.

The Community Phase

In 1998, the Fish and Game Commission (FGC) received a recommendation from a local recreational fishing group to create marine reserves, or "no-take" zones, around the northern Channel Islands as a response to declining fish populations. The original recommendation suggested closing 20 percent of the shoreline outward to 1 nautical mile to all fishing.

In April 1999, CINMS and the California Department of Fish and Game (CDFG) developed a joint Federal and State partnership to consider establishing marine reserves within the project area (mean high tide to the CINMS six nm offshore boundary). The CINMS Advisory Council (SAC), a Federal advisory board comprised of local community representatives and Federal, State and local government agency representatives, created a multi-stakeholder Marine Reserves Working Group (MRWG) to seek agreement on a recommendation to the SAC regarding the establishment of marine reserves within the CINMS. From July 1999 to May 2001, the MRWG met monthly to receive, weigh, and integrate advice from technical advisors and the public and to develop a recommendation for the SAC.

The MRWG identified the problems to be addressed in a consensus statement:

> *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 Niño 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 MRWG "problem statement" was supported by the best available scientific information (McGowan et al. 1998). Following the development of this problem statement, the MRWG then crafted the following goals for marine reserves:

- To protect representative and unique marine habitats, ecological processes, and populations of interest;
- To maintain long-term socioeconomic viability while minimizing short-term socioeconomic losses to all users and dependent parties;
- To achieve sustainable fisheries by integrating marine reserves into fisheries management;
- To maintain areas for visitor, spiritual, and recreational opportunities which include cultural and ecological features and their associated values; and
- To foster stewardship of the marine environment by providing educational opportunities to increase awareness and encourage responsible use of resources.

From March to May 2001, the MRWG process involved a detailed mapping of over 40 possible marine reserves networks. In May 2001, the results of the Channel Islands Marine Reserves Process were forwarded to the SAC, including the MRWG consensus agreements, areas of disagreement, Science Panel advice and socio-economic analysis. A composite map with two reserve network options ranging from 12 to 29 percent of the Sanctuary was also forwarded. In June 2001, the SAC transmitted the full public record of the MRWG and the SAC to the CINMS and CDFG, and charged the agencies with crafting a final recommendation for the California Fish and Game Commission (FGC).

The State Regulatory Phase

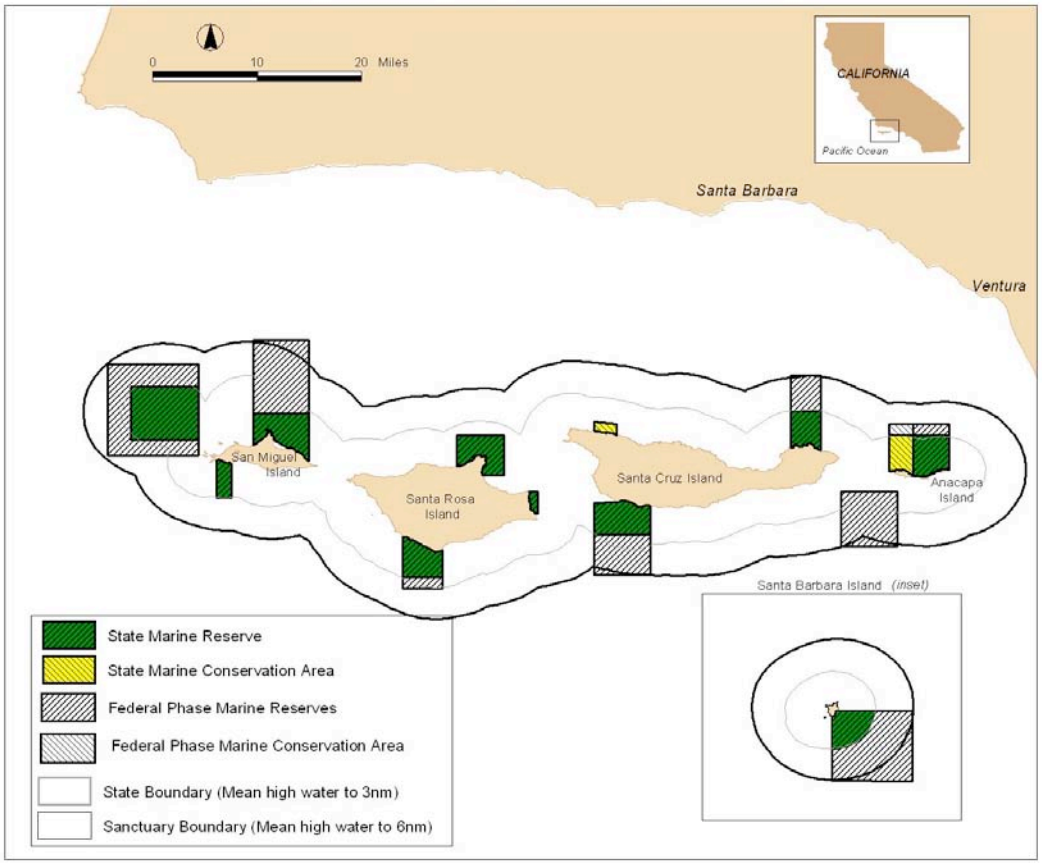
CINMS and CDFG staff continued to work with stakeholders in crafting a recommendation for the FGC and NOAA. In August 2001, CINMS and CDFG forwarded the results of the community phase and recommended to the FGC a Federal and State network of reserves and conservation areas that included approximately 25% of the CINMS. This recommendation became the preferred alternative in the State's California Environmental Quality Act (CEQA) environmental document (CFDG 2002).

The State's CEQA documents included an analysis of five alternative reserves networks and a no-project alternative. The Sanctuary and CDFG recommended option was identified as the preferred alternative (CDFG 2002). The network alternatives analyzed in the CEQA document were split into an initial State waters phase and subsequent Federal phase (CDFG 2002). The State's rulemaking process and CEQA document assessed the potential cumulative effects of network alternatives in both State and Federal waters of the CINMS.

In October 2002, the FGC approved the preferred alternative in the CEQA document of 10 marine reserves and 2 conservation areas within State waters of the Sanctuary, which encompass

approximately 102 square nautical miles of the CINMS. NOAA and the National Park Service supported the State's decision. The State water portion of the Channel Islands marine reserves network went into effect in April 2003 leaving the NMSP to implement its subsequent action.

Figure 2: Existing State Network Of Marine Protected Areas Within The CINMS



For enforcement purposes, all but one of the State marine reserves and marine conservation areas were "squared off," meaning that the seaward boundary was drawn on a straight line of latitude and longitude, well inside the State's 3 nm jurisdiction. The Harris Point Marine Reserve off San Miguel Island and the Gull Island Marine Reserve off Santa Cruz Island illustrate this point.

California Statutes

The establishment of marine reserves in State waters was guided by State statutes including the Marine Life Protection Act (Chap. 1015, Stats. 1999) (MLPA) and the Marine Life Management Act (Chap. 1052, Stats. 1998) (MLMA). As indicated by the MLPA goals below, these laws are consonant with the goals and objectives identified for the proposed action in this 304(a)(5) letter:

- To protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems;

- To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted;
- To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity;
- To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value;
- To ensure that California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines; and
- To ensure that the State's MPAs are designed and managed, to the extent possible, as a network.

In addition, the California Coastal Act (Public Resources Code §30230) requires the protection of marine and biological resources. Specifically, Section 30230 provides that:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

SECTION II: THE FEDERAL REGULATORY PHASE

To complement the State water network of reserves and protected areas, in 2003 the NMSP initiated the Federal process to consider the establishment of marine reserves and marine conservation areas in the CINMS. The Federal phase has built upon the nearly six years of work to date, including the information and analyses from the State's CEQA documents. To date the NMSP has hosted public scoping meetings, released a preliminary environmental document with a range of alternatives for public review (2004) and has consulted with local, State and Federal agencies and the Pacific Fishery Management Council (PFMC) on possible amendments to the CINMS designation document (2005). This section 304(a)(5) letter and the supporting document is the next step in the Federal phase.

Goals and Objectives For The Federal Phase

The NMSP is considering the establishment of a network of marine reserves and marine conservation areas within CINMS to complement the ecosystem based protection to Sanctuary resources afforded by the State of California's marine protected areas within CINMS and to further the purposes and policies of the NMSA. The specific goals for this proposed action are:

- To provide long-term protection of CINMS resources including natural habitats, populations of interest and ecological processes;

- To restore and enhance natural habitats and the abundance, density, population age structure and diversity of natural biological communities in the CINMS;

- To provide, for research and education, undisturbed reference areas that include the full spectrum of CINMS habitats where local populations exhibit a more natural abundance, density, diversity, and age structure;

- To set aside, for intrinsic and heritage value, representative habitats and natural biological communities; and

- To create models of and incentives for ways to conserve and manage the resources of the CINMS.

As indicated in Section II, these goals are consonant with goals and objectives for marine reserves identified by the Marine Reserves Working Group. They are also consonant with the goals identified by the State of California for the Marine Life Protection Act and the Marine Managed Areas Improvement Act.

Management Challenges Relative To the Goals and Objectives

Changes In Natural Variability

The marine life of the Southern California Bight is some of the most studied in the world (Dailey et al. 1993) and scientific information shows that the CINMS is a stressed marine ecosystem.

The evidence suggests that prior to and since the designation of the CINMS in 1980 the maintenance of community structure and patterns of species diversity have changed in accordance with hydrographic perturbations, climate-ocean variability and marine resource use (Hayward et al. 1996; McGowan et al. 1998; Jackson et al. 2001).

Roemmich and McGowan (1995a,b) document large-scale changes in primary and secondary productivity throughout the Southern California Bight between 1951 and 1993. This long-term decline in ecological productivity pre-dates the 1977 warm-water and low-nutrient regime change (McGowan et al. 1998).

Regime shifts reflect significant changes in water temperature and in the currents of marine ecosystems (Steele 1998). For thousands of years the species of the northern Channel Islands largely adapted to changes in sea temperature; major sea temperature changes did not lead to major species extinction events.

Variation in sea temperature regime is part of the ecology of the CINMS. Changes in sea temperature influence the ecology of the project area, such as the abundance and distribution of species (Roy et al. 1996; McGowan et al. 1998). Changes in ocean currents as well as the resultant changes in rain and weather patterns have a number of biological impacts, including:

- Population shifts in commercially harvested species, such as squid, rockfish and lobster;
- Transport of enormous volumes of sediments and suspended materials from the mainland to coastal and offshore waters; and
- Disturbance to critical marine habitats, notably storm and water temperature damage to kelp forests.

Ecosystem resiliency refers to the capacity of an ecosystem to withstand stress and environmental fluctuation, both natural and anthropogenic (human-caused). The system will possess ecological integrity if it retains the ability to continue its ongoing change and productive development (Noss et al. 1995).

Pressure on Fishes and Invertebrates

Changes in the function and structure of marine ecosystems from human activities, such as fishing and water pollution, are increasingly recognized by scientists (Jackson et al. 2001; Pikitch et al. 2004). CDFG data show decreases in landings for several categories of commercial and recreational fisheries (CDFG 2002). Dugan and Davis (1993) document the general decline in long-term productivity in 19 species of nearshore fishes and invertebrates (such as abalones and urchin) in California from 1947 to 1986. A study by Love et al. (1998) of long-term trends in the commercial fishing vessel rockfish fishery shows a substantial decline from 1980 to 1996, with extremely low catches from 1993 to 1996.

Table 1: Status of Certain Stocks In The Project Area (Leet et al. (2001), California's Living Marine Resources: A Status Report, and PFMC 2005 Groundfish Stock Assessments)

Species	Status
Cowcod	Overfished
Lingcod	Overfished
Bocaccio	Overfished
Squid	Unknown
Pacific sardine	Recovering
Northern anchovy	No stock assessment
Pacific mackerel	Decline
Jack mackerel	No stock assessment
Albacore	Sustainable
Swordfish	Uncertain
Pacific norther bluefin tuna	Decline
Skipjack tuna	Sustainable
Yellowfin tuna	Potential decline
Striped marlin	Sustainable
Shortfin mako shark	Unknown
Thresher shark	No stock assessment
Blue Shark	Unknown

Additional detail on the status of marine resources in the Channel Islands and the extent of human activities is provided in Leet et al. (2002) and CDFG (2002).

Managing the Issues

Ecosystem-Based Management

Previous management approaches to address the loss of ecological productivity have focused on particular threats, such as pollution, or on individual species targeted by commercial and/or recreational fisheries. The NMSA (16 U.S.C. §1431(a)(3)) states that

> *"…while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment."*

The NMSA prioritizes the protection of marine life and "maintain[enance] for future generations of the habitat, and ecological services, of the natural assemblage of living resources that inhabit these areas" (16 U.S.C. §1431(a)(4)(A), (C)). The NMSA charges NOAA to take a broad and comprehensive, ecosystem-based approach to management and marine life protection.

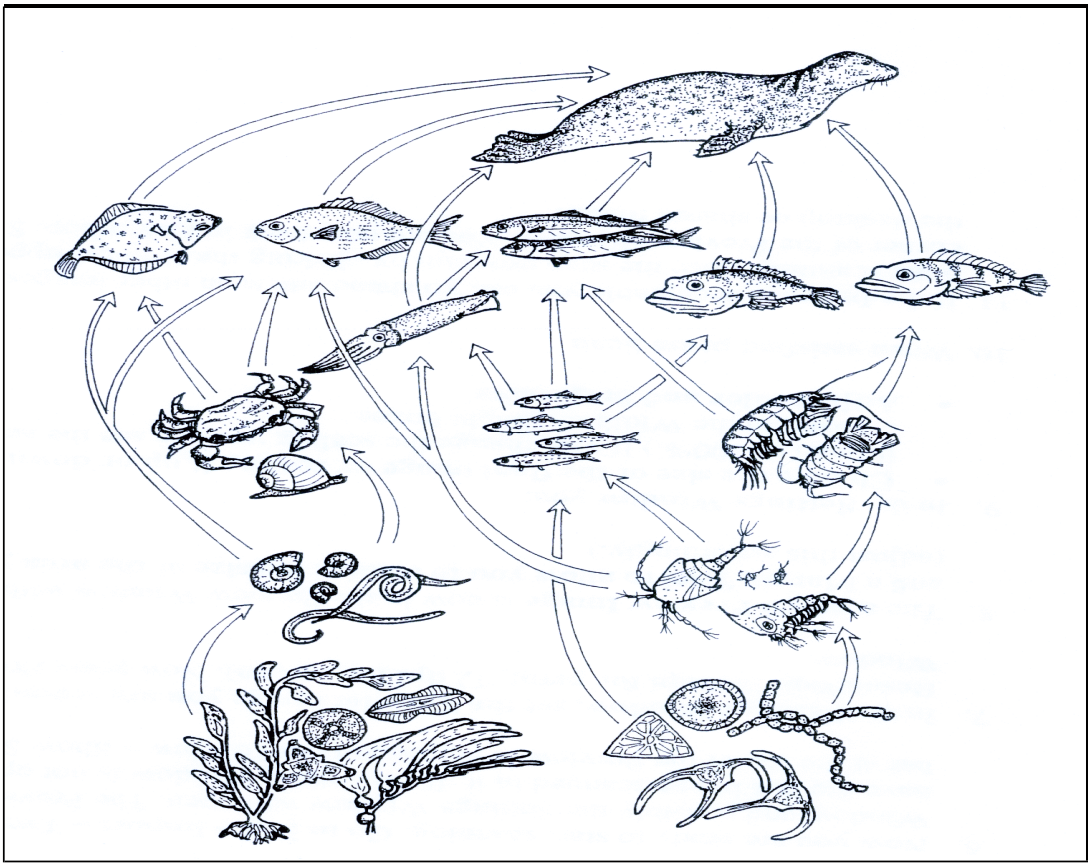
Ecosystem-based management recognizes that ecosystems and those natural and human factors that influence them are interdependent. It recognizes that marine systems are not static and acknowledges the uncertainties about biotic, abiotic, and human components of ecosystems and their interactions.

Long-term trends in seawater temperature, the abundance and distribution of indicator species, such as birds or mammals, or important habitats, such as kelp and eelgrass beds, can provide information on the general health and integrity of the marine ecosystem. Marine ecosystems must retain the ability to adjust and adapt to perturbations, and if necessary, regenerate in the event of regime shifts and ecological disturbance, such as warming of sea temperature during climate-related events or fishing activities.

As recognized by the MRWG, human behavior and activity on land and at sea can dramatically impact coastal marine ecosystems and associated species diversity. Like all national marine sanctuaries, CINMS is mandated to both "protect…the natural habitats, populations and ecological processes" (16 USC 1431(b)(3)) of the CINMS and "facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of [the CINMS] not prohibited pursuant to other authorities" (16 USC 1431(b)(6)).

Ecosystem-based management focuses on the protection of the elements of the food web – those that are consumed and those species and habitats that are not consumed. Taken together, these species are essential to the reproduction, growth, and survival of marine life. Figure 3 depicts a simplified food web common to the CINMS region showing linkages between a top predator and other marine life .

Figure 3: Food Web Typical Of The CINMS Region (US Navy 2001)



The development and implementation of an ecosystem-based approach to management requires a long-term commitment to a multi-species perspective, understanding ecosystem processes (such as major disturbance events), and monitoring the effects that consumptive activities have, not only on target species but to all components of the ecosystem. Ecosystem-based management provides safeguards against scientific uncertainties of marine resource use.

Marine Zoning

There are a variety or tools available to marine resource managers to achieve the goals of ecosystem-based management and address the management issues identified above.
Since the 1980s, the NMSP has been using various forms of marine zoning to provide additional protection to sanctuary resources, ecology and/or biodiversity and to manage human uses where it is most needed to supplement existing regulations. Based on the historical circumstances identified in Section I, the goals and objectives identified in Section II, and the ecosystem-based context for managing the CINMS, marine zoning has emerged as a primary tool for achieving the specific goals and objectives identified for the proposed action in this Federal Regulatory phase.

Marine reserves (marine zones that prohibit or limit human consumptive activities) are one of a variety of resource management zones used to manage and protect marine resources. The nature of marine reserves helps ensure that at least a portion of populations in the project area will be sustained over time. They provide enhanced ecosystem protection, including habitats, populations, and ecosystem linkages by restricting all extractive human activities. They also provide insurance against population collapse and help to preserve biodiversity.

In 2001, an expert panel of the National Academy of Sciences concluded that:

- A growing body of literature documents the effectiveness of marine reserves for conserving habitats, fostering the recovery of overexploited species, and maintaining marine communities.

- Networks of marine reserves, where the goal is to protect all components of the ecosystem through spatially defined closures, should be included as an essential element of ecosystem-based management.

- Marine reserves, together with conventional fisheries management strategies, can have significant ecological benefits. Protection afforded by reserves may allow targeted species to rebound, increasing local recruitment and contributing to spillover of adults and export of larvae into fished areas (Guénette et al. 1998, Jones 2002). Additionally, reserves may protect critical life stages and spawning aggregations of targeted species (Shipp 2003).

Reserves may provide insurance and resilience in an uncertain world with unpredictable environmental fluctuations (NRC 2001). Finally, reserves can serve as reference areas for research to determine the effects of consumptive activities on marine ecosystems (NRC 2001).

The PFMC's Science and Statistical Committee (Marine Reserves White Paper, Sept 2004) recognized that among the reasons to implement marine reserves include 1) to provide insurance

against management uncertainty and error; 2) to provide ecosystem benefits (including habitat protection) 3) to address social issues; and 4) to provide opportunities to advance scientific knowledge (including establishing scientific reference sites). Specifically, marine reserves are uniquely qualified to provide a complete age structure for target species and thereby enhance persistence and they may provide the best opportunity to restore naturally functioning ecosystems and protect or restore habitats.

SECTION III: ALTERNATIVES

Development of Draft Alternatives

The following section provides a review of the basis for and criteria applied by CINMS to design a range of alternatives, including:

- Support of the CINMS' goals for comprehensive ecosystem-based protection, as stated in Section II;

- The Channel Islands Marine Reserves Process, which has included extensive input and advice from the community-based Marine Reserves Working Group, Science Advisory Panel and Socio-economic Team, agency enforcement personnel and the general public from 1999-2001;

- The State of California FGC environmental review process (August 2001-April 2003) and decision to designate the marine reserve and marine conservation areas recommended by CDFG and the Sanctuary and the suite of alternatives analyzed in CDFG (2002). The existing marine reserve and marine conservation areas established by the State are now considered part of the environmental baseline; and

- Public scoping comments submitted to the CINMS during the public scoping period from May – July 2003 and public comments on a preliminary working draft environmental review document.

Ecological criteria for marine reserve design, developed by the Science Advisory Panel and supported by the literature included: biogeographic and habitat representation (including vulnerable habitats); physical processes – such as upwelling; species of interest; reserve size and connectivity and spacing; detailed socioeconomic data on a variety of human uses updated to 2003; the administrative capacity to properly implement, administer, monitor and enforce alternatives.

Over 40 maps were developed as part of the MRWG deliberation. Slightly modified versions of these maps were used in the State's CEQA document (CDFG 2002). Over the two-year MRWG process and State CEQA process NOAA economists analyzed these community-derived marine reserve network alternatives. Six alternatives were analyzed in Leeworthy and Wiley (2002) and Leeworthy and Wiley (2003), including the alternative adopted by the State of California for the existing marine reserves and conservation areas in the CINMS. The existing State marine protected areas serve as a foundation for the alternatives proposed herein. Alternatives 2 and 3 derive from the final CEQA document (CDFG 2002) and have been modified, as necessary, to complement the nearshore existing State MPAs.

For further discussion on the above factors and review of previous MPA options, see the joint recommendations of the CDFG and Sanctuary in the 2002 CDFG CEQA document.

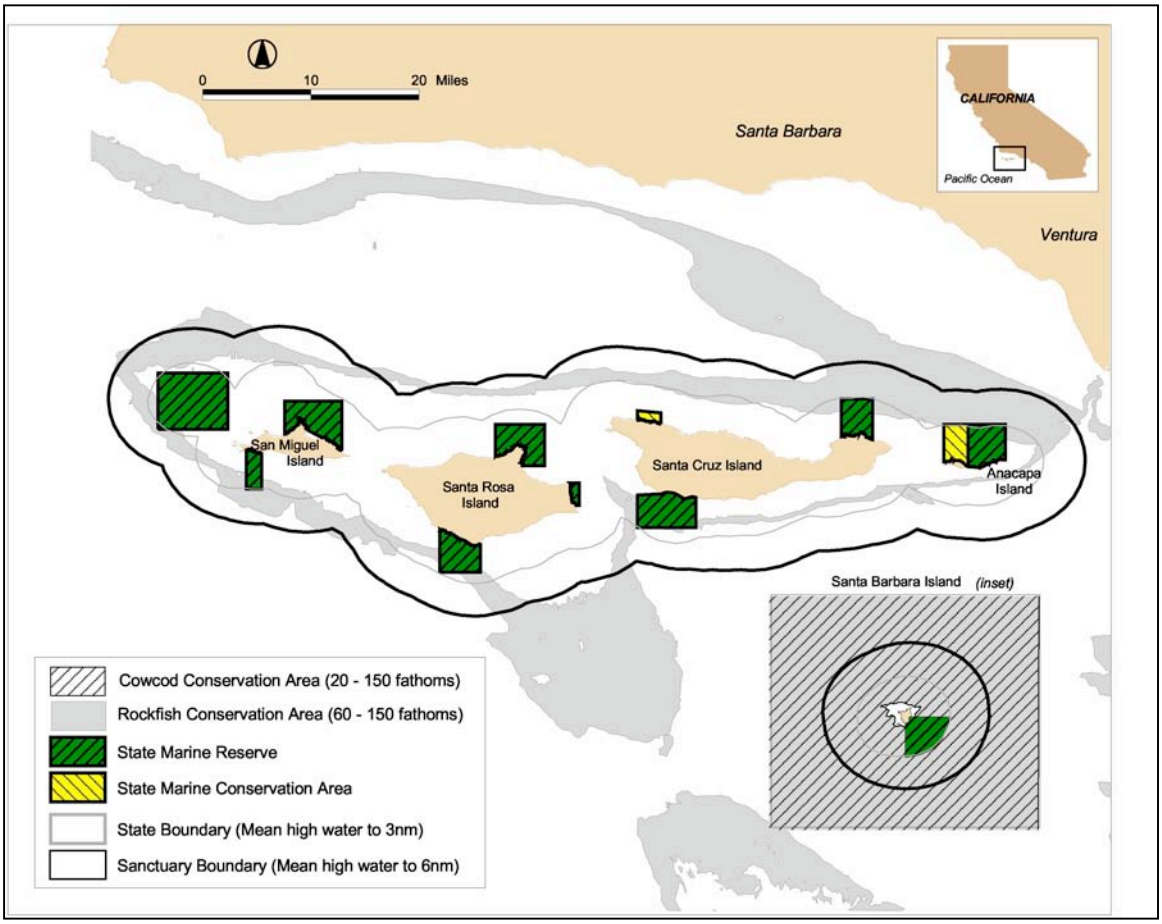
Current Alternatives

At this time, three spatial alternatives, a no-action alternative (status quo) and several regulatory options are currently under consideration. Under development is a description of whether the Magnuson Stevens Act and state statutes and regulations might fulfill the Sanctuary goals and objectives. This approach will be further described in the DEIS. The existing State marine reserves and conservation areas delineate the nearshore boundary for all of the alternatives. For all of the alternatives the existing State marine reserve and marine conservation areas and existing State and Federal management of commercial and recreational activities outside of any new Federal marine protected areas would remain unchanged. Existing sanctuary regulations would continue to apply throughout the CINMS.

No Action (Status Quo) Alternative

The no action (status quo) alternative would not add protected areas to the existing State marine reserve and marine conservation areas and would require no regulatory action. The existing State marine reserve and marine conservation areas and existing State and Federal management of commercial and recreational activities (see Appendix B) would remain unchanged. Existing sanctuary regulations (e.g., no discharge) would continue to apply throughout the CINMS.

Figure 4: No Action (Status Quo) Alternative



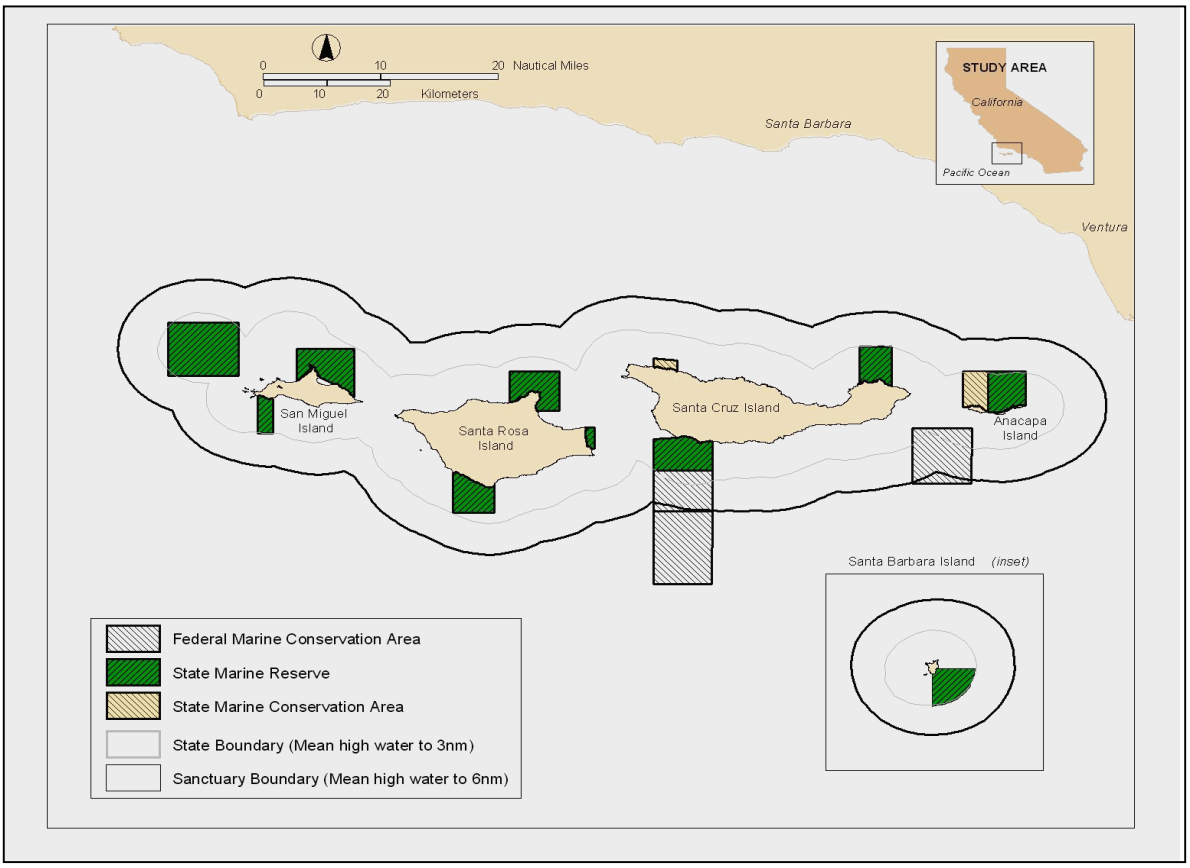
Alternative 1

Alternative 1 was submitted by a subset of the Santa Barbara and Ventura commercial fishing communities. The alternative was designed to offer an opportunity to analyze a management approach consisting of marine conservation areas, harvest controls, and existing no-take reserves. This alternative would be implemented under the MSA authority of the PFMC and NMFS and under the applicable authorities of the State. Additions to the State MPA network include Gull Island (south side of Santa Cruz Island) and the Footprint. Both proposed Federal marine conservation areas would be rockfish conservation areas that would allow all legally sanctioned pelagic fishing, spot prawn trapping, white seabass fishing and squid fishing. Any gear that targets rockfish would not be allowed.

This alternative would add an additional 69.6 nmi2 of marine conservation areas to the existing State mpa network for a total of 164.6 nmi2 of the CINMS. The proposed Gull Island conservation area extends approximately 30.8 nmi2 outside the CINMS boundary. Additionally, the SAC's Commercial and Recreational Fishing Working Group requested the PFMC rename the Cowcod Conservation Area to the "Cowcod Conservation Marine Protected

Area" and the Rockfish Conservation Area to the "Rockfish Conservation Marine Protected Area." Alternative 1 adds marine conservation areas in deeper water (below 100 m depth) soft and hard sediment habitat. It also includes submarine canyon habitat.

Figure 5: Alternative 1



Alternative 2

Alternative 2 is the original proposed project in the CEQA document (CDFG 2002). developed by the CDFG and CINMS in 2001, based on the extensive work of the MRWG and its advisory panels. Alternative 2 is intermediate in size when compared to Alternatives 1 and 3.

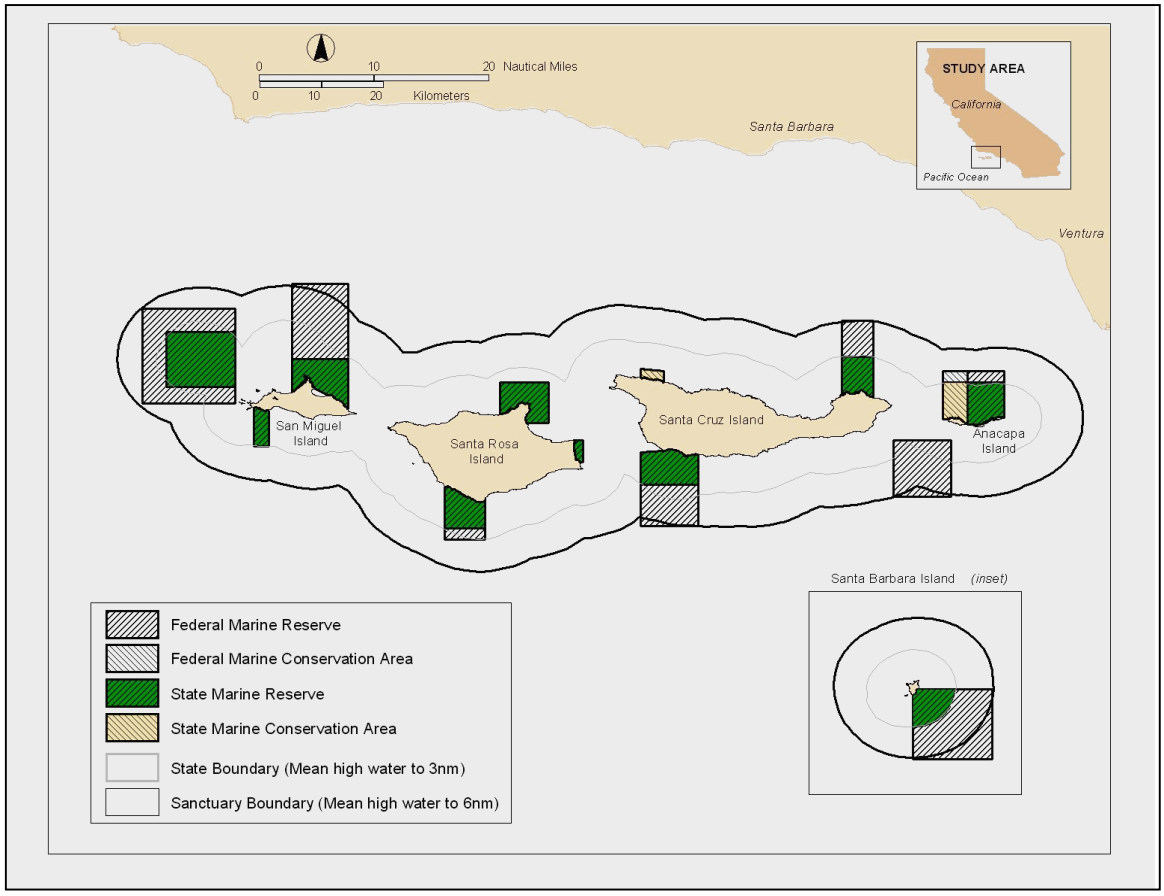
Alternative 2 would extend the State marine reserve and marine conservation areas into deeper waters in the following areas: Richardson Rock and Harris Pt. (San Miguel Island), South Point (Santa Rosa Island), Gull Island and Scorpion (Santa Cruz Island), Anacapa Island and Santa Barbara Island. The Footprint area south of Santa Cruz and Anacapa Islands would be added as a new marine reserve zone.

This alternative, including both the existing State network and proposed extensions, would include approximately 232.5 nmi2 of marine reserves and 8.6 nmi2 of marine conservation areas for a total of 241.1 nmi2 of the CINMS. The northern boundary of the proposed Harris Pt. Marine Reserve off San Miguel Island and the southeast boundary of the proposed Santa Barbara

Island Marine Reserve would extend beyond the existing CINMS boundary. The additional area outside the current CINMS boundary is approximately 16.0 nmi2. This alternative strives to satisfy the biological and ecological criteria, while also striving to minimize potential economic impacts to various commercial and recreational fisheries.

In order for this alternative to be implemented the CINMS designation document would be amended to allow for the regulation in marine reserves and marine conservation areas and a change to the outside boundary of CINMS in the Harris Point, Gull Island, Footprint and Santa Barbara Island marine reserves to recognize straight lines of latitude or longitude.

Figure 6: Alternative 2



Alternative 2 affords protection to a wide variety of habitats in all three biogeographic provinces, on each side of the islands and complements the State MPA network. It extends protection to deeper water (below 100 m depth) hard and soft sediment . The alternative also doubles the area of submarine canyon habitat relative to the amount present in the State MPA network.

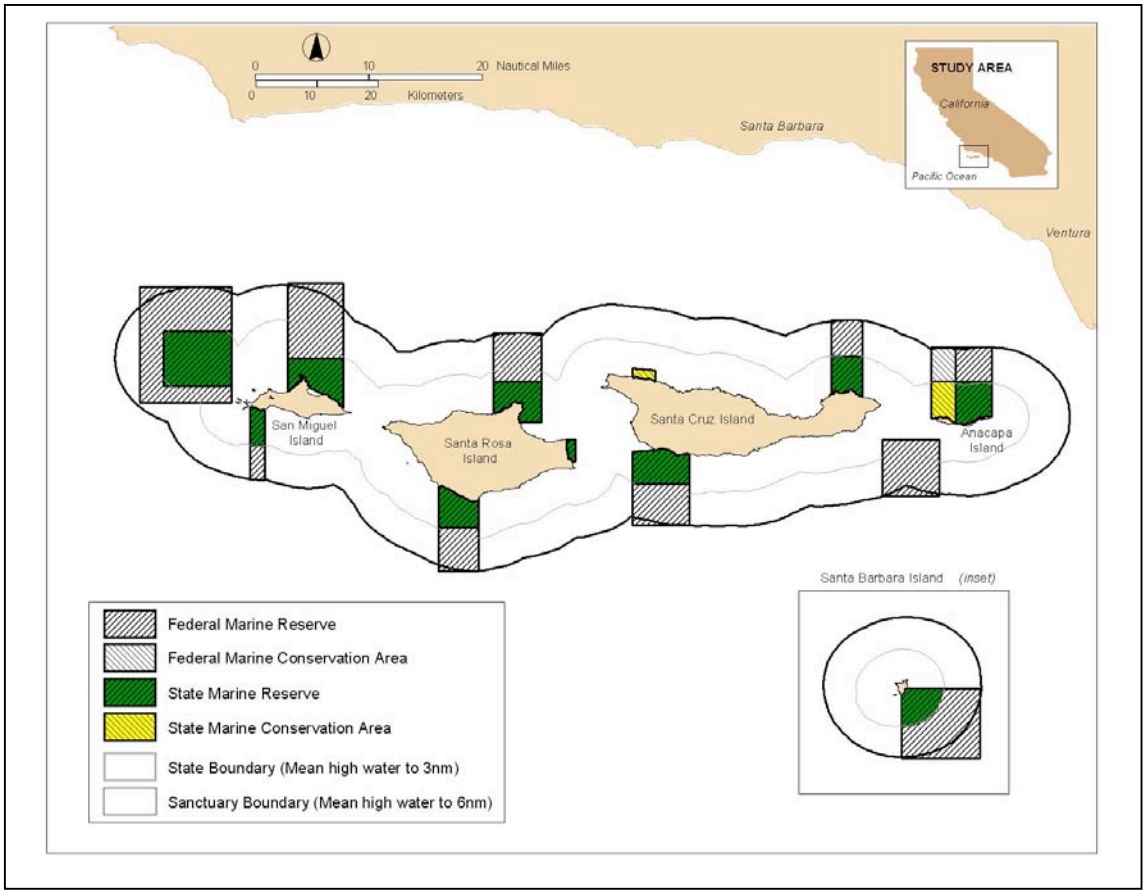
Alternative 3

Alternative 3 is based on a network of marine reserves developed during the MRWG process (Alternative 5 in the CDFG 2002). This alternative was modified to conform to the boundaries of the State MPAs. Alternative 3 is the largest of the three alternatives proposed thereby increasing protection of various habitats and species of interest, as compared to Alternatives 1 and 2.

Alternative 3 extends all of the State marine reserve and marine conservation areas zones into deeper waters, except for the Painted Cave Marine Conservation Area, Santa Cruz Island and Skunk Point Marine Reserve, Santa Rosa Island, and adds the Footprint area south of Santa Cruz

and Anacapa Islands. This alternative, including both the existing State network and proposed extensions, would encompass approximately 275.8 nmi2 of marine reserves and 12.1 nmi2 of marine conservation area for a total of 287.8 nmi2 of the CINMS. The northern boundary of the proposed Harris Pt. Marine Reserve off San Miguel Island and the southeast boundary of the potential Santa Barbara Island Marine Reserve extend slightly beyond the existing CINMS boundary. The additional area outside the CINMS boundary is approximately 19.8 nmi2. In order for this alternative to be fully implemented, the CINMS designation document would have to be amended to allow for regulating marine reserves and marine conservation areas and to change the CINMS boundary to include the additional area beyond the current boundary.

Figure 7: Alternative 3

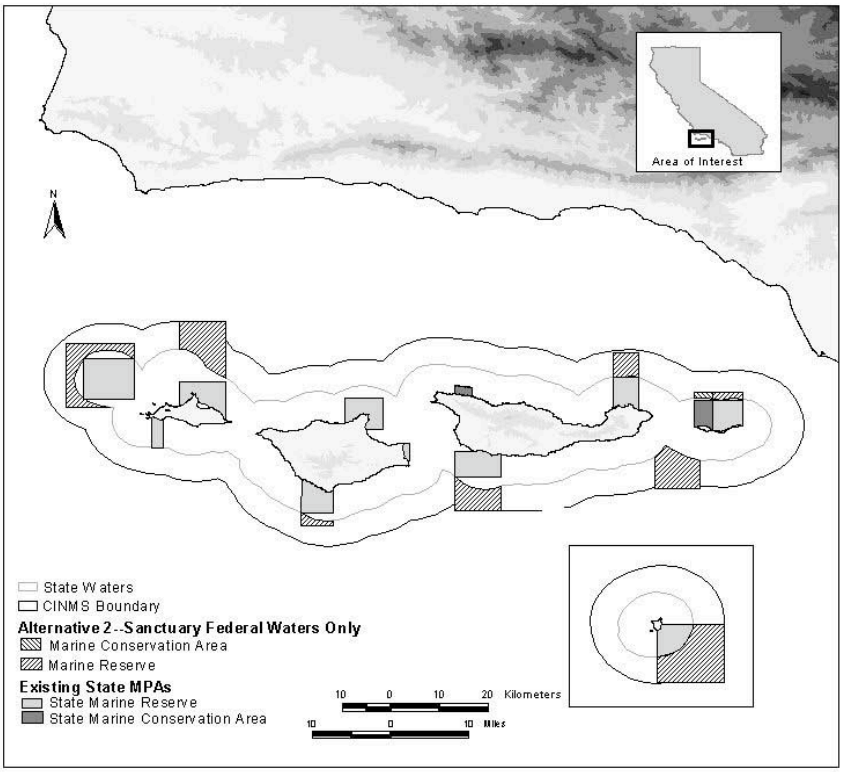


Alternative 3 provides protection to a wide variety of habitats in all three biogeographic provinces on each side of the Islands and complements the State MPA network. As with Alternative 2, it extends marine reserve protection to deeper water (below 100 m depth) hard and soft sediment. The alternative also doubles the area of submarine canyon habitat relative to the amount present in the State MPA network.

Regulatory Considerations for State and Federal Waters

Figure 8 illustrates a necessary regulatory consideration if the State MPA network is extended into deeper waters. Though the FGC choose an alternative that included an MPA network in both State and Federal waters of the Sanctuary, only the State water component was implemented and in some areas the seaward boundary was squared off well inside the State's 3 nm boundary for enforcement purposes and recognition by mariners. The FGC anticipated the deeper water MPA areas would be adopted in this Federal phase.

Figure 8: Gaps Between State And Federal Water Reserves



Three potential regulatory scenarios may be used to implement the spatial alternatives and address the gaps. 'Corresponding regulations' would overlap State regulations with sanctuary regulations to mean high water, producing no gaps in protection. 'Contiguous regulations' would abut Sanctuary regulations to State the seaward boundary of the State MPA network regulations and would also not produce gaps in protection. 'Sanctuary Federal waters only regulations' would only implement Sanctuary regulations in Federal waters, or outside of the 3 nmi State boundary line. The latter scenario would produce a gap where State MPAs that are proposed to be extended into Federal waters do not meet the 3 nautical mile State Boundary line. This gap could potentially be closed by subsequent State action.

Regulation Under The MSA And State Authorities

NMFS, the PFMC and the CDFG have recommended an analysis of utilizing their existing authorities under the MSA and State statutes and regulations to achieve the Sanctuary purposes stated above rather than using CINMS regulations under the NMSA.

Presumably, this approach would require the amendment of all existing Federal and State fishery management plans and measures in the proposed marine reserve and marine conservation areas. Under this scenario, Federal regulations under existing FMPs would be promulgated. Similarly, State regulations would be implemented to control other fishing activities deemed necessary by the State and CINMS managers.

These regulations would have to be shown to not only further State and Federal fishery objectives, but also the goals and objectives for the CINMS proposal. NMFS has stated that in this context, the State has management authority for fishing activities by its residents in the Exclusive Economic Zone (EEZ) in the absence of Federal fishery regulations for those activities. For example, the State may restrict fishing for white seabass or bonito by California registered vessels or licensed fishermen in the EEZ seaward of State waters around the CINMS; there would be no conflict with Federal regulations since the PFMC has not developed and NMFS has not implemented regulations dealing with these species to date. Full analysis of this approach requires a determination of whether those activities can be prevented or mitigated through Federal or State fishery management measures; and to compare the possibility, advantages and disadvantages of using the PFMC, State of California, or CINMS regulations to achieve the proposed action. A full discussion of these issues will be provided in the DEIS.

Appendix B lists the existing fisheries and gear, the managing agency and measures and location of activity within CINMS. Presumably, amendments to each fishery listed in the table would be necessary. Specifically, the take of each species would be prohibited within the proposed marine protected areas in Alternative 1, 2 or 3. Another option that may address at least some of the CINMS goals and objectives would be protection of CINMS habitat areas under essential fish habitat requirements in the MSA. This approach will also be discussed further in the DEIS.

SECTION IV: OVERVIEW OF ECOLOGICAL ATTRIBUTES

Ecological Setting of the CINMS

The waters around the five islands within the CINMS combine warm and cool currents to create an exceptional breeding ground for many species of plants and animals. Forests of giant kelp are home to numerous populations of fish and invertebrates. Every year over 27 species of whales and dolphins visit or inhabit the sanctuary including the rare blue, humpback and sei whales. On the islands, seabird colonies and pinniped rookeries flourish while overhead brown pelicans and Western gulls search the water for food. This section describes some of the species of marine plants and animals that inhabit the Sanctuary.

Plankton

Plankton, single celled marine plants (phytoplankton) and animals (zooplankton), form the base of the food web. Many species of plankton inhabit the Sanctuary and marine life is highly dependent on their growth and productivity. Their numbers, biomass, and production vary greatly both spatially and temporally.

Marine Plants

Marine plants of the Sanctuary are made up of algae and seagrasses. Diversity of marine plants is greater in the Southern California Bite (SCB) and the Channel Islands than along coastal central California. In the SCB, there are at least 492 species of algae and 4 species of seagrasses known to occur of the 673 species described for California (Murray and Bray 1993).

Invertebrates

Benthic invertebrates include species from nearly all phyla of invertebrates that live in (infauna) or on (epifauna) the sea floor during most of their lives, though most also have pelagic larvae. Benthic invertebrates may also be characterized as “sessile” (attached or sedentary) or “motile” (free-moving). They range in size from little known microscopic forms (micro-invertebrates) to the more common larger organisms (macro-invertebrates). Pelagic invertebrates (e.g., jellyfish and squid) also exist in the Sanctuary water column.

The Channel Islands support a wide variety of invertebrates due to their transitional location between cold and warm biogeographic provinces and diversity of substrates. The substrates include sheltered and exposed coasts at depths from the intertidal to deep slopes, canyons and basins (Thompson et al. 1993). The total number of species may well be in excess of 5,000, not including microinvertebrates (Smith and Carlton 1975: Straughan and Klink 1980).

Select invertebrates in the Sanctuary include multiple species of corals, prawns, spiny lobster, crabs, sea urchins, sea cucumbers, sea star, abalone, nudibranchs, scallops, mussels, squid, clams, barnacles, snails, salps, tunicates, jellyfish, sea slugs, and anemones. White abalone is protected by the Endangered Species Act (ESA).

Fish

About 481 species of fish inhabit the Southern California Bight (Cross and Allen 1993). The islands and nearshore areas provide a diversity of habitats for fish including soft bottom, rock reefs, extensive kelp beds, and estuaries, bays, and lagoons.

The fish species found around the Channel Islands generally are representative of fish assemblages that occur along the southern California coast, with the addition of some central California species (Hubbs 1974). Regional upwelling carries nutrient-rich waters from canyons and island shelf areas to surface waters. This results in increased primary productivity and large zooplankton populations, which support populations of small schooling species, such as the northern anchovy, Pacific saury, sardine and mackerel. Larger pelagic (open water) fish prey upon these small schooling species, and together they form a significant contribution to the diet of marine mammals and birds. Island-associated pelagic fish are commonly consumed by pinnipeds and tooth whales.

Fishes commonly found in the Sanctuary include: albacore, anchovy (northern), barracuda (Pacific), bass (various species), bat ray, blacksmith, bocaccio, bonito (Pacific), brown smoothhound, butterfish (Pacific), California scorpionfish, cabezon, California sheephead, California moray, California flyingfish, California halibut, croaker, (various species), eel, monkeyface, garibaldi, goby (various species), greenling (various species), grunion, gunnel, hake, Pacific half moon, horn shark, jacksmelt, kelpfish (various species), mackerel (various species), northern ronquil, ocean sunfish, opah, opaleye, orangethroat pikeblenny, queenfish, reef perch, rock wrasse, rockfish (various species), ronquil, stripedfin, salmon (king), sanddab, sarcastic fringehead, sardine (Pacific), sargo, saury, Pacific sculpin, seaperch (various species), señorita, shark (various species) silversides, sole (various species), spotted cusk-eel, surfperch (various species), swordfish, thornback, topsmelt, tube snout, turbot (various species), white sea bass, whitespotted greenling, yellowfin fringehead, and zebra perch.

Seabirds

Over 195 species of birds use open water, shore, or island habitats in the Southern California Bight (Baird 1990). The diversity of habitats provided both on- and offshore also contributes to the high species diversity in the region. Several bird species within Sanctuary region have special status (of concern, threatened or endangered) under Federal or State law. The Sanctuary provides important habitat for eight seabirds that have special status under Federal or State law: Ashy storm-petrel, Black storm-petrel, California brown pelican, California least tern, Double-crested cormorant, Rhinoceros auklet, Western snowy plover, Xantus' murrelet.

Marine Mammals

The abundance and distribution of marine mammals is an important indication of the general health and ecological integrity of the Sanctuary. Marine mammals feed on fishes and invertebrates, which feed on other marine life of the Channel Islands region. The distribution and abundance of marine mammals depend on healthy marine habitats, such as kelp forests and associated rocky reef ecosystems.

Whales Dolphins And Porpoises
At least 33 species of cetaceans have been reported in the Sanctuary region (Leatherwood et al. 1982; Leatherwood et al. 1987). Common species found in the Sanctuary include: long-beaked common dolphin, short-beaked common dolphin, Bottlenose dolphin, Pacific white-sided dolphin, Northern right whale dolphin, Risso's dolphin, California gray whale, Blue whale, and Humpback whale. In winter and spring during the gray whale migrations, orcas are frequently reported in the region.

Seal and Sea Lions
The productive waters and relatively undisturbed environment of the Sanctuary provides vital habitat for pinnipeds, offering important feeding areas, breeding sites, and haul outs. Historically seven species of pinnipeds have been found throughout or in part of the Sanctuary: the California sea lion (common), northern fur seal (uncommon), northern elephant seal (common), Pacific harbor seal (common), Guadalupe fur seal (rare), Steller sea lions (extremely rare), and ribbon seal (extremely rare).

Offshore Subtidal Habitat

Beyond nearshore subtidal depths are deep-water habitats extending from 30 to >200 meters deep and the continental slope. Over 90 percent of deep-water benthic habitats in the Channels Islands consist of fine sands in shallower portions, grading into silt and clay-dominated sediments in deeper portions (SAIC 1986; Thompson et al. 1993).

Deep rock bottoms often are located offshore from major headlands and islands. Most of the deep-water hard bottom substrates are low-relief reefs less than 1 meter in height; some reefs have 1- to 5-meter high features. Boulders and bedrock outcrops are the predominant rocky substrates. Higher relief pinnacles and ridges occur in some areas, such as off the northwest end of San Miguel Island.

Light disappears rapidly below 50-meter depths, thus offshore benthic habitats do not support marine plants. Offshore deep-water communities have few species in common with nearshore communities, due especially to the cold temperatures and lack of light. The composition of deep assemblages depends particularly on sediment composition, water depth, vertical relief, and extent of siltation (SAIC 1986; Thompson et al. 1993). For a given depth, deep assemblages tend to be more similar over broad geographic ranges than shallow-water communities because the physical environment (e.g., temperature, salinity, darkness) is fairly stable. Most deep muddy-bottom invertebrates are detritus feeders while rocky-substrate invertebrates are predominantly suspension-feeders. Low-relief deep reefs often are heavily silted, with greatly reduced species diversity. Increasing siltation smothers attached invertebrates, gradually changing the habitat to soft bottom. Scour from deep-water currents also influences the distribution of abrasion-sensitive marine life.

The stability of most deep-water soft-bottom habitats permits greater diversity of infaunal (life within the substrate) and epifauna (life on or just above the substrate) compared to shallow particulate substrates disturbed by waves and surge. Typical infaunal on deep fine-sediment

habitats include sea pens, polychaete worms, echiuran worms, amphipods, brittle stars, and small snails and clams. Epifauna include shrimp, octopus, sea cucumbers, seastars, heart urchins, and flatfishes.

Common invertebrates on deep hard substrates include sponges, anemones, cup corals, sea fans, bryozoans, feather stars, brittle stars, sea stars, and lamp shells. Demersal fishes can be common, especially various species of rockfishes. In the northern Santa Barbara Channel, three principal hard bottom assemblages were described for outer shelf-upper slope depths (105-213 meter) in MMS surveys (SAIC 1986): (1) a low-relief assemblage dominated by anemones, brittle stars, and lamp shells; (2) a medium relief assemblage characterized by the anemone Corynactis californica and deep-water coral Lophelia californica); and (3) a broadly distributed community composed of the anemone Metridium senile, cup corals, and the feather star Florometra serratissima.

SECTION V: COMPARISON OF ALTERNATIVES

Ecological Comparison of Alternatives

The three spatial alternatives vary in the amount of various benthic and pelagic habitats and the level of protection that they afford. Because they build off the existing State MPA network, all alternatives include the same level protection for shallow subtidal habitats (such as giant kelp, eelgrass and surfgrass). Alternatives 2 and 3 add soft sediments in depths >200 m, as well as hard sediment in depths > 100 m to the existing State marine reserves

For Alternatives 2 and 3, the amount of soft bottom habitat included in proposed State and Federal marine reserves increases with depth, and at each depth interval, more soft bottom habitat is included in Alternative 3 than Alternative 2. These alternatives were developed to specifically complement the existing State marine reserves that were established in April 2003 by adding adjacent deepwater areas to create a marine protected area network that more fully represents the diversity of habitats found within the CINMS.

The proposed marine reserve alternatives (2 and 3) are proposing to add very little hard bottom habitat at depths above 100 m. Since the existing network of State marine reserves already includes 73.4 km2 of shallow hard bottom habitat. In contrast, the existing State marine reserves include a small amount (21.1 km2) of hard bottom habitat at depths below 100 m. The additional State and Federal marine reserves proposed in Alternatives 2 and 3 include some hard sediment at depths below 100 m. Alternative 2 includes 8.7 km2 of hard bottom habitat on the deep continental shelf (100-200 m) and 12.3 km2 on the continental slope (<200 m). Alternative 3 includes 13 km2 of hard bottom habitat at 100-200 m and 12.6 km2 at depths greater than 200 m.

Potential Ecological Impacts

Based on the analyses conducted to date, the extension of the State marine reserves and marine conservation areas in Alternatives 1-3 are not expected to result in any significant long-term adverse ecological impacts.

It is possible that displacement of consumptive activities to areas outside the proposed marine reserves and marine conservation areas could potentially impact the environment by causing these users to fish in nearby areas. This could cause increases in the relative fishing pressure on certain species, which may cause a short-term negative environmental impact outside marine reserve and marine conservation areas. The proposed alternatives attempt to limit this potential impact by avoiding key fishing areas identified in the Channel Islands Reserve Process to the maximum extent possible.

Table 2: Total New Proposed Area for Each Alternative (sq. nautical mile)

	Status Quo[1,2]	Alternative		
		1[3]	2[4]	3[5]
Total Area (nmi2)	121.2	54.0	147.1	195.2
Soft sediment	78.7	49.4	140.8	187.5
Hard sediment	30.6	4.6	6.3	7.6
Breakdown by depth and habitat				
Soft sediment (0-30m)	7.4	0.0	0.1	0.1
Hard sediment (0-30m)	12.0	0.0	0.1	0.1
Soft sediment (30-100m)	43.6	0.0	13.2	20.2
Hard sediment (30-100m)	12.5	0.1	0.1	0.1
Soft sediment (100-200m)	15.3	3.3	28.2	40.2
Hard sediment (100-200m)	4.4	2.8	2.5	3.8
Soft sediment (>200m)	12.5	46.1	99.3	127.1
Hard sediment (>200m)	1.7	1.7	3.6	3.7
Submarine canyon	5.8	4.1	4.1	4.1

1. The areas shown in the "Status Quo" column include State Marine Reserves and State Marine Conservation Areas
2. The "Status Quo" areas includes coastal habitats such as: sandy coast, protected rocky coast, exposed rocky coast, nearshore emergent rocks, offshore emergent rocks, California kelp area (DFG 2002), California kelp composite (DFG), Islands kelp composite (CCP), eelgrass, and surfgrass. The total area for the "Status Quo" includes these coastal habitats even though they are omitted from the table.
3. Alternative 1 consists of Marine Conservation Areas only.
4. Alternative 2 consists of both Marine Reserves and Marine Conservation Areas
5. Alternative 3 consists of both Marine Reserves and Marine Conservation Areas

Potential displacement of effort also may be offset by the potential for long term beneficial effects caused by increased production and spillover from the proposed marine reserve and marine conservation areas. In addition, existing harvest controls (e.g., size limits, bag limits, seasons) will continue to control take outside marine reserve and marine conservation areas, and other regulatory processes limiting total effort of fisheries in the area are underway.

Conversely, the alternatives are expected to have varying levels of beneficial effects on the ecosystem, resulting from the establishment of no take or limited take areas in deeper waters adjacent to and complementary of the network of State reserves within the Sanctuary.

Alternative 1

Alternative 1 proposes the extension of the two marine conservation areas located along the south side of Santa Cruz Island and the footprint region. The two marine conservation areas would add 62.7 nm2 to the existing State MPA network. It differs from the other two alternatives in that it does not include no-take marine reserves. Marine conservation areas allow some type of fishing activities to occur.

The objective of this alternative is to protect specific species or habitats, such as the benthos. It does not provide full ecosystem protection in that it still allows some harvest to occur.

Alternative 1 includes some areas where specific species are likely to benefit from exclusion of fishing effort. The two proposed marine conservation areas are expected to reduce damage from fishing gear and may provide protection to certain groundfish species. The level of protection is dependent upon impacts of currently allowed fishing effort in these areas on groundfish species and enforcement of regulations. However, from the socioeconomic analysis it appears there has been very little groundfish fishing in the proposed areas.

Alternative 1 does not include habitat representation across all three biogeographic regions within the project area. The two conservation areas are located in the Transition and Californian biogeographic regions.

Alternative 2

This alternative provides more protection to populations and habitats relative to Alternative 1. It contains a network of 10 marine reserves and 2 marine conservation areas. Alternative 2 includes areas where species of interest may benefit by exclusion of fishing effort. Within the proposed marine reserve areas, this alternative is expected to provide comprehensive ecosystem protection, including the habitats, species and seemless ecological linkage with the existing adjacent network of shallower water State marine reserves.

Alternative 2 provides habitat representation in each of the three biogeographic regions. At least two marine reserves are located in the Oregonian, Transition and California provinces. The network provides connectivity potential because of the distribution of multiple reserves in each biogeographic region and protected areas on both the north and south sides of each island.

Alternative 3

This alternative offers the greatest level of protection to populations and habitats. It contains a network of ten marine reserves and two conservation areas. The marine reserves constitute an additional 169 nmi^2 and the marine conservation areas constitute an additional 17 nmi^2 to the existing State MPA network.

Similar to Alternative 2, Alternative 3 includes areas where the species of interest (Airame, 2000) may benefit by exclusion of fishing effort and/or other extractive uses. The alternative also provides full ecosystem protection, including the habitats, species and seamless ecological linkage with the existing adjacent network of State marine reserves. It includes more soft bottom habitat than Alternative 2 at each depth, with the difference between the two alternatives increasing with depth.

The primary difference between Alternatives 2 and 3 is even larger (78.3 km2 of soft bottom habitat) in marine reserves on the continental slope (<200 m depth). The notable differences between Alternatives 2 and 3 are: a) the deep continental shelf at depths of 100-200 m where Alternative 3 includes 4.3 km2 more hard bottom habitat in marine reserves than Alternative 2, and b) Alternative 3 includes 17.1 km2 more soft bottom habitat in marine conservation areas than Alternative 2.

Socioeconomic Comparison of Alternatives

This section provides a general summary of the socioeconomic baseline for the project area and analyses of the alternatives. Socioeconomic information was gathered through 2003. This section does not provide detailed comprehensive analyses of the consumptive and non-consumptive uses of the project area but, rather, focuses on describing a brief summary of potential costs and benefits from alternatives. A more detailed analyses and documentation of the approach, methods, data and comparative analyses with respect to designated marine reserves in State waters is available in CDFG (2002) and for the whole CINMS in Leeworthy and Wiley (2005). Comprehensive socioeconomic analyses will be included in the Draft Environmental Impact Statement.

Approach

The socioeconomic analyses are based on a two-step approach. Step 1 analyses describe the potential impacts of each alternative and a comparison of impacts of alternatives for commercial fisheries, and for consumptive recreational and commercial activities (Leeworthy and Wiley 2005). The analyses also provide an aggregate consumptive impact assessment. The Step 1 analyses add all the activities displaced from marine reserve and conservation areas, with the assumption that all is lost, i.e., there is no mitigation or off-sets through behavioral responses.

The Step 1 analyses describe maximum potential loss of income for consumptive activities for the additional State waters, for Federal waters, and in the total of new reserves and conservation areas. Additionally, Leeworthy and Wiley (2005) provide analyses of the existing State reserves and the cumulative impacts for each alternative. In light of the stated purpose of this document, a detailed cumulative assessment of impacts per alternative is not provided here.

Step 2 analyses qualitatively describe factors that contribute to potential costs and, when possible, the benefits of the establishment of marine reserves within the project area (Leeworthy and Wiley 2005). It is impossible to forecast all of the human and ecological responses and their interactions which may result from a designation of a network of marine reserves in State and Federal waters of the CINMS. All the benefits and costs of marine reserves cannot be quantified, and so a formal benefit-cost analysis was not conducted by Leeworthy and Wiley (2005). However, a "benefit-cost framework" is used; all potential benefits and costs are listed and quantified where possible in Leeworthy and Wiley (2005). Those benefits and costs that cannot be quantified are qualitatively discussed in the analyses.

Substitution/ relocation, replenishment effects, the effects of other regulations, the current and future status of fishing stocks, and the benefits of marine reserves are not addressed in Step 1 analyses. The Step 1 analyses therefore generally represent the expected maximum potential loss. However, in cases where congestion effects occur due to displacement and relocation of fishing effort, losses could exceed estimates of maximum potential loss.

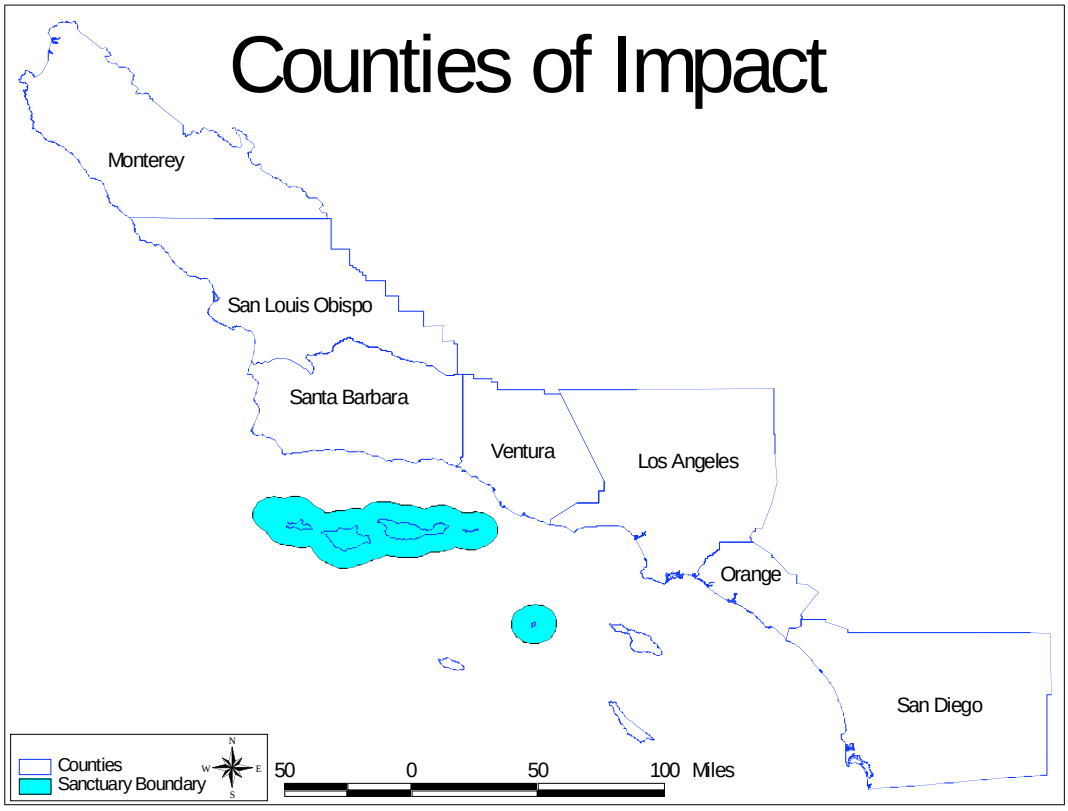
Overall, Leeworthy and Wiley (2005) profile the potential costs to commercial and recreational fishers and non-consumptive users for each county within the seven-county study area

Study Areas and Economic Dependence on the CINMS

Figure 9 shows a map of the seven-county area defined as the area of socioeconomic impact. All seven counties are impacted by commercial fishing activities and five counties (e.g., Santa Barbara, Ventura, Los Angeles, Orange and San Diego) are impacted by recreational activities.

The economic baseline estimate for the Leeworthy and Wiley (2004) study is depicted in Table 3. Table 4 depicts an aggregate for the average ex vessel value of the commercial fisheries in the CINMS for years 1996-2003 for 10 species/species groups, 2003 ex vessel value for rockfish, tuna and prawn, and the 2000-2003 average for CA Sheephead; and consumptive and non consumptive recreational activities including person days of activities, total income generated by the activity in the seven county economy and the number of full and part time jobs. These estimates serve as the baseline from which the impacts of marine reserve and conservation areas are assessed. In the baseline, the top 14 species/species groups accounted for 99.47 percent of the commercial landings from the CINMS. Abalone fishing was halted in 1997, so for the baseline, abalone ex vessel value is zero.

Figure 9: Counties of Impact



Most of the percentages presented in the tables below for ex vessel revenue, income or employment are the amount of impact as a percent of the CINMS baseline. By definition, the no action alternative described in this document has zero incremental or cumulative economic

impact on existing commercial and recreational fisheries

Table 3: Baseline Local/Regional Economic Dependence On CINMS					
Measurement	Kelp & Commercial Fishing	Consumptive Recreation	Total Consumptive Activities	Non-consumptive Recreation	All Activities
Ex Vessel Revenue[1]	$24,233,406	N/A	N/A	N/A	N/A
Person-days[2]	N/A	448,054	448,054	42,008	490,062
Income[3]	$71,649,959	$26,416,557	$98,066,505	$3,738,223	$101,804,728
Employment[4]	1,956	1,138	3,094	223	3,317

1. Includes revenue to fishermen plus processed value of kelp from ISP Alginates.
2. Measure of recreation activity. One person doing an activity for any part of a day or a whole day.
3. Total income generated by activity in seven-county local/regional economy, including multiplier impacts
4. Number of full and part time jobs generated in seven-county local/regional economy, including multiplier impacts.

General Summary of Spatial Alternatives - Step 1 Analyses

Given the three alternatives, 14 species/species groups, two jurisdictions (State and Federal waters), 12 ports of landing and seven counties in the impact area, the Step 1 analyses include many tables with a great deal of detail in Leeworthy and Wiley (2005). Summary results of this analysis are provided here, rather than a complete characterization of the economic analyses of impacts. Note that there is a disproportional impact by jurisdiction (State versus Federal waters) since density of recreational and commercial activity increases as one moves towards the islands. More detailed tables and documentation can be found in Leeworthy and Wiley (2005).

Commercial Fishing

Alternative 1 has the lowest potential impact on the commercial fisheries since the two areas added are marine conservation areas, which allow legally sanctioned fishing for pelagics, spot prawn, white seabass and squid. In addition, for the species/species groups prohibited (rockfish and bottom fish, primarily flatfish) the data indicated that there was zero catch for these species/species groups in the two proposed areas. The only impact is therefore the existing impact already occurring from existing regulations (Leeworthy and Wiley 2005).

The potential impacts of Alternative 2 lie between those of Alternative 1 and Alternative 3. There is very little difference between Alternatives 2 and 3. The new proposed areas of Alternative 2 potentially impact an additional 1.18% of ex vessel value of catch in the CINMS, while Alternative 3 potentially impacts 1.63% of ex vessel value in the CINMS. Estimated potential impacts, measured in terms of income and employment in the local county economies, also show slightly higher impacts for Alternative 3.

Table 4: Commercial Fishing & Kelp: Summary of Impacts by Alternative - Step 1 Analysis										
Alternative	Additional State	%[1]	Federal	%	Total New Proposal	%	Existing State	%	Cumulative Total	%
Ex Vessel Revenue [2]										
1	$0	0	$0	0	$0	0	$2,729,295	11.32	$2,729,295	11.32
2	$159,955	0.66	$123,725	0.51	$283,680	1.18	$2,729,295	11.32	$3,012,975	12.50
3	$195,851	0.81	$196,732	0.82	$392,584	1.63	$2,729,295	11.32	$3,121,879	12.95
Income[3]										
1	$0	0	$0	0	$0	0	$8,544,396	11.93	$8,544,396	11.93
2	$499,787	0.70	$439,661	0.61	$939,448	1.31	$8,544,396	11.93	$9,483,844	13.24
3	$658,443	0.92	$649,618	0.91	$1,308,061	1.83	$8,544,396	11.93	$9,852,457	13.75
Employment [4]										
1	0	0	0	0	0	0	246	12.58	246	12.58
2	15	0.77	13	0.66	28	1.43	246	12.58	274	14.01
3	20	1.02	19	0.97	39	1.99	246	12.58	285	14.57

1. Percents are the percent of total baseline.
2. Exvessel revenue received by fishermen and processed value of kelp, Baseline is equal to $24,103,965.
3. Income is total income, including multiplier impacts. Baseline is equal to $71,649,948.
4. Employment is total employment, including multiplier impacts. Baseline is 1,956 full and part-time jobs.

Leeworthy and Wiley (2005) provide detailed analyses of impacts by jurisdiction (State versus Federal waters) and cumulative impacts for each regulatory alternative for the entire CINMS. Note the total income impact associated with each alternative is only a tiny fraction of one percent of the income and employment in each county within the seven-county region.

Recreational Consumptive Activities

As with the commercial fisheries, Alternative 1 has the lowest impact on consumptive recreational activities because of the exemptions to fishing in the marine conservation areas. Unlike the case for the commercial fisheries, there was some potential impact of Alternative One on the recreational consumptive activities, but the impacts are still the lowest potential impact across all alternatives.

As with the commercial fisheries, the potential impacts of Alternative 2 on consumptive recreation activities lie between those of Alternative 1 and Alternative 3. There is more of difference between Alternatives 2 and 3 for consumptive recreational activities than for commercial fisheries. Alternative Three potentially impacts an additional 1.4% of all consumptive recreation activity in the CINMS than Alternative 2 (Table 2).

Table 5: Consumptive Recreation: Summary of Impacts by Alternative - Step 1 Analysis										
Alternative	Additional State	%[1]	Federal	%	Total New Proposal	%	Existing State	%	Cumulative Total	%
Person-Days[2]										
1	647	0.1	1,405	0.3	2,052	0.5	61,651	13.8	63,703	14.2
2	7,361	1.6	15,005	3.3	22,365	5.0	61,651	13.8	84,016	18.8
3	7,562	1.7	21,075	4.7	28,637	6.4	61,651	13.8	90,288	20.2
Income[3]										
1	$37,713	0.1	$97,360	0.4	$135,072	0.5	$3,275,128	12.4	$3,410,200	12.9
2	$452,604	1.7	$935,292	3.5	$1,387,895	5.3	$3,275,128	12.4	$4,663,023	17.7
3	$465,200	1.8	$1,318,509	5.0	$1,783,709	6.8	$3,275,128	12.4	$5,058,837	19.2
Employment[4]										
1	2	0.2	3	0.3	5	0.4	138	12.1	143	12.6
2	20	1.8	42	3.7	62	5.4	138	12.1	200	17.6
3	21	1.8	59	5.2	79	6.9	138	12.1	217	19.1

1. Percents are the percent of total baseline.
2. Person-days of consumptive recreation activity is equal to 448,054.
3. Income is total income, including multiplier impacts. Baseline is equal to $26,416,557.
4. Employment is total employment, including multiplier impacts. Baseline is 1,138 full and part-time jobs.

Total of All Consumptive Activities

Alternative 1 has the lowest potential impact on all consumptive activities since the marine conservation areas allow for most consumptive uses. Alternative 1 has an estimated additional potential impact of about $135,000 in lost income and a reduction of 5 full and part-time jobs in the local county economies. This represents 0.13% of the total income and 0.2% of the employment generated by consumptive activities in the CINMS. Alternative 2 has an estimated additional potential impact of about $2.3 million in lost income compared to almost $3.1 million in additional lost income by Alternative 3. Alternative 2 potentially impacts an additional 1.3% of all the income generated by consumptive activities in the CINMS compared to 1.86% for Alternative 3. Results are similar for employment (Table 6).

Table 6: All Consumptive Activities: Summary of Impacts by Alternative - Step 1 Analysis										
Alternative	Additional State waters	%[1]	Federal waters	%	Total New Proposal	%	Existing State MPAs	%	Cumulative Total	%
Income[2]										
1	$37,713	0.04	$97,360	0.10	$135,072	0.14	$11,819,524	12.1	$11,954,596	12.2
2	$952,391	0.97	$1,374,953	1.40	$2,327,343	2.37	$11,819,524	12.1	$14,146,867	14.4
3	$1,123,643	1.15	$1,968,127	2.01	$3,091,770	3.15	$11,819,524	12.1	$14,911,294	15.2
Employment[3]										
1	2	0.1	3	0.1	5	0.2	384	12.4	389	12.6
2	35	1.1	55	1.8	90	2.9	384	12.4	474	15.3
3	41	1.3	78	2.5	119	3.8	384	12.4	503	16.3

1. Percents are the percent of total baseline.
2. Income is total income, including multiplier impacts. Baseline is equal to $26,416,557.
2. Employment is total employment, including multiplier impacts. Baseline is 1,138 full and part-time jobs.

General Summary of Spatial Alternatives - Step 2 Analyses

The Step 2 analysis is more comprehensive, but also much less quantitative since all the benefits and costs of marine reserves cannot be quantified. The following section briefly discusses several factors considered in the Step 2 analyses, including mitigating and offsetting factors. A complete characterization of the factors considered in the Step 2 Analysis is found in Leeworthy and Wiley (2005).

Summary Finding

A time dimension is separated by the category of short-term (1 to 5 years) and long-term (5 to 20 years) impacts (Leeworthy and Wiley 2005). For the short-term, the net assessment for commercial fishing and kelp ranges between neutral impacts to an increase in costs beyond Step 1. The most important factors influencing this assessment are the current status of stocks (neutral except for rockfish and spot prawn), regulated inefficiency (which may decrease costs) and the Scientific Advisory Panel's recommendation that catch and/or effort be held constant in the remaining open areas is not implemented (increases cost). The Scientific Advisory Panel's recommendation requires that the effort displaced must exit the fisheries, i.e., the assumption of the Step 1 analysis. If warranted, there is uncertainty about whether such catch and effort recommendations will be included in current and future fishery management plans. If not, the problem of crowding and congestion may result in increased costs (beyond Step 1 costs) in the short-term. In addition, the social costs of not accepting regulations, which might result in increased enforcement costs, may increase costs beyond those estimated in Step 1.

For the long-term, assuming replenishment effects (benefits), substitution/relocation (decrease costs), cowcod closure (benefits) and regulated inefficiency (may decrease costs) leads to a conclusion that impacts in Step 1 were likely overestimated and that there are reasonable possibilities of net benefits.

Alternative 1
This regulatory alternative has no additional impact in the Step 1 analysis, since the only added areas are marine conservation areas that exempt all fisheries currently with reported catch in those areas. In the short-term, there is no additional impact from the new proposed marine conservation areas. In the long-term, the potential for marine reserves is not likely since fishing is not curtailed. Continuation of the current management regime in these areas gives up the benefits that would be expected from marine reserves, and so this alternative may have higher costs to commercial fisheries than we estimated in Step 1.

Alternative 2
In Step 1 analysis, this regulatory alternative impacted an additional 1.18% of the ex vessel value of catch in the CINMS. Leeworthy and Wiley (2005) expect that there will be short-term losses to the commercial fisheries from this alternative, but that they will be less than what is estimated in Step 1 Analyses. In the long-term, it remains to be seen whether replenishment effects are greater than crowding or congestion effects. This will determine if this alternative's long-term cost can be transformed into long-term benefits. The impacts are small from this alternative and net cost or benefits to commercial fisheries are likely to be small.

Alternative 3
In Step 1 Analysis, this regulatory alternative impacted an additional 1.63% of the ex vessel value of catch in the CINMS. Leeworthy and Wiley (2005) expect that there will be short-term losses to the commercial fisheries from this alternative, but that they will be less than what is estimated in Step 1 analyses. In the long-term, it remains to be seen whether replenishment effects are greater than crowding or congestion effects. This will determine if this alternative's long-term cost can be transformed into long-term benefits. But overall the impacts are small from this alternative and net cost or benefits to commercial fisheries are likely to be small.

Recreation: Consumptive Activities

This section summarizes possible mitigating factors on estimated Step 1 losses to consumptive users. It is generally not possible to quantify mitigating factors and benefits, thus the analysis is qualitative. Unlike the commercial fisheries, there is very little in the literature that addresses recreational fishing or other consumptive recreation and the impact of marine reserves once recreation behavior is modeled (Leeworthy and Wiley, 2005).

Alternative 1
This alternative is the smallest of those being considered, both in terms of area and impact to recreational consumptive users. In Step 1, it was estimated that only about one-half of one percent (0.5%) of the person-days of consumptive recreation would potentially be impacted by the proposed action. The small impact was due to the many exemptions of the marine conservation areas proposed under this alternative. The success of relocation effort and substituting to alternative sites has a high probability for this alternative. The potential for crowding/congestion effects would be minimal because of the relatively small size and the location of the alternative. In the short-term, impacts should be less than estimated in the Step 1 Analysis.

In the long-term, the proposed marine conservation areas in this alternative do not provide much in the way of additional protection and so there may be additional costs associated with this alternative. The potential added cost is the opportunity cost or lost benefits by not extending protection, i.e. the failure to take advantage of the possible benefits of marine reserves.

Alternative 2

This alternative was estimated to potentially impact an additional five percent (5%) of the consumptive recreation activity in the CINMS. This alternative is more heavily weighted towards adding to the existing State marine reserves than to marine conservation areas, and therefore displaces more consumptive recreation than alternative 1. Five percent of all consumptive recreation is a relatively low amount of activity and there would be a fairly high probability that adequate substitute areas could be found and significantly mitigate the short-term impacts. There may be little loss in total activity and the associated impacts on the local county economies; however, there will be some loss in consumer's surplus, but much less than estimated in Step 1 Analysis. The main costs in the short-term will most likely come from added search costs in locating substitute sites.

In the long-term, losses will be further mitigated once adequate substitute sites are located. The size of the displacements is not large enough to result in crowding or congestion effects. This conclusion must be tempered with respect to rockfish, since the Rockfish Conservation Area and Cowcod Conservation Area areas include CINMS waters there may be fewer places to find adequate substitutes. Recent regulations have relaxed some of the restrictions on the recreational fisheries and allow more recreational fishing. These actions will allow greater opportunities for recreational fishermen to find adequate substitute sites and mitigate any losses. There is a higher probability under this alternative than alternative 1 for there to be benefits from "edge effects" and/or spillover/replenishment effects from marine reserves. Of course, whether there are net benefits to consumptive recreation users depends on the complex mix of ecological and socioeconomic responses. If there are losses, Leeworthy and Wiley (2005) expect they will be much smaller than estimated in Step 1 Analysis, and there is a possibility of net long-term gains to consumptive recreation.

Alternative 3

This alternative was estimated to potentially impact an additional 6.4% of the consumptive recreation activity in the CINMS. This alternative has the greatest potential impact because of its increased size over the other alternatives. The alternative is also more heavily weighted towards adding to the existing State marine reserves than to marine conservation areas, and, therefore, displaces more consumptive recreation than either alternatives 1 or 2. Regardless, 6.4% percent of all consumptive recreation is a relatively low amount of activity and there would be a fairly high probability that adequate substitute areas could be found and significantly mitigate the short-term impacts. There may be little loss in total activity and the associated impacts on the local county economies. However, there will likely be some loss in consumer's surplus, but much less than estimated in Step 1 analysis.

In the long-term, losses will be further mitigated once adequate substitute sites are located. The size of the displacements is likely not large enough to result in crowding or congestion effects. This conclusion must be tempered with respect to rockfish, since the RCA and CCA include

CINMS waters, which may affect adequate substitute fishing sites within CINMS. Recent regulations have relaxed some of the restrictions on the recreational fisheries and allow more recreational fishing. These actions will allow greater opportunities for recreational fishermen to find adequate substitute sites and mitigate any losses. There is a higher probability under this alternative than alternative 1 or alternative 2 for there to be benefits from "edge effects" and/or spillover/replenishment effects from marine reserves. If there are losses, Leeworthy and Wiley (2005) expect they will be much smaller than estimated in Step 1 analysis and there is actually a reasonable possibility of net long-term gains to consumptive recreation.

Recreation Non-consumptive Users – Step 2 Analysis

In addition to potential benefits to marine ecosystem services, the establishment of marine reserves may result in benefits to non-consumptive recreational users of the CINMS (Leeworthy and Wiley 2005). These increased benefits take the form of increases in diversity of wildlife, viewing opportunities from increased abundance of fish and invertebrates, water quality, etc. Benefits may also be derived from the decrease in the density of users or in the reduction in conflicts with consumptive users.

There is no data currently available to directly estimate the magnitude of these benefits. In light of this fact a "benefits transfer policy simulation"[1] is conducted for each alternative using a range of increases in quality and of quality elasticities (Leeworthy and Wiley 2005). Quality elasticities show the percentage change in consumer's surplus for a percentage change in quality. For each alternative Leeworthy and Wiley (2005) conducted a "benefits transfer/policy analysis simulation" to estimate a range on the possible benefits of the additional marine reserves. Estimates of aggregate benefits tend to underestimate true benefits due to the lack of data on private boat non-consumptive use in the calculations.

Vessel Use Analysis of Alternatives

SAMSAP

The Sanctuary Aerial Monitoring and Spatial Analysis program (SAMSAP) is used to analyze vessel use of each alternative and characterize potential congestion. SAMSAP is designed to monitor and analyze the physical and anthropogenic phenomena within the Sanctuary such as sanctuary users, commercial and recreational vessel traffic, using a GIS and aerial GPS collection strategy.

Surveys of vessel traffic and vessel type allow anthropogenic use patterns to be studied, e.g., displacement of fishing effort due to marine reserves and marine conservation areas. Data downloaded into the Sanctuary's GIS are used to analyze historical trends and detect correlations across data types.

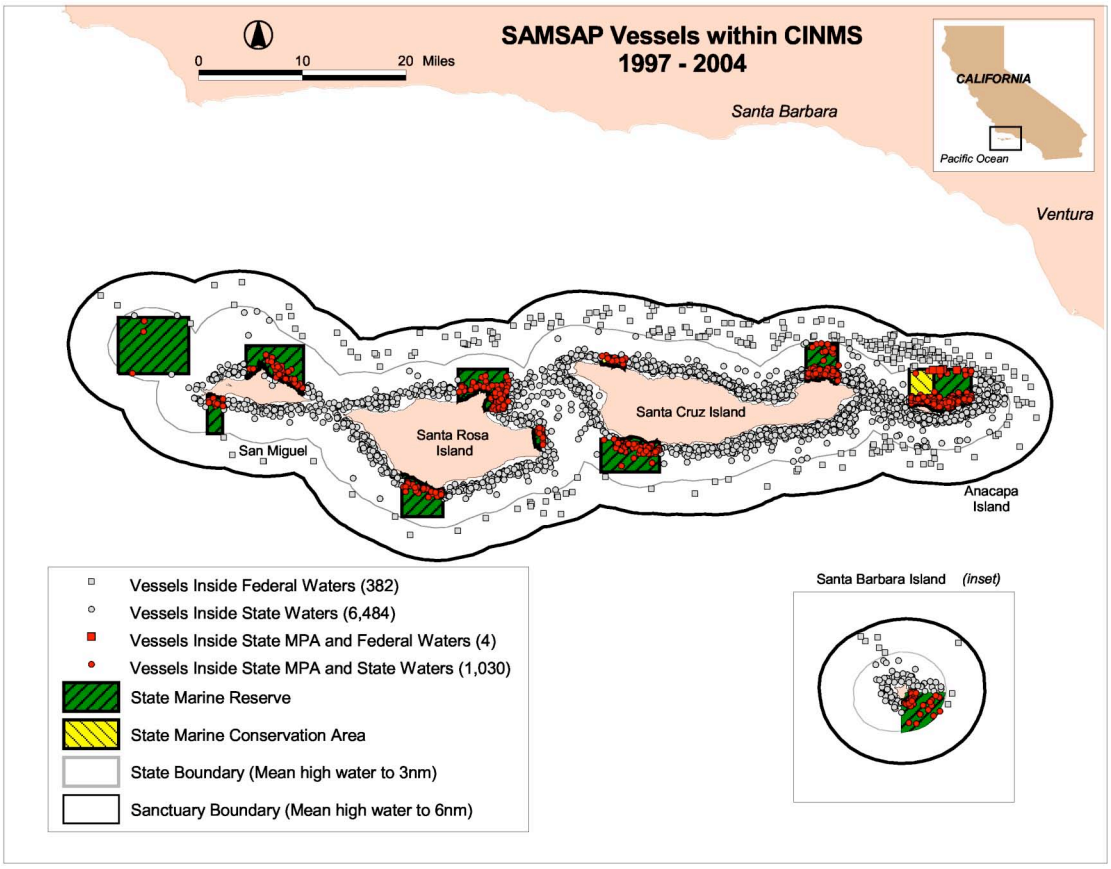
[1] The 'benefits transfer/policy analysis simulation" addresses four different measurements: 1) Consumer's surplus, 2) Income generated in the local county economies, 3) Employment generated in the local county economies and 4) Person-days of activity.

The following anthropogenic use analysis utilizes vessel sightings to examine human use within CINMS and the potential impact of the NEPA alternatives. The sightings span between July 1997 and August 2004. Vessel types are classified into four categories: (1) consumptive, commercial (2) consumptive, recreational (3) nonconsumptive, commercial (4) non-consumptive, recreational.

Vessels Within CINMS

Figure 7 shows the distribution vessels within CINMS regions. The majority of vessels were observed within CINMS' State waters as compared to CINMS' Federal waters. Of the 7,094 total observed vessels during the period of 1997-2004, 91.4% were observed in State waters and 5.4% were observed within CINMS Federal waters, and 3.2% were observed outside of the CINMS boundary.

Figure 10: Vessels Within CINMS, 1997 – 2004

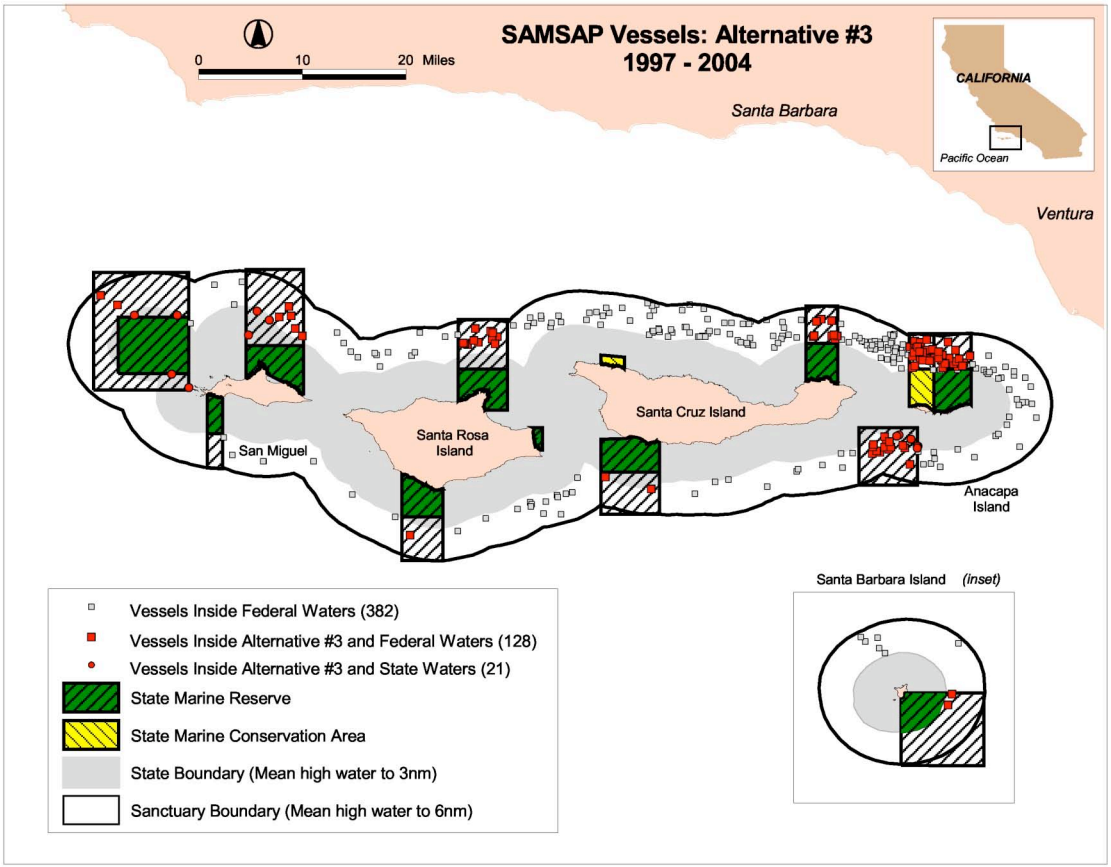


The spatial distribution of vessel sightings shows that 1,034 of sightings occurred within the existing State MPA network, comprising 15.1% of all observations made within CINMS State and Federal waters.

Activity In The Proposed Alternatives

Of the 382 vessels sighted within Federal waters, 22 were sighted within the Federal waters of Alternative 1; 76 were sighted within the Federal waters of alternative 2; and 128 vessels were sighted within the Federal waters of Alternative 3. Of the 6,484 vessels sighted within State waters, 14 were sighted in Alternative 1; 21 vessels were sighted in alternative 2; and 21 vessels were sighted in Alternative 3. Figure 9 demonstrates the number of vessels sighted within Alternative 3, which is currently the largest spatial alternative.

Figure 11: Vessels Within Alternative 3



SECTION VI: MODEL REGULATORY LANGUAGE AND COORDINATES

The following model regulations and coordinates are provided as a guide to assist the PFMC in its consideration of providing draft NMSA regulations. Sanctuary permit criteria would continue to apply. The model language is intended to be as consistent as practicable with the State of California marine protected area regulatory language. Consistency in regulatory language and intent will foster greater understanding by the public and agencies, consistent enforcement and a seamless integration of the state and sanctuary administration and implementation of a Channel Islands MPA network.

*In a **marine reserve** it is unlawful to harvest, remove, take, injure, destroy, possess, collect, move, or cause the loss of any living or dead organism, geological resource, cultural or historical resource or other Sanctuary resource, or attempt any of these activities.*

*In the **marine conservation area** specified, it is unlawful to harvest, remove, take, injure, destroy, possess, collect, move, or cause the loss of any living or dead organism, geological resource, cultural or historical resource or other Sanctuary resource, or attempt any of these activities, except that commercial and recreational fishing for lobster and recreational hook-and-line fishing for pelagic finfish are allowed.*

Pelagic finfish are defined as: northern anchovy (Engraulis mordax), barracudas (Sphyraena spp.), billfishes (family Istiophoridae), dolphinfish (Coryphaena hippurus), Pacific herring (Clupea pallasi), jack mackerel (Trachurus symmetricus), Pacific mackerel (Scomber japonicus), salmon (Oncorhynchus spp.), Pacific sardine (Sardinops sagax), blue shark (Prionace glauca), salmon shark (Lamna ditropis), shortfin mako shark (Isurus oxyrinchus), thresher sharks (Alopias spp.), swordfish (Xiphias gladius), tunas (family Scombridae), and yellowtail (Seriola lalandi). *Marlin is not allowed for commercial take.*

***Anchoring**. Vessels shall be allowed to anchor in any marine protected area with catch onboard. Fishing gear shall be stowed and not in use while anchored in a marine reserve or the marine conservation area.*

***Transit**. Vessels shall be allowed to transit through marine protected areas with catch onboard. Fishing gear shall be stowed and not in use while transiting through a marine reserve. Fishing gear, except legal fishing gear used to fish for lobster or pelagic finfish, shall be stowed and not in use while transiting through the marine conservation area.*

***Proposed Boundaries.** Please see the coordinates for the alternatives below.*

Please note that draft sanctuary fishing regulations under the NMSA can address all living and non-living marine resources. In other words, the PFMC is not restricted to the species or activities regulated under its current FMPs or by other limitations of the Magnuson-Stevens Act in drafting these NMSA regulations.

Proposed Coordinates for Alternatives

Alternative 2

Below are the coordinates for CINMS regulations in the federal waters of the Sanctuary. CINMS will coordinate with the State of California to determine how to fill the spatial gaps where the existing state MPA boundaries are inside the State and federal 3 nm border.

Richardson Rock (San Miguel Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.14000 °N	**-120.56313 °W**
34.14000 °N	**-120.57000 °W**
34.13342 °N	**-120.57000 °W**
34.06978 °N	**-120.57000 °W**
34.06000 °N	**-120.57000 °W**
34.06000 °N	**-120.55860 °W**
34.03685 °N	**-120.51538 °W**
34.03685 °N	**-120.60485 °W**
34.17333 °N	**-120.60485 °W**
34.17333 °N	**-120.47000 °W**
34.14000 °N	**-120.47000 °W**
34.14000 °N	**-120.47795 °W**

Harris Point (San Miguel Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.15542 °N	**-120.38833 °W**
34.20833 °N	**-120.38833 °W**
34.20833 °N	**-120.30667 °W**
34.10374 °N	**-120.30670 °W**
34.15542 °N	**-120.38833 °W**

South Point (Santa Rosa Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.84136 °N	**-120.10833 °W**
33.85482 °N	**-120.16667 °W**
33.84000 °N	**-120.16667 °W**
33.84000 °N	**-120.10830 °W**

Gull Island (Santa Cruz Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.92147 °N	**-119.88330 °W**
33.86043 °N	**-119.88330 °W**
33.86043 °N	**-119.80000 °W**
33.90439 °N	**-119.80000 °W**

Scorpion (Santa Cruz Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.10417 °N	**-119.59170 °W**
34.15590 °N	**-119.59170 °W**
34.15590 °N	**-119.54670 °W**
34.10417 °N	**-119.54670 °W**

Footprint Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.95831 °N	**-119.51667 °W**
33.90189 °N	**-119.51667 °W**
33.90189 °N	**-119.43333 °W**
33.95240 °N	**-119.43333 °W**

Anacapa Island Marine Conservation Area. Commercial and recreational fishing of lobster and recreational fisghing for pelagic fin fish with hook and line only would be allowed. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.06670 °N	**-119.44500 °W**
34.08333 °N	**-119.44500 °W**
34.08333 °N	**-119.41000 °W**
34.06670 °N	**-119.41000 °W**

Anacapa Island Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.06670 °N	**-119.41000 °W**
34.08333 °N	**-119.41000 °W**
34.08333 °N	**-119.35670 °W**
34.06670 °N	**-119.35670 °W**

Santa Barbara Island Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.47500 °N	**-118.97000 °W**
33.41500 °N	**-119.03670 °W**
33.36301 °N	**-119.03670 °W**
33.36301 °N	**-118.90897 °W**
33.47500 °N	**-118.90897 °W**

Alternative 3

Sanctuary regulations for federal waters (3 nm to the edge of the Sanctuary boundaries). Note this would leave gaps where the existing state MPA boundaries are inside the State and federal 3 nm border.

Richardson Rock (San Miguel Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.14000 °N	**-120.56313 °W**
34.14000 °N	**-120.57000 °W**
34.13342 °N	**-120.57000 °W**
34.06978 °N	**-120.57000 °W**
34.06000 °N	**-120.57000 °W**
34.06000 °N	**-120.55860 °W**
34.03685 °N	**-120.51538 °W**
34.03685 °N	**-120.60485 °W**
34.20369 °N	**-120.60485 °W**
34.20369 °N	**-120.47000 °W**
34.14000 °N	**-120.47000 °W**
34.14000 °N	**-120.47795 °W**

Harris Point (San Miguel Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.15542 °N	**-120.38833 °W**
34.20833 °N	**-120.38833 °W**
34.20833 °N	**-120.30667 °W**
34.10374 °N	**-120.30670 °W**
34.15542 °N	**-120.38833 °W**

Judith Rock (San Miguel Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.97500 °N	**-120.44330 °W**
33.97500 °N	**-120.43730 °W**
33.97500 °N	**-120.42170 °W**
33.92579 °N	**-120.42170 °W**
33.92579 °N	**-120.44330 °W**

Carrington Point (Santa Rosa Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.08211 °N	**-120.08667 °W**
34.08159 °N	**-120.01670 °W**
34.13710 °N	**-120.08667 °W**
34.13710 °N	**-120.01670 °W**

South Point (Santa Rosa Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.85482 °N	**-120.16670 °W**
33.84136 °N	**-120.10833 °W**
33.79465 °N	**-120.10833 °W**
33.79465 °N	**-120.16670 °W**

Gull Island (Santa Cruz Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.92147 °N	**-119.88330 °W**
33.86043 °N	**-119.88330 °W**
33.86043 °N	**-119.80000 °W**
33.90439 °N	**-119.80000 °W**

Scorpion (Santa Cruz Island) Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.10417 °N	**-119.59170 °W**
34.15590 °N	**-119.59170 °W**
34.15590 °N	**-119.54670 °W**
34.10417 °N	**-119.54670 °W**

Footprint Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.95831 °N	**-119.51667 °W**
33.90189 °N	**-119.51667 °W**
33.90189 °N	**-119.43333 °W**
33.95240 °N	**-119.43333 °W**

Anacapa Island Marine Conservation Area. Commercial and recreation take of lobster and recreational pelagic fin fish with hook and line would be allowed. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.06670 °N	**-119.44500 °W**
34.11722 °N	**-119.44500 °W**
34.11722 °N	**-119.41000 °W**
34.06670 °N	**-119.41000 °W**

Anacapa Island Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
34.06670 °N	**-119.41000 °W**
34.11722 °N	**-119.41000 °W**
34.11722 °N	**-119.35670 °W**
34.06670 °N	**-119.35670 °W**

Santa Barbara Island Marine Reserve. This area is bounded by the 3 nautical mile State boundary and the following points:

Latitude	Longitude
33.47500 °N	**-118.97000 °W**
33.41500 °N	**-119.03670 °W**
33.36301 °N	**-119.03670 °W**
33.36301 °N	**-118.90897 °W**
33.47500 °N	**-118.90897 °W**

APPENDICES

Appendix A: Existing Commercial Fishing Prohibitions In The Southern California Area			
Species	**Gear Type**	**Regulated Season**	**Regulations**
Abalone			Abalone may not be taken, possessed, or landed for commercial purposes.
All Groundfish (some exceptions)	All Gear Types	March 1 – April 30	Closed Season
All Groundfish (some exceptions)	Non-trawl (Fixed)	Jan 1 – Dec 31	Fishing is prohibited in waters greater than 60 fathoms and less than 150 fathoms south of Point Conception.
All Groundfish (some exceptions)	Trawl	Jan 1 – Feb 28 and Nov 1 – Dec 31	Fishing is prohibited in waters greater than 75 fathoms and less than 150 fathoms along the mainland, and from the shoreline to 150 fathoms around the islands.
All Groundfish (some exceptions)	Trawl	Mar 1 – Oct 31	Fishing is prohibited in waters greater than 100 fathoms and less than 150 fathoms along the mainland, and from the shoreline to 150 fathoms around the islands.
Sheephead	All Gear Types	March 1 – April 30	Closed Season
All Species – Marine Resources Protection Zone	Gill Nets and Trammel Nets		Prohibited in waters less than 70 fathoms or within 1 nautical mile, whichever is less, around all of the Channel Islands[2]
Rockfish	Gill Nets and Trammel Nets		Use Prohibited in State waters for the take of rockfish.
Rockfish & Lingcod	Gill Nets and Trammel Nets		Prohibited in waters less than 70 fathoms in depth south of Point Sal, except drift and set gill nets shall not be used in waters less than 100 fathoms in depth at Sixty-Mile Bank. Prohibition on the take of rockfish in State waters applies.
Swordfish & Shark	Drift Gill Nets	Feb 1 – April 30	Closed Season
Swordfish & Shark	Drift Gill Nets	May 1 – Aug 14	Use prohibited within 75 nautical miles of the mainland coast between the westerly extension of the CA-OR boundary and the westerly extension of the US-Mexico boundary.
Swordfish & Shark	Drift Gill Nets	May 1 – July 31	Use prohibited within 6 nautical miles westerly, northerly, and easterly of the shoreline of San Miguel Island between a line extending 6 nautical miles west from Point Bennett and a line extending 6 nautical miles east from Cardwell Point and within 6 nautical miles westerly, northerly, and easterly of the shoreline of Santa Rosa Island between a line extending 6 nautical miles west from Sandy Point and a line extending 6 nautical miles east from Skunk Point.
Swordfish & Shark	Drift Gill Nets	May 1 – July 31	Use prohibited within 10 nautical miles westerly, southerly, and easterly of the shoreline of San Miguel Island between a line extending 10 nautical miles west

[2] All Channel Islands include San Miguel, Santa Rosa, Santa Cruz, Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente.

Appendix A: Existing Commercial Fishing Prohibitions In The Southern California Area			
Species	**Gear Type**	**Regulated Season**	**Regulations**
			from Point Bennett and a line extending 10 nautical miles east from Cardwell Point and within 10 nautical miles westerly, southerly, and easterly of the shoreline of Santa Rosa Island between a line extending 10 nautical miles west from Sandy Point and a line extending 10 nautical miles east from Skunk Point.
Swordfish & Shark	Drift Gill Nets	Dec 15 – Jan 31	Use prohibited in ocean waters within 25 nautical miles of the mainland coast.
Squid	Round Haul Nets	Jan 1–Dec 31	Season closed from noon Friday until noon Sunday each week.
Yellowtail, barracuda, white seabass, salmon, steelhead, striped bass, and shad	Round Haul Nets		Use prohibited to take these species.
All Species	Trawl Nets		Prohibited out to 3 miles offshore mainland coast. (Except California halibut trawl grounds, 1-3 miles offshore between Pt. Arguello and Pt. Mugu). Special restrictions apply.
Halibut	Trawl Nets	March 15 – June 15	Closed Season - California Halibut Trawl Grounds. Use prohibited in waters 1-3 nautical miles from the mainland shore between Pt. Arguello and Pt. Mugu.
Pink Shrimp	Trawl Nets	Nov 1 –March 31	Closed Season for Pacific Ocean Shrimp.
Prawns & Shrimp	Traps		Use prohibited from Point Conception south to the Mexican border inside 50 fathoms depth.
Spot Prawn	Traps	Nov 1 –January 31	Closed Season between line drawn due west from Pt. Arguello and US-Mexico boundary.
Spot Prawn	Trawl		Use prohibited
Sea urchin (Red)		Various Closures - April through October	In April - May, September - October the closed days are Friday through Sunday. In June and August the closed days are Thursday through Sunday. In July the closed days are Wednesday through Sunday.
Lobster	Traps	First Thur. after March 15th to 1st Tue. in October	Closed Season

Appendix B: Existing Recreational Fishing Prohibitions In The Southern California Area		
Species	**Regulated Season**	**Regulations**
Abalone		May not be taken
Garibaldi, giant (black) sea bass, gulf and broomtail grouper, canary rockfish, cowcod rockfish, yelloweye rockfish, white shark		May not be taken
Grunion	4/1 – 5/31	Closed Season
Rockfish, cabezon, greenlings, CA sheephead, ocean whitefish, and bocaccio.	1/1 – 2/28	Closed Season for boat-based anglers; open year-round for divers and shore-based anglers[1].
Rockfish, cabezon, greenlings, CA sheephead, ocean whitefish, and bocaccio	3/1 – 4/15	Take is prohibited in waters greater than 60 fathoms and less than 30 fathoms south of Point Conception.
Rockfish, cabezon, greenlings, CA sheephead, ocean whitefish, and bocaccio	4/16 – 8/31, and 11/1-12/31	Take is prohibited in waters greater than 60 fathoms south of Point Conception.
Rockfish, cabezon, greenlings, CA sheephead, ocean whitefish, and bocaccio	9/1-10/31	Take is prohibited in waters greater than 30 fathoms south of Point Conception.
CA scorpionfish (sculpin)	1/1 – 9/30	Closed Season for boat-based anglers; open year-round for divers and shore-based anglers.
CA scorpionfish (sculpin)	10/1-10/31	Take is prohibited in waters greater than 30 fathoms south of Point Conception
CA scorpionfish (sculpin)	11/1-12/31	Take is prohibited in waters greater than 60 fathoms south of Point Conception
Lingcod	1/1-3/31, and 12/1-12/31	Closed Season for boat-based anglers, divers, and shore-based anglers.
Lingcod	April 1 – April 15	Take is prohibited in waters greater than 60 fathoms and less than 30 fathoms south of Point Conception.
Lingcod	4/16 – 8/31, and November 1-November 30	Take is prohibited in waters greater than 60 fathoms south of Point Conception.
Lingcod	9/1-10/31	Take is prohibited in waters greater than 30 fathoms south of Point Conception.
Lobster	First Thur. after 3/15 to the Fri. before the 1st Wed. in October	Closed Season
Salmon	9/29 – 4/2	Closed Season

Appendix C: Federal Waters Fisheries In the Channel Islands Area				
Species	**Fishery**	**Management**	**General Locale**	**Comments**
Angel Shark	Set Gillnet	State FGC	North side Rosa and Cruz	Mostly inside State Waters
Halibut	Set Gillnet and Trawl Hook and Line	State FGC/T14	North side Rosa, Cruz, Anacapa, South Side Rosa, Cruz, Miguel	Mostly inside State Waters
Other Flatfish	Trawl (mostly)	Federal Groundfish FMP	North side Rosa, Cruz, Anacapa South Side Rosa, Cruz, Miguel	
Rockfish	Set Gillnet/ Hook and Line	Federal Groundfish FMP	NE side Cruz Carrington Point	Hook and Line mostly inside State Waters
Rockfish	Trawl	Federal Groundfish FMP	mostly N and W Rosa and Miguel and S Miguel	
Thornyheads	Trawl/ Hook and Line	Federal Groundfish FMP	South side of all islands except SBI	
Sea Cucumber	Trawl	State FGC	Primarily Santa Barbara Channel	No reported catch in CINMS (Leeworthy and Wiley 2005)
Ridgeback Prawn	Trawl	State T14	All North sides, primarily Anacapa and NE Cruz	
Spot Prawn	Trap and Trawl*	State T14	All areas except SBI	*The trawl fishery is no longer legal, however some fishermen may convert to trap and continue fishing traditionally trawled areas.
Market Squid	Seine/ Brail	State FGC/T14	Occasional SBI North and South, as well as South Santa Rosa and NE Cruz	mostly inside State Waters with the exception of certain areas off SBI
White Seabass	Small-Mesh Drift Gillnet/ Set Gillnet/ Hook and Line	State FGC/T14	SW Rosa, S and SE Cruz All North sides except Anacapa	
Common Thresher Shark	Drift Gillnet	Federal Highly Migratory Species FMP	All areas	
Soupfin Shark/ Leopard Shark	Set Gillnet	State FGC Federal Groundfish FMP	Mostly North side Santa Rosa, Santa Cruz, and Anacapa North and South SBI Occasional South side Rosa, Cruz, and Anacapa	Mostly inside State Waters
Swordfish	Drift Gillnet/ Harpoon	Federal Highly Migratory Species FMP	S Cruz and Anacapa	
Tunas	Hook and Line/ Seine	State T14 Federal Highly Migratory Species FMP	Limited in this region	When appearing near CINMS, Bluefin Tuna have been targeted with Purse Seine at South Santa Rosa and Santa Cruz). Albacore - Hook and Line when

Appendix C: Federal Waters Fisheries In the Channel Islands Area				
Species	**Fishery**	**Management**	**General Locale**	**Comments**
				fish are available.
Sardine/Mackerel/ Anchovy (CPS)	Seine	Federal Coastal Pelagic Species FMP	All areas	
Sablefish	Trap and Hook and Line Gears	Federal Groundfish FMP	South sides of all but SBI	
Salmon	Hook and Line	State T14 Federal Salmon FMP	Very limited in this region	

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