

CALIFORNIA COASTAL COMMISSION

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STAFF REPORT AND RECOMMENDATION**ON CONSISTENCY DETERMINATION**

Consistency Determination No.	CD-072-06
Staff:	CLT-SF
File Date:	9/8/2006
60 th Day:	11/7/2006
75 th Day:	11/22/2006
Extension Granted Until:	1/19/2006
Commission Meeting:	1/11/2006

FEDERAL AGENCY: **National Oceanic and Atmospheric Administration**

PROJECT
LOCATION:

140.2 square nautical miles of the 1252 square nautical mile Channel Islands Marine Sanctuary, primarily between three and six nautical miles offshore of the northeast, southeast and southwest corners of Santa Cruz Island, the south side of Santa Rosa Island, the northeast corner of San Miguel Island, the north side of Anacapa Island, the southwest corner of Santa Barbara Island and the north, west and south sides of Richardson Rock.

PROJECT
DESCRIPTION:

Designate 138.5 square nautical miles of marine reserves and 1.7 square nautical miles of marine conservation areas, primarily within the federal waters of the Channel Islands National Marine Sanctuary.

SUBSTANTIVE
FILE DOCUMENTS:

See page 20.

EXECUTIVE SUMMARY

The National Oceanic and Atmospheric Administration (“NOAA”), through the National Marine Sanctuary Program (“NMSP”), has submitted a consistency determination for both the expansion of existing marine reserves and marine conservation areas as well as the creation of a new marine reserve (collectively known as “marine protected areas” or “MPAs”) within the Channel Islands National Marine Sanctuary (“CINMS” or “Sanctuary”).

The proposed designation of 140.2 square nautical miles of additional MPAs is the second and final phase of the two phased Channel Islands Marine Reserve Process that began in 1999 through collaboration and partnership with federal and State agencies, including Coastal Commission staff, regional fishery groups and conservation interests. The first phase of this process resulted in the demarcation of MPAs within the State waters portion of the CINMS by the California Department of Fish and Game (“CDFG”) and was concluded in October of 2002 when the Fish and Game Commission approved the designation of 10 marine reserves and two marine conservation areas. These 12 MPAs encompass approximately 102.1 square nautical miles of the Sanctuary’s state waters around the islands of Anacapa, Santa Cruz, San Miguel, Santa Barbara, and Santa Rosa. The combined 242.3 square nautical mile MPA network would be comprised of 11 marine reserves and two marine conservation areas (See Exhibits 1 and 2).

The wealth of marine resources in the Channel Island National Marine Sanctuary is well documented. Collectively, the natural resources found in the Sanctuary constitute some of the most significant natural marine assets in the United States.

In evaluating the potential impacts of the proposed 138.5 square nautical miles of additional marine reserves and 1.7 square nautical miles of additional marine conservation areas on the physical and biological environment, cultural/historical resources, and human uses of the CINMS, NMSP has determined that:

...the proposed action is expected to benefit marine resources by enhancing natural biodiversity and ecosystem structure within the CINMS. By enhancing marine resources the proposed action will likely help commercial and recreational fishing in the long term. Short term adverse effects on commercial and recreational fishing will be minor and largely restricted to areas within the CINMS where commercial and recreational fishing is already prohibited by State of California regulations and NOAA fishing regulations... In addition, other recreational uses of the CINMS such as wildlife viewing would be enhanced in the long term through increased abundance of wildlife in the CINMS.

The addition of new MPAs within the CINMS will enhance and further protect the Sanctuary’s marine resources and will not adversely affect the recreational and public access opportunities that currently exist within the Sanctuary. Although the designation of MPAs will result in restricted commercial and recreational fishing access to about 11% of Sanctuary waters (an estimated 1.18% reduction in the annual value of commercial catch within the CINMS), the closure of these areas is anticipated to be offset by enhanced fishing opportunities throughout the

rest of the Sanctuary brought on by the increases in fish stocks that will result from the habitat and fishery protection provided by the MPAs. Accordingly, NMSP has determined that the proposed project will result in short term and less than significant adverse impacts to commercial and recreational fishing activities.

The proposed action is consistent with the marine resources, public access, and commercial and recreational fishing policies of California's Coastal Management Program (Sections 30210, 30214, 30220, 30230, 30231, 30234.5 of the Coastal Act) and therefore Commission staff recommends the Commission concur with consistency determination CD-072-06.

STAFF SUMMARY AND RECOMMENDATION

1.0 Background

Initially designated in 1980, the Channel Islands National Marine Sanctuary consists of approximately 1252 square nautical miles of coastal and ocean waters, and their underlying submerged lands, off the southern coast of California. The Sanctuary boundary begins at the Mean High Water Line and extends seaward to a distance of approximately six nautical miles from 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.

The Sanctuary's primary objective is to conserve, protect, and enhance the biodiversity, ecological integrity, and cultural legacy of marine resources surrounding the Channel Islands for current and future generations. The significance of this objective is underscored by the Sanctuary's diversity and richness of marine life and habitats, its unique and productive oceanographic processes and ecosystems, and its culturally significant resources. This objective is also directly reflected in the seven specific goals of the Sanctuary that are derived from the overarching mission of the National Marine Sanctuary Program and the policies of the National Marine Sanctuaries Act:

- 1) *Protect the natural habitats, ecological systems and biological communities of all living resources inhabiting these areas, and the area's cultural and archaeological resources, for future generations;*
- 2) *Enhance public awareness, understanding, and appreciation of the marine environment and the natural, historical, cultural and archaeological resources of the National Marine Sanctuary System;*
- 3) *Where appropriate, restore and enhance natural habitats, populations and ecological systems;*
- 4) *Provide comprehensive and coordinated conservation and management of these marine areas, as well as the activities affecting them in a manner complementing existing regulatory authorities;*

- 5) *Create models and incentives for ways to conserve and manage these areas, including the application of innovative management techniques;*
- 6) *Allow to the extent compatible with the primary objective of resources protection, public and private uses of the resources; and*
- 7) *Cooperate with national and international programs encouraging conservation of marine resources.*

Pursuant to the provisions of the National Marine Sanctuaries Act (“NMSA”), 16 U.S.C. 1431(a)(3) and 16 U.S.C. 1431(b)(3), the National Marine Sanctuary Program is to achieve its primary objective of protecting national marine sanctuary resources through the coordinated and comprehensive management of special areas of the marine environment and the maintenance, protection, restoration and enhancement of the natural biological communities, natural habitats, populations and ecological processes that exist within the sanctuaries.

In recent years, the decline of marine resources in the Sanctuary and Southern California Bight due to steady pressure from both commercial and recreational fishing, changes in oceanographic conditions associated with El Niño (and other large-scale oceanographic cycles), the introduction of diseases and exotic species, and increased levels of pollutants and marine resource use has prompted the California Department of Fish and Game and NOAA to initiate a two phased process of creating a network of marine reserves and marine conservation areas within the Channel Islands National Marine Sanctuary. The first phase of this process resulted in the demarcation of marine protected areas within the state waters portion of the CINMS by the California Department of Fish and Game and was concluded in October of 2002 when the Fish and Game Commission approved the designation of ten marine reserves and two marine conservation areas. These 12 marine protected areas encompass approximately 102.1 square nautical miles of the Sanctuary’s state waters around the islands of Anacapa, Santa Cruz, San Miguel, Santa Barbara, and Santa Rosa. This initial establishment of MPAs was determined by Commission staff and CDFG to constitute a “wildlife and fishery management program” under Section 30411(a) of the Coastal Act. This section recognizes that CDFG and the Fish and Game Commission are the principal state agencies responsible for the establishment of wildlife and fishery programs and that “the [Coastal] Commission shall not establish or impose any controls with respect thereto that duplicate or exceed regulatory controls established by these agencies....” Accordingly, no coastal development permit was required for the establishment of MPAs by CDFG. As a federal action by NMSP however, the currently proposed second phase of the Channel Islands Marine Reserve Process, the expansion and addition of MPAs into the federal waters of the Sanctuary, is subject to the federal consistency review requirements of section 307(c)(1) of the Coastal Zone Management Act (CZMA; 16 USC §1456(c)(1)) and its implementing regulations (15 CFR Part 930, Subpart C). The purpose of the Commission’s review is to ensure that the proposed marine reserves are consistent with the State’s federally-certified California Coastal Management Program.

2.0 Project Description

As phase two of the process described above, NMSP is currently proposing to add an additional 138.5 square nautical miles of marine reserves and 1.7 square nautical miles of marine

conservation areas to the existing network of 102.1 square nautical miles of MPAs. The resulting combined 242.3 square nautical mile MPA network would be comprised of 11 marine reserves and 2 marine conservation areas, as detailed in Exhibits 1 and 2. This combined network represents the preferred system of MPAs that was developed by CDFG and NMSP in 2001 based upon extensive public participation and the expertise of the CINMS Marine Reserves Working Group (“MRWG”), a stakeholder based community group comprised of 17 members representing State and federal agencies, conservation interests, consumptive recreational and commercial groups, the public at large and the California Sea Grant program.

As described above, the portions of these MPAs within State waters were established by the Fish and Game Commission and CDFG in 2003 with State marine zoning regulations. The current proposal would complete the Channel Islands marine protected area network by overlaying federal protection across the existing State marine reserve and marine conservation area network and extending it into federal waters, as envisioned by the State’s 2002 action and supported by NOAA and the National Park Service. In other words, the boundaries and corresponding regulations of the proposed MPAs would apply from the Mean High Water Line of the Channel Islands to the seaward boundaries of the proposed zones, often including both State and Federal waters (see Exhibit 1). In addition, to properly implement the creation of the proposed MPAs, NMSP would need to amend several aspects of the CINMS designation document. As described in the project EIS, these amendments include provisions to:

- a. *allow for the regulation of fishing and other extractive activities in marine reserves and marine conservation areas;*
- b. *allow for the regulation of possession of fishing gear in marine reserves and marine conservation areas; and*
- c. *modify the outer boundary of the CIMNS to accommodate the proposed Harris Point, Gull Island, Footprint and Santa Barbara Island marine reserves, which were drawn with straight lines of latitude and longitude and, as a result, extend slightly outside the current Sanctuary boundary¹.*

The key distinction between the two types of proposed MPAs is that marine reserves would provide a greater degree of resource protection by prohibiting all extractive activities (e.g. removal of any Sanctuary resource) and injury to Sanctuary resources while certain kinds of lobster fishing and recreational fishing for pelagic (open ocean) fish species would be allowed in marine conservation areas. Apart from the exception for lobster and pelagic fishing, marine conservation areas include the same prohibitions on injury and removal of Sanctuary resources that marine reserves do. The specific regulatory language governing these areas states that:

¹ With respect to the modification of the Sanctuary’s outer boundary as described above, this provision would result in an increase in the total size of the CINMS from 1243 square nautical miles to 1268 square nautical miles, an increase of 25 square nautical miles.

- *In a marine reserve it would be unlawful to harvest, remove, take, injure, destroy, possess², collect, move, or cause the loss of any living or dead organism, historical resource, or other Sanctuary resource, or attempt any of these activities. It would also be unlawful to possess fishing gear on board a vessel unless such gear is stowed and not available for immediate use.*
- *In the marine conservation area, it would be unlawful to harvest, remove, take or injure, destroy, possess³, collect, move, or cause the loss of any living or dead organism, historical resource, or other Sanctuary resource, or attempt any of these activities, except that certain commercial and recreational fishing for lobster⁴ and recreational fishing for pelagic finfish⁵ are allowed. It would also be unlawful to possess fishing gear on board a vessel, except legal fishing gear used to fish for lobster or pelagic finfish, unless such gear is stowed and not available for immediate use.*

3.0 Federal Agency's Consistency Determination

NOAA has determined the project consistent to the maximum extent practicable with the California Coastal Management Program.

4.0 Staff Recommendation

The staff recommends that the Commission adopt the following motion:

MOTION: **I move that the Commission concur with consistency determination CD-072-06 that the project described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (“CCMP”).**

STAFF RECOMMENDATION:

Staff recommends a **YES** vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

RESOLUTION TO CONCUR WITH CONSISTENCY DETERMINATION:

The Commission hereby **concurs** with consistency determination CD-072-06 by the National Oceanic and Atmospheric Administration on the grounds that the project is fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP.

² Vessels would be allowed to transit through, or be at anchor in, a marine reserve with legal catch onboard provided that fishing gear is stowed and not available for immediate use.

³ Vessels would be allowed to transit through, or be at anchor in, a marine conservation area with legal catch onboard provided that fishing gear is stowed and not available for immediate use.

⁴ Commercial and recreational fishing for lobster is permitted within the Anacapa Marine Conservation Area and recreational fishing for lobster is permitted within the Painted Caves Marine Conservation Area.

⁵ Pelagic finfish are defined as: northern anchovy, barracudas, billfishes, dolphinfish, Pacific herring, jack mackerel, Pacific mackerel, salmon, Pacific sardine, blue shark, salmon shark, shortfin mako shark, thresher shark, swordfish, tunas and yellowtail.

5.0 Findings and Declarations

The Commission finds and declares as follows:

5.1 Marine Resources/ Water Quality.

The Coastal Act provides:

Section 30230: 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 that will maintain healthy populations of marine organisms adequate for long-term commercial, recreational, scientific and educational purposes.

Section 30231: The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

NOAA designated the Channel Islands National Marine Sanctuary in 1980 in recognition of the unique marine environment of the Southern California Bight around the Channel Islands. The Sanctuary encompasses approximately 1,252 square nautical miles of coastal and offshore waters, including San Miguel Island, Santa Cruz Island, Santa Rosa Island, Anacapa Island, Santa Barbara Island, Richardson Rock, and Castle Rock, offshore of Santa Barbara and Ventura Counties (Exhibit 1). As NMSP states in the project EIS, the Sanctuary supports a rich and diverse range of marine life and habitats, unique and productive oceanographic processes and ecosystems, and culturally significant resources such as hundreds of shipwrecks and submerged Chumash cultural artifacts, and that:

The physical, biological and cultural characteristics of the Sanctuary combined provide outstanding opportunities for scientific research, education, recreation, and commerce. Examples of these include commercial and recreational fisheries, marine wildlife viewing, sailing, boating, kayaking and other recreational activities, marine shipping, and nearby offshore oil and gas development.

The Channel Islands and surrounding ecosystems are unique and highly valued, as demonstrated by, for example, several national and international designations. In 1980 the United States designated both the Channel Islands Marine Sanctuary and Channel Islands National Park. In addition, the United Nations Educational, Scientific and Cultural Organization's Man and the Biosphere Program designated the Sanctuary as a Biosphere Reserve in 1986.

Over 195 species of birds are known to use the water, shore or island habitats within the Sanctuary, and its location along the Pacific Flyway, a major migratory route for birds, makes it an important stopover during both north and south migrations. This migration route, as well as the high diversity of habitats located within the Sanctuary, contribute to its high species diversity and allow it to provide important habitat for eight seabirds with special status designations under federal or State law.

Additionally, the Sanctuary's location within the Southern California Bight, an area characterized by the confluence of cold southward moving currents and warm northward moving currents and the corresponding junction of the Oregonian and Californian Biogeographic Provinces, makes it an extremely productive marine region and a vital feeding and breeding ground for marine mammals. Over 27 species of whales and dolphins are known to frequent the Sanctuary waters on an annual basis, including rare blue, humpback and sei whales, and at least 33 species of cetaceans have been reported within the Sanctuary region. Similarly, the area is home to a wide variety of seals and sea lions, including some of the rarest species in the Western Pacific, Guadalupe fur seals, Stellar sea lions and ribbon seals.

The abundance and diversity of fish and invertebrates is also a remarkable feature of the Sanctuary. There are roughly 481 species of fish known to inhabit the Sanctuary and estimates of the invertebrate diversity are typically in excess of 5,000 species. This tremendous diversity is due in part to the number of powerful upwelling (circulation patterns in which deep, cold, nutrient laden water moves towards the surface) zones located in the waters in and around the Sanctuary and in part due to the range of distinct marine habitats. Kelp forests, eelgrass beds, sandy and rocky intertidal and subtidal zones, rocky reefs, and deep-water benthic habitats are a few of the many different environments included within the Sanctuary's borders.

An integral part of both the current proposal and the Fish and Game Commission's initial designation of MPAs is the recognized need for marine resource protection as described in the CINMS Marine Reserves Working Group's consensus based problem 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 Nino weather patterns, oceanographic regime shifts, and dramatic fluctuations in pinniped populations.

In recognizing the scarcity of many marine organisms relative to past abundance, any of the above factors could play a role. Everyone concerned desires to better understand the effects of the individual factors and their interactions, to reverse or stop 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-harvest impacts.

The overall effect of marine protected areas on the composition, abundance, diversity, age structure and size of marine organisms has been and continues to be a matter of rigorous scientific research. Recent studies and monitoring programs exploring the ecological impacts of MPAs have demonstrated substantial increases in the biomass, abundance, body size, and diversity of focal species within marine protected areas. Specific research conducted in the Channel Islands has indicated that some species, including cowcod, bocaccio, kelp bass, California sheephead, spiny lobster, warty sea cucumber and red urchin, demonstrate similar trends. Overall, there is abundant evidence to suggest that protecting marine areas from extractive activities leads to rapid increases in abundance, size, biomass, and diversity of targeted animals. The project EIS for the currently proposed expansion of the CINMS MPA network cites a review of 56 studies of 80 reserves in a variety of locations around the world that were protected from at least one form of fishing. The results of this comprehensive review demonstrate that across all reserves, abundance (measured as density of organisms) approximately doubled, biomass (the weight of all organisms combined) increased 2.5 times, average body size (a principal contributor to reproductive potential) increased by roughly 30% and the number of species in each sample also increased by 30%. As such, the proposed expansion of marine reserves and marine conservation areas within the CINMS is expected to have positive ecological impacts by protecting (from fishing and other forms of take) marine habitats and species and their ecological interactions and processes.

The currently proposed expansion of the Channel Islands National Marine Sanctuary's marine protected area network is intended to provide protection for areas of particular ecological importance and for habitats and habitat types that are not adequately represented within the existing network of State marine reserves and State marine conservation areas. The proposed expanded MPA network includes protected areas within each of the Southern California Bight's biogeographic regions, the Oregonian Province, the Californian Province and the transition zone between them. These three regions are characterized by unique suites of species, habitat types and physical oceanographic processes. Specifically, the proposed network includes the following areas and habitat types that have been determined to be of significant marine resource value:

- The medium to high relief rocky reefs around Richardson Rock that support numerous groundfish species including yellowtail, olive and vermilion rockfish and lingcod;
- The submerged rocky reefs around Gull Island that support depleted populations of abalone and rockfish, including blue and vermilion rockfish, bocaccio and various *Sebastomas* species;
- The 'Footprint' area between Anacapa and Santa Cruz Island which supports depleted populations of numerous rockfish species, cowcod, lingcod, thornyhead, and sablefish;
- The pelagic habitats that exist between three and six nautical miles offshore of the Channel Islands and are used by highly migratory species, including sharks, tunas, billfish, swordfish and coastal pelagic species, including sardines, anchovy, and mackerel;
- The deepwater, soft substrate benthic habitats that support a wide variety of marine invertebrate species.

The proposed inclusion of these areas in the Channel Islands National Marine Sanctuary MPA network will enable a more complete array of species, habitats and ecosystems to be represented in the overall network and will provide a greater level of replication of the habitats already represented in the existing MPA network. As NMSP states, "Habitat replication in protected marine zones is important to increase the likelihood that habitats and associated species will be protected in a dynamic and unpredictable environment." For instance, the protection of similar habitat types in distinct locations increases ecological resilience and provides insurance against unpredictable localized disturbances (such as hazardous materials spills) and environmental fluctuations (such as changes in sea surface temperature).

In addition, because nine of the fourteen proposed individual MPAs would result in increases to the overall size of existing MPAs, the potential for these zones to provide more significant protection for fish species by being large enough to encompass the typical movements of many individuals is enhanced. As discussed in the project EIS, current data on adult fish movement patterns suggest that MPAs spanning 2.6 – 10.5 nautical miles of coastline are likely to contribute most to the protection of fish species while MPAs spanning less than 2.6 nautical miles in width may leave many individuals of important species poorly protected. Currently, the average width across existing MPAs is 2.8 nautical miles with a range of 1.1 nautical miles at Judith Rock marine reserve to 5.0 nautical miles at Richardson Rock marine reserve. Under the proposed expanded network of MPAs the average width would increase to 3.3 nautical miles with a range of 1.1 nautical miles at Judith Rock marine reserve to 6.7 nautical miles at Richardson Rock marine reserve. By increasing the average width of the MPAs as well as their individual widths, the current proposal would increase the overall effectiveness of the MPA network and enhance its ability to protect and enhance fish stocks. For a detailed discussion of the resources and characteristics of each existing and proposed marine reserve and conservation area, refer to Exhibit 3 (please note, however, that the size descriptions included within Exhibit 3 are only rough estimates, the individual MPA sizes listed in Exhibit 2 more accurately reflect the proposed project).

One issue of concern is whether prohibiting fishing within the MPAs will lead to greater fishing pressure outside of the proposed MPAs. For example, the proposed and existing MPA network comprises nearly 19 percent of the Sanctuary's waters and if the closure of these waters to fishing resulted in a shift of all existing fishing effort to the remaining 81 percent of the Sanctuary, potential increases in the relative fishing pressure on certain species and locations could occur. Similarly, potentially adverse marine resource impacts could also arise if fishing effort were attracted to the edges of marine reserves and conservation areas to take advantage of potential increases in catch or catch per unit effort. Either of these types of congestion could lead to negative population and habitat impacts outside MPA boundaries.

Each of the scenarios presented above are addressed in detail by the California Department of Fish and Game in its 2002 Environmental Document for the designation of MPAs within the Sanctuary's State waters. In its discussion, CDFG cites several comprehensive reviews of marine reserve impacts and argues that typically, the increased production within reserve boundaries is more than adequate to counter the increased fishing intensity outside MPAs. For example, CDFG notes that:

Solely using increases in biomass, which underestimates increases in total production, existing reserves worldwide show a four fold increase (a factor of 4.00) in average production. These empirical data suggest that enhanced production within reserves can more than compensate for the effects of congestion outside for reserve areas [because] as the number and biomass of individuals increase within reserves, many species will move out of reserves into fishing grounds, enhancing stocks in fished areas through spillover of adults and export of larvae.

...

Displaced or concentrated fishing effort at the edges of reserves also could impact habitat quality around reserves. If concentrated fishing at the edges of reserves reduces habitat quality, one would expect a corresponding decrease in abundance and diversity of species adjacent to reserves. As indicated above, this trend is not observed at the edges of reserves, which consistently support higher abundance and diversity of fishes and invertebrates than other sites distant from reserves. No published data on existing MPAs have shown negative environmental impacts.

Based on the strong evidence suggesting that the designation of MPAs greatly enhances the maintenance, protection and restoration of marine resources both inside and outside of the protected areas, the Commission finds that the currently proposed additions to the existing CINMS marine protected area network will substantially enhance marine resource protection within the Sanctuary and will likely result in the restoration of currently depleted resources. The Commission therefore agrees with NOAA's determination that the proposed designation of MPAs described above is consistent with the marine resource and water quality policies of the CCMP (Coastal Act Sections 30230 and 30231).

5.2 Commercial and Recreational Fishing

In addition to the commercial fishing protection afforded under Section 30230, quoted above on page 9, Section 30234.5 provides for the need to protect commercial and recreational fishing opportunities, as follows:

***30234.5:** The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

The establishment of additional no-take and limited-take marine protected areas has the potential to adversely affect commercial and recreational fishing activities within the Sanctuary. The current proposal would result in the restriction of extractive activities, including fishing, in nearly 11% of the Sanctuary's waters. Combined with the existing network of State marine reserves and State marine conservation areas, the proposed designation of MPAs would significantly limit or prohibit the injury or removal of Sanctuary resources in over 19% of the total Sanctuary area.

5.2.1 Commercial Fishing

Commercial fishing occurs at many locations off the coast of southern California, including the Channel Islands. As described in previous sections, the nearshore waters around these islands contain large beds of giant kelp that support a wide variety of fish and invertebrate species, including many that are of value to commercial harvesters. Not surprisingly, the majority of fish and invertebrates landed within the CINMS are caught within or in close proximity to these kelp beds and the nearshore rocky areas that support them.

Methods of fishing used in the CINMS include live fish and lobster trapping, diving, offshore gill netting, trawling, purse seining and hook and line fishing with hand lines, long lines, rod and reel and trolled gear. Consumptive diving and fish and lobster trapping occurs primarily in the shallower waters near the coastlines of the Channel Islands since these areas have the greatest abundance of rocky kelp habitat in depths of 100 feet or less, the preferred habitat type for sea urchin, spiny lobster and rockfish. Hook and line fisheries are also concentrated within the nearshore or state waters portions of the Sanctuary, as demonstrated by the heavy concentration of vessels within the three nautical mile boundary shown in Exhibit 4. Gill nets are not allowed within one nautical mile of the offshore islands of the CINMS but commercial drift gill netting for pelagic shark and swordfish, trawling for ridgeback prawn and commercial purse seining for squid and wetfish occurs throughout the open waters portions of the CINMS, principally around Santa Cruz Island, Anacapa Island and the eastern edge of Santa Rosa Island.

The primary species targeted by commercial fishing in the Sanctuary include squid, sea urchin, spiny lobster, prawn, nearshore and offshore finfishes (rockfishes and sheephead), wetfish species (anchovy, sardine and mackerel), flatfishes, rock crab, sea cucumber and tuna. In 1999, a record year for the Sanctuary's largest fishery - market squid, a total of 737 fishing operations received over \$36.7 million in revenue from 26 species of fish and invertebrates caught in the CINMS, substantially more than the 1996-2003 average annual revenue of \$24 million. However, the individual contributions of these species to overall annual commercial fishing

revenue vary greatly. For example, the commercial squid fishery between 1996 and 2003 comprised over 59% of the total revenue from commercial fishing within the Sanctuary (excluding the value of harvested kelp⁶) and the commercial urchin fishery accounted for an additional 24%. Of all species commercially harvested in the Sanctuary in recent years, the top five species – squid, urchin, lobster, wetfish, and crab – typically combine for over 92% of the revenue from the total commercial harvest of fish and invertebrates within the Sanctuary. The remaining 8% of total revenue is divided between 21 other species (as shown in Exhibit 5).

Additionally, the currently proposed expansion of marine protected areas within the Sanctuary will affect the Sanctuary's fisheries unequally. Because the majority of areas currently proposed for MPA designation are in waters between three and six miles offshore of the Channel Islands, nearshore fisheries, such as the spiny lobster, crab and sea cucumber fisheries, will likely be only minimally affected while offshore fisheries (squid, wetfish and prawn) will potentially be more heavily affected. In its comprehensive and detailed socioeconomic impacts analysis of the proposed designation of MPAs within the CINMS, Leeworth, Wiley & Stone (2005) demonstrate that five mostly offshore fisheries will likely absorb over 91% of these impacts. These five fisheries, squid, wetfish, urchin, prawn and rockfish are detailed below while a comprehensive list of all the potentially affected fisheries is included in Exhibit 6.

5.2.1.1 Market Squid

Market squid (*Loligo opalescens*) has been harvested off the California coast from Monterey to San Pedro for over 100 years. Recently, the growth of international markets and the decline of competing squid fisheries in other parts of the world have enabled the squid fishery to evolve into one of the largest fisheries in California in terms of volume and economic value. The majority of squid harvest is centered in the waters around Santa Rosa, Santa Cruz and Anacapa Islands and generally involves luring squid to the surface with high wattage lamps, encircling them with purse seine nets and pumping and/or using brail nets to transfer the squid from the water into shipboard fish holds.

According to Leeworth, Wiley & Stone (2005), in 1999 there were an estimated 169 commercial fishing operations harvesting market squid in the CINMS. Between the years of 1996 and 2003, these commercial operations combined for average total annual revenues of \$10.8 million. The proposed designation of MPAs currently being considered is estimated to result in a total annual loss of roughly \$112,965 or 1.05% of the total annual revenue from all market squid commercial fishing within the CINMS. This estimated potential impact represents nearly 40% of the total potential cost resulting from the proposed project to all of the commercial fishing that occurs within the Sanctuary. Spread between the numerous market squid fishing operations that occur within the Sanctuary, however, this estimated 1.05% potential loss in total annual revenue is anticipated to result in less than significant adverse impacts to both individual market squid

⁶ In June of 2005, ISP Alginates, the country's largest kelp harvesting company and the only commercial harvester active within the CINMS, announced it would be closing its southern California facility in early 2006 and relocating to Scotland. With the departure of this commercial operation, kelp harvesting no longer occurs within the Sanctuary and will therefore not be affected by the proposed designation of MPAs (McMahon 2005).

harvesters and the commercial fishery as a whole. Taking the 1999 figure of 169 commercial squid harvesting operations as a baseline, and assuming that these operations would be affected equally by the proposed designation of MPAs, a potential annual loss of \$112,965 fishery-wide would equate to a loss of just over \$668 per year to each individual squid harvester. A loss of this magnitude would be largely overshadowed by typical yearly fluctuations in both landing volume and market value and would be unlikely to result in any widespread or long-term reduction in commercial squid harvesting operations within the Sanctuary.

5.2.1.2 Wetfish

The wetfish fishery, also referred to as the coastal pelagic species fishery, actually relies on the harvest of several open ocean species including Pacific sardine (*Sardinops sagax caeruleus*), northern anchovy (*Engraulis mordax*), and Pacific mackerel (*Scomber japonicus*). Historically, the commercial catch of these species contributed significantly to the foundation of the California fishing industry and supported and funded the growth of ports in San Pedro, Monterey, San Diego and San Francisco. After the initial boom in wetfish harvesting peaked in the mid 1940's, due mainly to the thriving sardine fishery in northern and central California that was landing between 600,000 and 700,000 pounds of fish annually, the fishery crashed sharply as sardine stocks plummeted. With the disappearance of sardines from California waters, commercial wetfish operations either began concentrating on other species such as squid, anchovy and mackerel or were forced to leave the industry. Although sardine stocks have rebounded in recent years, the wetfish fishery continues to be strictly managed and regulated to ensure its long-term vitality.

Leeworth, Wiley & Stone (2005) describe that between the years of 1996 and 2003 the average revenue of commercial wetfish harvesting from within the Sanctuary was roughly \$474,251 and in 1999 there were 37 commercial harvesters operating within the CINMS. Based on its detailed analysis, Leeworth, Wiley & Stone (2005) estimated the annual amount of lost revenue to the CINMS commercial wetfish fishery resulting from the current proposal to be about \$54,717 or 11.54% of the average total annual revenue. Although this estimated potential loss represents over ten percent of the revenue generated from the commercial harvest of wetfish from within the Sanctuary, when spread across the several dozen commercial wetfish operations the magnitude of this impact would be less than significant. In addition, the majority of wetfish harvested within the Southern California Bight have both historically and recently been caught in areas outside the Channel Islands National Marine Sanctuary. Commercial wetfish operations within the Sanctuary represent only a small percentage of the southern California wetfish fishery, which suggests that any adverse impacts to this portion of the overall fishery will likely not lead to negative effects on the fishery as a whole.

5.2.1.3 Sea Urchin

Another of the most important fisheries in California and especially in the CINMS area is the red sea urchin (*Strongylocentrotus franciscanus*) fishery. Within the Sanctuary, sea urchins are typically hand harvested by divers using hoses to receive air from the surface. This type of diving gear, called hooka, relies on a low pressure air compressor attached to a hose which supplies the diver's regulator with a constant stream of air. Urchin divers prefer the use of hooka

gear over self contained SCUBA gear because it allows them to spend a greater amount of time on the seafloor and it does not involve the additional complications and dangers of decompression. Urchin divers typically use a rake or hook to gather urchins which are then placed in large mesh bags that are raised to the surface when full.

Urchins are harvested primarily for their gonads, referred to as 'roe' or 'uni' in Japanese. The quality and value of red sea urchin roe is dependant on its size, color, texture, and firmness which are mostly influenced by the urchin's algal food supply and the stage of its gonadal development. Divers typically check gonad quality and size as they harvest urchins and select individuals to ensure marketability and value. In recent years the red urchin fishery has been considered to be fully exploited throughout its range in both northern and southern California. Other types of urchins, including the purple sea urchin (*S. purpuratus*), are also harvested in California but to a much lesser degree.

In 1999, 331 commercial fishing operations harvested sea urchins within the CINMS. The average annual revenue from the commercial harvest of sea urchin within the Sanctuary between 1996 and 2003 was over \$4.3 million and it is estimated that this revenue will be reduced by \$38,247 or 0.89% due to the currently proposed designation of MPAs⁷. The large number of commercial urchin harvesting operations combined with the magnitude of revenue that these operations generate and the proportionally small amount of revenue that will potentially be lost due to the proposed action ensures that the proposed project will not result in significant impacts to commercial urchin harvesting within the Sanctuary or the urchin fishery as a whole.

5.2.1.4 Prawn

The prawn fishery in the Sanctuary includes trap fishing for spot prawn (*Pandalus platyceros*) and trawling for ridgeback prawn (*Sicyonia ingentis*). Traditionally, a number of trawl boats fished year-round for both ridgeback and spot prawns, targeting ridgeback prawns during the closed season for spot prawns and spot prawns during the ridgeback closure. Recently, in 2002 the California Fish and Game Commission voted to close the spot prawn trawl fishery, regulations for which went into effect in 2003.

The annual revenue from the commercial harvest of spot and ridgeback prawn within the Sanctuary in 2003 was just over \$210,978 and 30 commercial prawn fishing operations were active within the CINMS in 1999⁸. According to studies conducted by Leeworth, Wiley & Stone (2005), the proposed project will potentially result in an estimated loss of \$36,689 per year to the annual revenue of prawn fishing operations within the Sanctuary. When spread among the several dozen prawn harvesting operations, this estimated potential annual reduction in revenue will likely result in only small and less than significant adverse impacts.

⁷ Leeworth, Wiley & Stone (2005).

⁸ Leeworth, Wiley & Stone (2005).

5.2.1.5 Rockfish

Rockfish species populations, including rockfish (genus *Sebastes*), greenlings (genus *Hexagrammos*), cabezon (*Scorpaenichthys marmoratus*), and other species found primarily in rocky reef or kelp habitat in nearshore waters, have undergone substantial declines in recent years. These declines have been mirrored by both reduced weight and value of overall catch as well as increases in management and regulation. In the four years between 2000 and 2003, the overall number of pounds of rockfish landed within the CINMS fell by nearly 66% (from 138,052 to 61,420 pounds) and the overall value of these landings fell by over 70% (from over \$524,000 to under \$124,000)⁹. The rockfish fishery is now heavily regulated under the Nearshore Fisheries Management Plan and is considered by many to be overfished and in serious decline. Nevertheless, the rockfish fishery within the CINMS generated \$152,892 in revenue in 2003. Leeworth, Wiley & Stone (2005) anticipates that the proposed project will result in an annual loss of \$16,304 in revenue from the commercial harvest of rockfish from within the CINMS, a value that is far outweighed by the recent annual losses in rockfish catch revenue due to the decline of the fishery.

5.2.1.6 Cumulative Impacts

In addition to the unequal distribution of catch value and potential impacts among the Sanctuary's commercially harvested species, the distribution of catch revenue among the operations that are active within the CINMS also varies dramatically. From 1996 to 1999, 19 percent of commercial fishing operations within the CINMS (141 individual operations) accounted for 82 percent of the total commercial fishing revenue from within the Sanctuary.

In its analysis of the potential economic impact of the proposal on commercial fishing, the National Marine Sanctuary Program estimates that about \$283,680 or 1.18% of the annual total revenue from all commercial fishing activities that occur within the CINMS would potentially be lost¹⁰ as a direct result of the proposed MPAs. This potential reduction in catch value equates to a maximum potential loss of about \$939,450 or 1.31% of the annual income generated by commercial fishing activity within the Sanctuary¹¹ and 28 jobs or 1.43% of the commercial fishing employment within the seven-county regional economy affected by CINMS commercial fishing activities. Although these potential economic impacts would be spread throughout the seven coastal counties surrounding the Sanctuary (Ventura County, Santa Barbara County, Los Angeles County, San Luis Obispo County, Orange County, Monterey County and San Diego County), they would not be spread equally. Ventura and Santa Barbara Counties would potentially be affected most heavily, as the ports within these counties are used most frequently by CINMS commercial fishing operations. Specifically, the following four ports would potentially be affected most substantially (in terms of percent of total commercial fishing revenue potentially lost): Port Hueneme Harbor – 1.15%, Channel Islands Harbor – 1.04%,

⁹ Leeworth, Wiley & Stone (2005).

¹⁰ Leeworth, Wiley & Stone (2005), assuming a total annual catch value of \$24,233,406 which is an average of the annual value of commercial catch from CINMS between 1996 and 2003.

¹¹ Leeworth, Wiley & Stone (2005), assuming a total income of \$71,649,959 generated in the seven county regional economy by within-Sanctuary commercial fishing activity.

Ventura Harbor – 0.87%, and Santa Barbara Harbor - 0.71% (a complete list of potentially affected ports is included in Exhibit 7).

NOAA's estimates of potential socioeconomic impacts rely on conservative assumptions that do not take into account the potentially significant long-term benefits to commercial fishing that may occur as a result of the protection, restoration and enhancement of the Sanctuary's marine resources. As detailed in section 3.3.1 above, a vast and steadily increasing body of research and observational evidence suggests that marine protected areas lead to substantial increases in the abundance, diversity, size and biomass of fish and invertebrate species both inside and outside of marine protected areas. This MPA 'spillover' would undoubtedly include commercially targeted species and over time may lead to increases in catch volumes and quality in the waters surrounding the MPA network, thereby offsetting this project's potential adverse affects on commercial fishing. Additionally, the proposed action would also increase the long-term sustainability of commercial fishing operations in the Sanctuary by providing refuges and protected source areas for harvested species.

As detailed by Leeworth, Wiley & Stone (2005), several other factors may also serve to mitigate the potential adverse impacts of the proposal as well, "For commercial fishing and kelp harvesting, a mitigating or offsetting factor would be the ability to relocate effort to others areas and be just as successful (no loss) or be able to at least mitigate losses to some degree." The magnitude of this potential mitigating or offsetting factor is uncertain at this point but it is likely that the ability of fishing operations to relocate to other fishing grounds combined with the beneficial spillover effects from the MPAs will reduce the adverse economic affects of the proposed project to levels below those estimated above. To address the uncertainty regarding the estimated and actual socioeconomic impacts of the proposed MPA network, CINMS staff, in association with NOAA economists, the California Department of Fish and Game, partner agencies, institutions, and Sanctuary users, will be working to develop and implement socioeconomic monitoring programs aimed at evaluating the actual social and economic impacts of the proposed MPA network. Many of these programs are outlined in the NOAA (2003) document, *Socioeconomic Research and Monitoring Recommendations for Marine Protected Areas in the Channel Islands National Marine Sanctuary*, which describes priority areas including analysis of commercial fishing use, catch and value data from within the Sanctuary before and after designation of the proposed MPA network, analysis of catch data from around the MPAs to evaluate the edge effect or spillover of targeted species into waters outside MPAs, and analysis of the displacement of fishing effort caused by the MPA network and the effects of this displacement.

Overall, considering that at most the proposed project is estimated to result in potential socioeconomic impacts on commercial fishing within the CINMS that will not reduce the total annual catch value by more than 1.18% and will not reduce the catch value of any one fishery by more than 18%, and that there is a strong possibility that the marine protected area network will benefit commercial fishing in the long-term, the Commission finds that the currently proposed project will not significantly reduce commercial fishing operations or opportunities within the project area. The Commission therefore agrees with NOAA's determination that the proposed

designation of marine protected areas is consistent with the commercial fishing policies of the CCMP (Coastal Act Section 30234.5).

5.2.2 Recreational Fishing

Recreational fishing includes both hook and line fishing from shore and from private or rental boats and commercial passenger fishing vessels as well as spear and net fishing and hand harvesting. Recreational fisheries in the CINMS access both nearshore and offshore areas, targeting bottom fish, pelagic fish and a variety of nearshore invertebrate species. In its analysis of the recreational fishing industry and the potential impacts that the designation of MPAs may have on it, Leeworth, Wiley & Stone (2005) divided consumptive recreation activity between private household boat fishing and charter/party boat fishing. The report found that, using data from 1999 and 2002, about 12 percent of the private household boat fishing and about 13 percent of the charter/party boat fishing in southern California was done in the CINMS. Over 81 percent of this fishing activity took the form of on board fishing while the remaining 19 percent came from consumptive diving. Overall, nearly 448,000 person-days of consumptive recreational activity occurred within the CINMS in 1999, the year chosen by Leeworth, Wiley & Stone (2005) as an appropriate baseline. These activities generate over \$26.4 million in total annual income through both direct and indirect sales, wages and salaries and support 1,138 full and part time jobs. Although recreational fishing for lobster would be allowed in the proposed Anacapa Marine Conservation Area, Leeworth, Wiley & Stone (2005) estimated that the displacement of recreational fishing activities from the proposed MPA network will potentially reduce the total number of annual person-days of recreational fishing by five percent or 22,365. This reduction in activity translates to an estimated potential loss in recreational fishing income of just over five percent or \$1,387,895 and an estimated potential loss in employment of nearly five and a half percent or 62 full or part time jobs (please refer to Exhibit 8 for the complete table).

As with the commercial fishing analysis provided by Leeworth, Wiley & Stone (2005) the estimated potential adverse impacts to consumptive recreation within the Sanctuary detailed above were obtained through the simple process of adding up the activity currently taking place within the proposed marine protected areas and applying the assumption that all would be lost if the proposed project were adopted. Leeworth, Wiley & Stone (2005) notes, however, that under this analysis,

No account was taken of people's ability to substitute or relocate their fishing activities to other fishing sites. Under the proposed project, just over 19 percent of the CINMS waters would be included within the proposed and existing MPA network leaving 81 percent of the CINMS plus all the areas outside the CINMS for people to find other fishing sites. Additionally, there will likely be those who decide to participate in some other activity – these users will still be spending money in the local economy and therefore the income and employment dependant on this spending would not be lost. Thus it is expected that the estimates detailed [in the previous paragraph and in Exhibit 7] are overestimates of impact. Unfortunately, models do not exist that estimate how much substitution might take place, and what the net impact will be either in the short or long term. However, some substitution is likely, and to the extent that some people are

able to find suitable substitute fishing sites, this will lower the estimated impacts. It is anticipated that these adverse impacts will be mitigated or offset to some degree through the enhancement of the Sanctuary's stocks of targeted fish and invertebrates and the spillover of these organisms into the waters surrounding the MPAs. Additionally, it is also anticipated that if recreational fishing activities are able to successfully relocate to areas outside of the proposed MPAs, the magnitude of impacts described above will be reduced substantially.

Given the relatively small estimated potential impacts of the proposed project on consumptive recreation within the Sanctuary (only around five percent of total use, income and employment will potentially be lost) the Commission finds that the proposed designation of 140.2 square nautical miles of marine protected areas within the CINMS will not result in significant adverse impacts to recreational fishing. Furthermore, due to the marine resource enhancement opportunities provided by the proposed project and the potential for recreational fishing activities to relocate or continue in substitute areas, the Commission agrees with NOAA's determination that the proposed designation of marine protected areas is consistent with the recreational fishing policies of the CCMP (Coastal Act Section 30234.5).

5.3 Public Access and Recreation

The Coastal Act provides for the protection of public access in Sections 30210 and 30214:

30210: *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

30214: *(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*

...

(2) The capacity of the site to sustain use and at what level of intensity. . . .

In addition, Section 30220 of the Coastal Act also provides for the protection of water-oriented recreation:

30220: *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

The proposed expansion of MPAs will not result in any adverse impacts to public access or recreation within the Sanctuary. By enhancing the protection and restoration of the Sanctuary's marine resources, the proposed MPA network will serve to enhance and promote recreational activities such as whale watching, wildlife viewing, kayaking, surfing, photography and non-

consumptive diving. Also, passage through the proposed MPAs by recreational and commercial harvesters will not be restricted, provided that these individuals are not engaged in fishing activities during their transit of MPA waters. Therefore, the Commission finds that the proposed project is consistent with the public access and recreation policies of the CCMP (Coastal Act Sections 30210, 30214 and 30220).

6.0 Substantive File Documents

1. Draft Management Plan/ Draft Environmental Impact Statement – Channel Islands National Marine Sanctuary, Volumes I and II, National Oceanic and Atmospheric Administration (NOAA), May 2006.
2. Consistency Determination CD-036-06, NOAA, Channel Islands National Marine Sanctuary management plan update and revision.
3. Draft Environmental Impact Statement for the Consideration of Marine Reserves and Marine Conservation Areas - Channel Islands National Marine Sanctuary, NOAA, August 2006.
4. Final Environmental Document for Marine Protected Areas in the National Oceanic and Atmospheric Administration's Channel Islands National Marine Sanctuary, Volume I and II, California Department of Fish and Game, October 2002.
5. Leeworth, Vernon R., Wiley, Peter C. and Stone, Edward A. Socioeconomic Impact Analysis of Marine Reserves for the Channel Islands National Marine Sanctuary. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Special Projects, Silver Spring, Maryland. October, 2005.
6. National Oceanic and Atmospheric Administration. Socioeconomic Research and Monitoring Recommendations for Marine Protected Areas in the Channel Islands National Marine Sanctuary. National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Special Projects: Silver Spring, Maryland. July 2003.
7. McMahon, Shannon. *Goodbye to a Sea Giant*. San Diego Union Tribune, June 10, 2005.

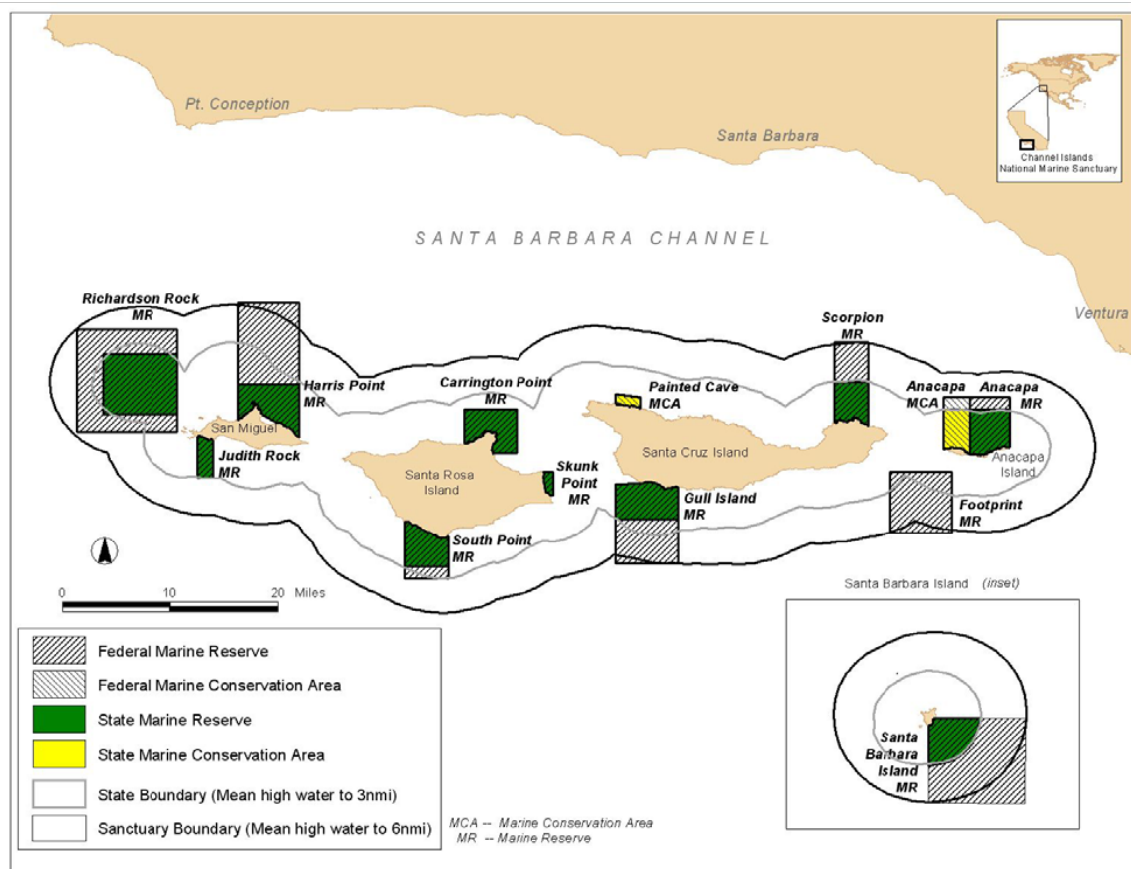


EXHIBIT 1 – Existing State MPA Network and Proposed Federal MPA Network

EXHIBIT No. 1
Application No.

CD-072-06

Name	No Action (existing State zones)	Alternative 1a/1b		
		Add'l State Waters	Federal waters	Total
Anacapa Island SMCA	5.54		1.7	1.7
Anacapa Island SMR	8.91		2.7	2.7
Carrington Point SMR	9.63			
Footprint SMR		4.8	15.5	20.3
Gull Island SMR	11.58	4.1	10.8	14.9
Harris Point SMR	11.47	8.0	18.4	26.4
Judith Rock SMR	3.46			
Richardson Rock SMR	23.92	8.8	22.3	31.1
Santa Barbara Island SMR	9.77	0.2	32.9	33.1
Scorpion SMR	7.03	0.3	6.7	7.1
South Point SMR	8.38	2.1	0.8	2.9
Skunk Point SMR	1.06			
Painted Cave SMCA	1.35			
Min Area MRs	3.5	0.2	0.8	2.7
Max Area MRs	23.9	8.8	32.9	33.1
Avg Area MRs	10.5	4.0	13.8	17.3
Avg Area MCAs	2.7		1.7	1.7
Total Area MRs	94.2	28.3	110.2	138.5
Total Area MCAs	8.0		1.7	1.7
Total Area marine zones	102.1	28.3	111.9	140.2

MR = Marine Reserve, MCA = Marine Conservation Area

*All sizes are described as square nautical miles

EXHIBIT 2 – Relative Sizes of Existing and Proposed (Alternative 1a) MPAs

EXHIBIT No. 2
Application No.
CD-072-06

MPA Sites within the proposed Project

The following descriptions list habitats and species that would be protected by the proposed project. As noted above, the protection of habitats correlates to the protection of species and important species-habitat interactions.

Santa Barbara Island State Marine Reserve

Santa Barbara Island SMR is located at the southeast side of Santa Barbara Island. The reserve includes one nautical mile of shoreline from South Point to the eastern point of the island. The reserve boundaries extend east and south to the State waters boundary. The Santa Barbara Island SMR contains 13.2 square nautical miles. A subsequent Federal waters addition would add 46.3 square nautical miles for a cumulative total of 59.5 square nautical miles.

Santa Barbara Island, Sutil Island, and Shag Rock support major seabird and marine mammal colonies. Santa Barbara Island supports breeding colonies of numerous seabirds, including the endangered California brown pelican, western gull, black oystercatcher, black storm-petrel, Leach's storm-petrel, Brandt's cormorant, pelagic cormorant, Cassin's auklet, pigeon guillemot and Xantus's murrelet. California sea lions haul out on sandy beaches on the southeastern side of Santa Barbara Island. Harbor seals and northern elephant seals occasionally haul out in the same place.

The exposed rocky shoreline along Santa Barbara Island is interspersed with occasional cobble beaches (10-12 m wide) in protected coves. The rocky intertidal habitat descends steeply to patchy reefs in large areas of sand. Patchy populations of surfgrass grow on subtidal rocks (15-20 m). Populations of giant kelp on reefs around Santa Barbara Island have declined relative to historical data. Red and purple sea urchins and brittle stars (*Ophiothrix*) dominate the rocky subtidal habitats around Santa Barbara Island. Spiny lobsters are abundant in rocky subtidal habitats in the vicinity of South Point and large mussel beds can be found in the rocky intertidal habitats on the southeastern side of Santa Barbara Island.

The continental shelf drops to approximately 200 m less than 1/2 mile from shore, and continues to drop to 400 m within 3 miles of Santa Barbara Island. In the past, populations of white, green, pink, and black abalone inhabited intertidal and subtidal rocky habitats. The reserve includes rocky subtidal habitats, from approximately 25-66 m, that may contribute to the recovery of the endangered white abalone. Sandy subtidal habitats support halibut populations near the northern border of the Santa Barbara Island SMR. California sheephead have been observed near South Point.

Anacapa Island State Marine Reserve

The Anacapa Island SMR is located on the northeast side of Anacapa Island. The reserve includes 3.3 nautical miles of shoreline from the eastern point of West Island (Frenchy's Cove) to the eastern point of East Island at Arch Rock. The reserve extends three nautical miles north from Frenchy's Cove and Arch Rock to the State waters boundary. The

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Anacapa Island SMR contains 11.7 square nautical miles. A subsequent Federal waters phase would add 2.2 square nautical miles for a cumulative total of 13.9 square nautical miles.

Historically (early 1980s) kelp beds off Anacapa Island extended offshore to approximately ½ mile. Today, rocky reefs that once supported extensive kelp beds are now barren. Sea urchins and brittle stars cover rocky areas around most of northern shoreline of Anacapa Island. Where urchins and brittle stars invade rocky reefs, other species decline, including *Corynactis* anemones, sponges, and tunicates. Remnant populations of giant kelp occur close to shore in the Anacapa Natural Area, the only area in the Channel Islands that has been fully protected from fishing since 1978.

The Anacapa Natural Area supports a lush kelp forest and a diverse assemblage of associated species. Surfgrass is found on rocks in the subtidal, particularly in protected inlets (e.g. Cathedral Cove). Eelgrass is not currently found along the north shore of Anacapa Island, but historical records indicate that this area once supported eelgrass populations.

The protected rocky shoreline along the north side of Anacapa Island is interspersed with occasional gravel beaches (e.g. Frenchy's Cove). The rocky intertidal habitat, broken by occasional patches of coarse sand, extends to approximately 40 ft. Numerous nearshore emergent rocks provide roosting sites for seabirds and protective cover for nearshore fishes and invertebrates. Muddy sloping terrain near "Rickett's Rock" supports populations of various invertebrates and is a site for squid spawning. At approximately 60 ft, the continental shelf extends to low relief rubble and compacted sand. A large boulder field extends from approximately 80-100 ft.

Spiny lobsters populations are higher and lobster and sea urchin populations are more stable inside the Anacapa Natural Area than in fished areas (Lafferty and Kushner 2000). Some pink abalone can be found in the Anacapa Natural Area, but populations are very small relative to historical sizes (Rogers-Bennett et al. in press). Kelp bass, California sheephead and numerous rockfish species have declined relative to historical levels (Kushner pers. comm.). Common fishes include blacksmith, señorita, and kelp rockfish.

Mean densities of fished species, including kelp bass and barred sand bass, are significantly larger in the Anacapa Natural Area than in fished areas nearby (Beers unpublished data). Densities of California sheephead are greater in the Natural Area, but the differences are not significant. Similarly, the spawning biomass of some fished species is significantly larger in the Anacapa Natural Area than in fished areas. In contrast, mean densities of species that are not fished, including rock wrasse, señorita, and garibaldi, are not significantly different in fished areas and the protected Natural Area.

Size distributions of fished species, including kelp bass, barred sand bass, and California sheephead, are larger in the Anacapa Natural Area than in fished areas. In contrast, size distributions of species that are not fished, including rock wrasse, señorita, and garibaldi, are not significantly different in fished areas and the Natural Area. The data from Anacapa Natural Area suggest that this region can benefit greatly from protection within a marine reserve, in terms of density, spawning biomass, and individual size. These changes could contribute to increased production of species targeted for commercial and recreational fisheries.

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Leopard sharks breed off the north shore of Anacapa Island. Middle Anacapa Island includes a unique aggregation of giant (black) seabass, a large-bodied, long-lived species that has declined to low numbers in the last 25 years. Harbor seals haul out on Middle Anacapa Island. Occasionally California sea lions visit the protected areas on the eastern end of the island.

Anacapa Island supports breeding colonies of numerous seabirds, including western gull, black oystercatcher, brown pelican, Cassin's auklet, pigeon guillemot, pelagic cormorant, and Xantus's murrelet.

Anacapa Island, State Marine Conservation Area

The Anacapa Island SMCA is located on the northwest side of Anacapa Island. The proposed conservation area is an extension of the North Anacapa SMR to provide additional habitat and species protection. The reserve includes 2.2 nautical miles of shoreline from the west end of West Island to Frenchy's Cove at the east end. The reserve extends three nautical miles north of West Island to the State waters boundary. The Anacapa Island SMCA contains 8.1 square nautical miles. A subsequent Federal waters phase would add 1.4 square nautical miles for a cumulative total of 9.5 square nautical miles. Commercial lobster and recreational lobster and pelagic finfish take would be allowed in the conservation area. Pelagic finfish are defined as northern anchovy (*Engraulis mordax*), barracudas (*Sphyraena sp.*), billfishes* (family Istiophoridae), dolphinfish (*Coryphaena hippurus*), Pacific herring (*Clupea pallasii*), 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 shark (*Alopias vulpinus*), swordfish (*Xiphias gladius*), tunas (family Scombridae), and yellowtail (*Seriola lalandi*). *Marlin is not allowed for commercial take.

The high relief rocky shoreline is increasingly exposed toward the west of Anacapa Island. The eastern shoreline of West Anacapa Island is rocky, descending to broken reef and boulder fields in the subtidal zone (approximately 80 ft). The western shoreline of West Anacapa Island is rocky, descending rapidly to a steep muddy slope. High wind and wave action on West Anacapa Island create mixing and upwelling, increasing the amount of nutrients in the water. Nearshore rocky habitats on West Anacapa support patchy populations of giant kelp and surfgrass. A steep rocky reef off the western tip of Anacapa Island supports sea fans, anemones and sponges. Large populations of spiny lobster are found in rocky reefs off northwestern Anacapa Island. Squid aggregate over the muddy slope north of west Anacapa Island. Waters around West Anacapa Island support a high diversity of fishes, including California sheephead, garibaldi, kelp bass, blacksmith damsel, and numerous nearshore rockfish species. Harbor seals haul out on West Anacapa Island, but they are more common on the south side of the island. California sea lions are attracted to northwestern Anacapa Island when squid are present.

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Anacapa Island, State Marine Conservation Area

The Anacapa Island SMCA is located on the northwest side of Anacapa Island. The proposed conservation area is an extension of the North Anacapa SMR to provide additional habitat and species protection. The reserve includes 2.2 nautical miles of shoreline from the west end of West Island to Frenchy's Cove at the east end. The reserve extends three nautical miles north of West Island to the State waters boundary. The Anacapa Island SMCA contains 8.1 square nautical miles. A subsequent Federal waters phase would add 1.4 square nautical miles for a cumulative total of 9.5 square nautical miles. Commercial lobster and recreational lobster and pelagic finfish take would be allowed in the conservation area. Pelagic finfish are defined as northern anchovy (*Engraulis mordax*), barracudas (*Sphyraena sp.*), billfishes* (family Istiophoridae), dolphinfish (*Coryphaena hippurus*), Pacific herring (*Clupea pallasii*), 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 shark (*Alopias vulpinus*), swordfish (*Xiphias gladius*), tunas (family Scombridae), and yellowtail (*Seriola lalandi*). *Marlin is not allowed for commercial take.

The high relief rocky shoreline is increasingly exposed toward the west of Anacapa Island. The eastern shoreline of West Anacapa Island is rocky, descending to broken reef and boulder fields in the subtidal zone (approximately 80 ft). The western shoreline of West Anacapa Island is rocky, descending rapidly to a steep muddy slope. High wind and wave action on West Anacapa Island create mixing and upwelling, increasing the amount of nutrients in the water. Nearshore rocky habitats on West Anacapa support patchy populations of giant kelp and surfgrass. A steep rocky reef off the western tip of Anacapa Island supports sea fans, anemones and sponges. Large populations of spiny lobster are found in rocky reefs off northwestern Anacapa Island. Squid aggregate over the muddy slope north of west Anacapa Island. Waters around West Anacapa Island support a high diversity of fishes, including California sheephead, garibaldi, kelp bass, blacksmith damsel, and numerous nearshore rockfish species. Harbor seals haul out on West Anacapa Island, but they are more common on the south side of the island. California sea lions are attracted to northwestern Anacapa Island when squid are present.

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The Anacapa Island SMCA is adjacent to breeding sites for numerous seabirds, including the endangered California brown pelican, western gull, black oystercatcher, Brandt's cormorant, double-crested cormorant, pelagic cormorant, pigeon guillemot, and Xantus's murrelet. The conservation area encompasses one of only two brown pelican breeding and fledgling areas in North America.

Scorpion Rock State Marine Reserve

The Scorpion Rock SMR is located on the northeast side of Santa Cruz Island. The reserve includes 3.3 nautical miles of shoreline from the west side of Potato Harbor to the east side of Little Scorpion Rock. The reserve extends north three nautical miles to the State waters boundary. The Scorpion Rock SMR contains 10.3 square nautical miles entirely within State waters.

Rocky shoreline within the Scorpion Rock SMR extends from Cavern Point to Potato Harbor. There is a small sandy beach at Scorpion Anchorage. Some emergent nearshore rocks and caves provide breeding and roosting sites for seabirds, including western Gull, black oystercatcher, Brandt's cormorant, pelagic cormorant, pigeon guillemot, Cassin's auklet, Leach's storm-petrel, and Xantus's murrelet.

The intertidal habitat in Scorpion SMR is primarily rocky with some mixed sand and gravel beaches. Subtidal habitats are mixed sand and gravel sediments with a few patch reefs off Cavern Point. Sandy and muddy subtidal habitats support eelgrass populations. Nearshore sandy habitats support populations of geoduck clams. Feather boa kelp and surfgrass are also found in the area. Giant kelp is found within the proposed Scorpion SMR, but populations are not stable. Because kelp populations are reduced, Scorpion SMR does not support large populations of kelp-associated fishes. Rocky subtidal habitats are dominated by purple sea urchins.

Tall pinnacles and high relief rocky features are associated with caves and submerged rocky cliffs along the coast. Pinnacles support populations of mussels, and attract fish, such as opaleye and perch. Spiny lobster are found in the rocky subtidal and on pinnacles around Cavern Point to Potato Harbor. Terraced reef habitats may support juvenile lobsters. Scallops and sea fans are found in deeper waters on pinnacles. California sheephead are found in deeper waters. Lizardfish, various flatfish species, and sand dabs are found in sand and gravel habitats around Scorpion Anchorage.

Harbor seals are resident and California sea lions have been observed around Scorpion Anchorage, but the area does not support large populations of marine mammals. Killer whales have been sighted frequently in the vicinity of Scorpion Anchorage.

Painted Cave State Marine Conservation Area

The Painted Cave SMCA is located on the north side of Santa Cruz Island. The reserve includes 2 nautical miles of shoreline and an area of 2.1 square nautical miles entirely

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within State waters. Recreational fishing for lobster would be allowed in the conservation area.

Painted Cave is reputedly the largest sea cave of the coast of North America. The rocky cliffs around Painted Cave drop steeply into the ocean. There is a narrow intertidal zone and steep rocky walls characterize the subtidal habitat. The bottom of Painted Cave is mostly sand and rocky cobble. The steep rocky walls support some sea urchins, scallops and encrusting invertebrates. Pinnipeds, Risso's dolphin, and cetaceans, including gray, blue, and humpback whales are often observed on the north shore of Santa Cruz Island. The Painted Cave SMCA includes suitable breeding habitat for numerous seabirds, including western gull, black oystercatcher, Brandt's cormorant, pelagic cormorant, leach's storm-petrel, and pigeon guillemot.

Gull Island, Santa Cruz Island State Marine Reserve

The Gull Island SMR is located on the southwest side of Santa Cruz Island. The reserve includes 2.9 nautical miles of shoreline from Morse Point to the point along the shore at 33° 58' N, 119° 48' W. The reserve extends south approximately three nautical miles to the State waters boundary. The Gull Island SMR contains 16.2 square nautical miles. A subsequent Federal waters phase would add 22.1 square nautical miles for a cumulative total of 38.3 square nautical miles.

Historically, Gull Island supported a diverse and abundant marine fauna. Although these populations are reduced, the habitat supports a variety of species. Fish populations in the vicinity of Gull Island are likely to respond to protection within a reserve through increased density, individual size, and reproductive potential. The Gull Island SMR would protect a variety of different habitat types from the nearshore to the continental slope. Sand beach is the predominant shoreline habitat at the border of the Gull Island SMR. Endangered snowy plovers may occur there and the beach supports one of the few populations of pismo clams at the islands. The remaining shoreline is covered with cobble beaches.

Subtidal habitats in the Gull Island SMR are mixed sand and rocky reefs. Red and green algae dominate inshore areas. Gull Island supports an intermittent population of giant kelp, but the kelp populations are reduced. Subtidal habitats support patchy populations of surfgrass. Rocky intertidal and subtidal habitats once supported populations of red, pink, white, and black abalone, but only a small population of red abalone, and very few black abalone have been observed recently. The Gull Island area supports large populations of purple urchins. Rocky subtidal habitats from Gull Island to Laguna Point support populations of spiny lobster. Purple hydrocoral (*Allopora*) is found in deeper rocky reefs around Gull Island.

Shallow rocky habitat extends offshore to Gull Island. Nearshore reefs support populations of various rockfish species. However, rockfish are not as diverse in this region because of physical changes associated with the mixing of warmer waters from the California Counter Current with cooler waters from the California Current. Southern species such as

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California sheephead and wrasses are relatively common in the Gull Island region. The region also supports spawning populations of white seabass and halibut. Thresher and mako sharks are fished in the deeper waters near stronger currents.

A number of nearshore and offshore emergent rocks, including Gull Island itself, provide roosting habitats for seabirds, and shelter for fish and invertebrates. Gull Island provides roosting sites for western gull, black oystercatcher, pelagic cormorant, pigeon guillemot, Cassin's auklet, and Xantus's murrelet. California sea lions and harbor seals haul out on Gull Island.

Carrington Point, Santa Rosa Island, State Marine Reserve

The Carrington Point SMR is located on the north side of Santa Rosa Island. The reserve includes 5.3 nautical miles of shoreline from the point at 34° 01.2' N, 120° 05.2' W to the pier at Becher's Bay. The reserve extends south approximately 1.5 nautical miles north and east. The Carrington Point SMR is 13.3 square nautical miles all within State waters.

The shoreline around Carrington Point is exposed and rocky. Some protected sand beaches and rocky shoreline is found from Carrington Point to Bechers Bay. Numerous seabirds, including California brown pelican, western gull, black oystercatcher, Brandt's cormorant, pelagic cormorant, and pigeon guillemot roost at the end of Carrington Point.

Rocky reefs with a few patches of sand characterize the intertidal habitat within the Carrington Point SMR. Red and brown algae grow on rocky intertidal sites in Bechers Bay. Purple and red sea urchins dominate the rocky habitats around Carrington Point.

Low relief rocky reefs mixed with sand extend into the subtidal habitat. The Carrington Point SMR includes rocky subtidal habitat around Beacon Reef and part of Rodes Reef. Giant kelp occurs in the rocky subtidal around Carrington Point, but populations are not stable. Several rock crab species and spiny lobster also live in the rocky subtidal habitats. Historically, the region supported a large black abalone population and a smaller population of green abalone. Rocky subtidal habitats on the southeast side of Carrington Point once supported red (and possibly pink) abalone. The abalone populations are now very low.

Sandy subtidal habitats southeast of Carrington Point support patchy populations of surfgrass and populations of *Pachythione* cucumbers, and sand castle worms (*Phragmatopoma*). A productive eelgrass population in Bechers Bay provides protection and nutrients for juvenile fish and invertebrates. Waters around Carrington Point support a diverse assemblage of fishes, including various species of nearshore rockfish, white seabass, California sheephead, and shark species. Sandy subtidal habitats support populations of halibut. Harbor seals, California sea lions, and blue whales are often found in waters around Carrington Point.

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Skunk Point, Santa Rosa Island State Marine Reserve

The Skunk Point SMR is located on the east side of Santa Rosa Island. The reserve includes 2.7 nautical miles of shoreline from Skunk Point to Abalone Point. The reserve extends east approximately 0.5 to 1 nautical miles. The Skunk Point SMR is 1.4 square nautical miles all within State waters.

Onshore, the region between Skunk Point and Abalone Point supports the only lagoon in the northern Channel Islands. Lagoons are known as important habitats for juvenile fishes. Several endangered plant species are found on the beaches around the Santa Rosa Island lagoon, including *Dudleya blockmanii*, *Dudleya gnoma* and *Gilia hoffmanii*. The shoreline between Skunk Point and Abalone Rocks is sandy. These sand beaches support the largest populations of breeding snowy plovers in the Channel Islands. Populations of Pismo clams are also known to occur here.

Shale ridges extend out from east Santa Rosa Island to form scattered rocky reefs separated by large patches of sand. Persistent populations of giant kelp are found in the rocky subtidal habitat between Abalone and East Points. There are extensive populations of surfgrass south of Skunk Point toward East Point.

Surfgrass provides nursery grounds for fish and invertebrate species, including grass rockfish, halibut and crab. Sand castle worms (*Phragmatopoma*) are found in localized patches in approximately 10-15 ft of water. Pachythione sea cucumbers are common in some areas from Skunk Point to East Point. Halibut are found in sandy subtidal habitats around Skunk Point.

Harbor seals haul out on the rocks around Abalone Point. South of Abalone Rocks, the subtidal habitat is mostly hard bottom. Rocky reefs support dense and stable populations of red urchins, but populations are skewed toward smaller sizes. Rocky reefs once supported populations of scallops, but these populations have declined under fishing pressure. The rocky subtidal habitat from Abalone Point to East Point supports populations of several nearshore rockfish species. White seabass populations can be found in waters off of east Santa Rosa Island at approximately 60 ft deep.

South Point, Santa Rosa Island, State Marine Reserve

The South Point SMR is located on the south side of Santa Rosa Island. The reserve includes 3.8 nautical miles of shoreline from the point at 33° 55' N, 120° 10' W to the tip of South Point. The reserve extends south approximately three nautical miles to the State waters boundary. The South Point SMR contains 10.8 square nautical miles. A subsequent Federal waters phase would add 5.4 square nautical miles for a cumulative total of 16.2 square nautical miles.

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A rocky coastline with isolated sandy coves dominates the southwest coast of Santa Rosa Island. The coast is moderately exposed and may receive strong surge in summer months. Northern elephant seals recently have expanded their range to include sandy beaches along the southwestern coast of Santa Rosa Island (especially China Camp). In the past, the protected sandy beaches on the southwestern side of Santa Rosa Island supported breeding and wintering Snowy Plovers. No recent sightings have been made. In the intertidal zone, rocky reefs are interspersed with sandy alleys. The subtidal habitat is mixed rocky reef with sand. The South Point SMR supports healthy and stable populations of giant kelp. Rocky subtidal habitats support a variety of algal species, including *Eisenia*, *Pterygophora*, and *Laminaria*. Surfgrass is found in the subtidal habitats around South Point and a patchy population of eelgrass grows in Johnson's Lee. Giant kelp forests support a diverse assemblage of nearshore rockfish. White seabass occur in the vicinity of South Point.

Crevice in the reefs provide natural refuges for invertebrates. Red sea urchins are abundant in rocky subtidal habitats. Rocky intertidal and subtidal habitats once supported populations of black abalone. Rocky subtidal habitats support remnant populations of red abalone which have low recruitment potential. The nearshore shelf drops off to sandy plateaus at approximately 70 ft. There are two deeper reefs off of South Point, at 90 ft and 120 ft.

Harris Point, San Miguel Island, State Marine Reserve

The Harris Point SMR is located on the north side of San Miguel Island. The reserve includes 6.3 nautical miles of shoreline from the marker in the middle of Simonton Cove to Cardwell Point. The reserve does not include the popular anchorage at Cuyler Harbor. The reserve extends north to the State waters boundary. The Harris Point SMR contains 18.2 square nautical miles. A subsequent Federal waters phase would add 43.6 square nautical miles for a cumulative total of 61.7 square nautical miles.

Exposed sandy beaches cover the shore from the marker poles in Simonton Cove to Harris Point. The subtidal habitat off Simonton Cove is mostly sandy, with a few offshore reefs. These sand beaches and intertidal habitats may support a population of pismo clams. During the summer months, spiny lobster move inshore toward Simonton Cove. Halibut are found in the sandy subtidal habitats to the northwest of Harris Point. The shoreline from Harris Point to Bat Rock is predominantly exposed rocky habitat with a few sandy coves. The subtidal habitat from Harris Point to Bat Rock is expansive rocky bottom with a few high relief rocks and pinnacles. Giant kelp persists around Bat Rock and inside of Harris Point, but populations are smaller in recent years. The rocky subtidal habitat from Harris Point to Bat Rock is dominated by red sea urchins.

There is heavy recruitment of red abalone in the rocky subtidal, but few adults. The rocky habitat between Harris Point and Bat Rock once supported populations of black abalone,

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but these populations are now depleted. Subtidal rocky features support numerous invertebrate species, including kelp corals, anemones, and worms. The rocky subtidal habitats from Harris Point to Bat Rock and around Prince Island support populations of cold-water rockfish species, including copper, gopher, black and yellow, blue, black, and vermilion rockfish. Lingcod and cabezon also are common in these rocky subtidal habitats.

The shoreline of Prince Island is rocky and exposed. Prince Island and the rocky shoreline from Harris Point to Bat Rock provide breeding and roosting habitats for numerous seabirds, including western gull, black oystercatcher, Brandt's cormorant, double-crested cormorant, pelagic cormorant, ashy storm-petrel, black storm-petrel, Leach's storm-petrel, Cassin's auklet, common murre, pigeon guillemot, rhinoceros auklet, tufted puffin, and Xantus's murrelet. The rocky intertidal around Prince Island descends quickly to a rocky subtidal habitat. Persistent populations of giant kelp and surfgrass are found around Prince Island. Red and purple urchins also are abundant in this region. Waters offshore from Prince Island support substantial populations of white seabass and halibut.

Richardson Rock, San Miguel Island, State Marine Reserve

The Richardson Rock SMR is located in open waters around Richardson Rock to the northwest of San Miguel Island. The Richardson Rock SMR contains 32.2 square nautical miles in State waters. A subsequent Federal waters phase would add 32.7 square nautical miles for a cumulative total of 64.9 square nautical miles.

Richardson Rock is the most remote exposed offshore pinnacle in the region. The rock is located in the highly productive region southeast of the major upwelling center near Point Conception. Cool, nutrient rich waters in the region support high local productivity, attracting a diverse assemblage of fishes, marine mammals and seabirds. A few emergent offshore rocks provide roosting habitats for seabirds, and shelter fish and invertebrates below the water's surface. The subtidal habitat is mixed sand and rock. Richardson Rock supports populations of vulnerable species, including black and red abalone, and numerous cold-water rockfish species.

Judith Rock, San Miguel Island, State Marine Reserve

The Judith Rock SMR is located on the southwest side of San Miguel Island. The reserve includes 1.4 nautical miles of shoreline from Adams Cove to Judith Rock. The reserve extends south approximately 3 nautical miles to the State waters boundary. The Judith Rock SMR is ~~4.8~~ 5.1 square nautical miles entirely within State waters.

The shoreline from Adams Cove to Judith Rock is mixed rock and sand with moderate to high exposure. Judith Rock provides some protection from surge and wind. California sea lions, harbor seals, and northern elephant seals haul out on beaches around Point

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Bennett, including the region adjacent to the proposed Judith Rock SMR. The reserve is adjacent to breeding and roosting sites of numerous seabirds including western gull, black oystercatcher, Brandt's cormorant, pelagic cormorant, Cassin's auklet, and pigeon guillemot.

The rocky intertidal habitat in Judith Rock SMR is highly productive. The subtidal habitat is mixed rock and sand with moderate relief. Rocky reefs are interspersed with sand alleys. Rocky reefs provide suitable habitat for red and purple sea urchin. Rock crab live in sheltered areas along the sand alleys. The Judith Rock SMR includes populations of red abalone, but red and black abalone have been depleted in nearshore habitats. Giant kelp populations between Adams Cove and Judith Rock are healthy and stable. *Laminaria* is found in deeper waters (approximately 70-90 ft). Patches of surfgrass grow in the subtidal. The lush kelp forest habitat supports diverse populations of nearshore rockfish.

Footprint State Marine Reserve

The Footprint SMR is located in open waters in the passage south of Santa Cruz and Anacapa Islands. The Footprint SMR is 28.6 nm², **6.4 square nautical miles of which would be within State waters and the rest** entirely within Federal waters. It is described and analyzed here as a part of the entire recommendation, but not the decision before the Fish and Game Commission. The majority of the proposed Footprint SMR is sand or gravel between 90-900 ft. The Footprint includes several submerged rocky features, including pinnacles and submarine canyons that once supported large population of numerous rockfish species. Today, the rockfish populations around the Footprint are severely depleted from intensive recreational and commercial fishing in the region. Although populations are depleted, the habitat supports a variety of species, including bocaccio and cowcod, both recognized as overfished by the PFM. Fish populations in the vicinity of the Footprint are likely to respond to protection within a reserve through increased density, individual size, and reproductive potential.

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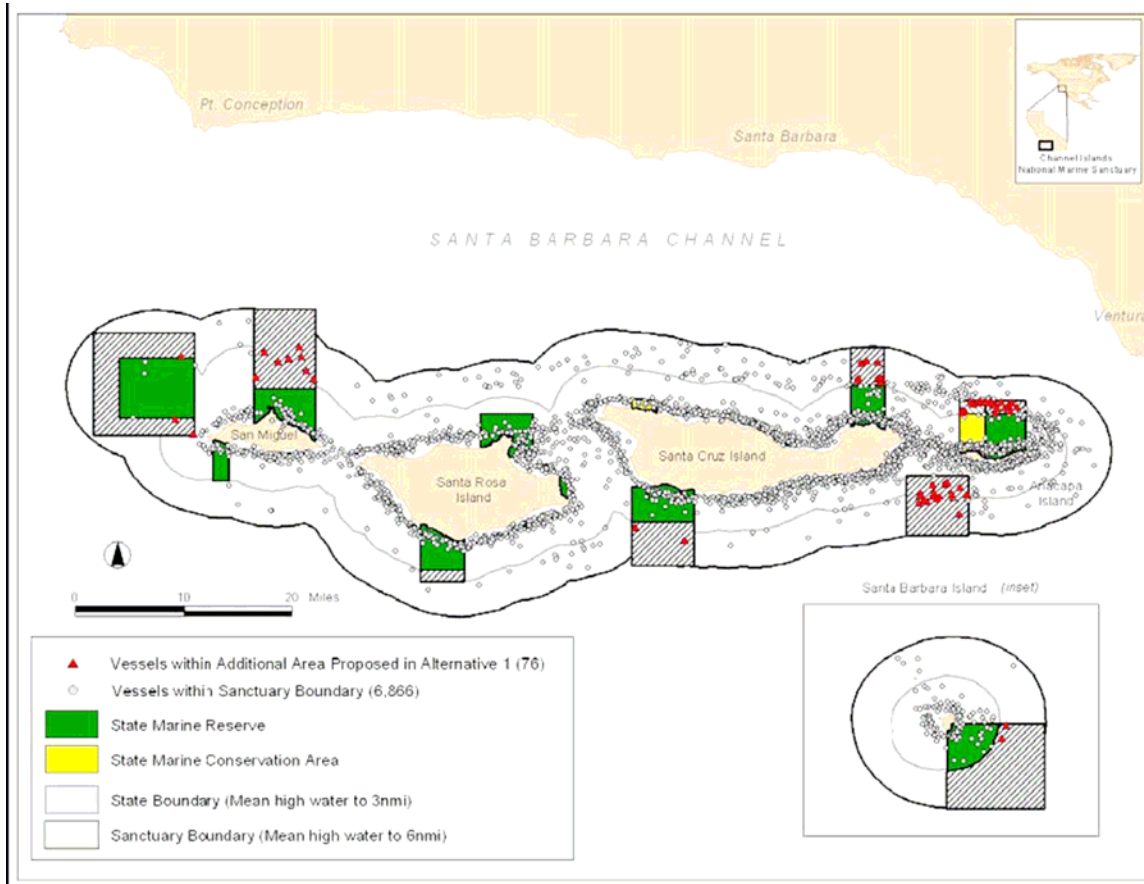


EXHIBIT 4 – Distribution and Location of Vessels within the CINMS (1997-2004)

Species/Species Group	Value	Percent	Excluding Kelp	
			Value	Percent
Squid	10,788,355	44.52	10,788,355	59.14
Kelp	5,991,367	24.72	0	0.00
Urchins	4,320,544	17.83	4,320,544	23.68
Spiny Lobster	1,024,536	4.23	1,024,536	5.62
Prawn ¹	210,978	0.87	210,978	1.16
Rockfish ¹	152,892	0.63	152,892	0.84
Crab	414,732	1.71	414,732	2.27
Tuna ¹	3,085	0.01	3,085	0.02
Wetfish	474,251	1.96	474,251	2.60
CA Sheephead ²	155,290	0.64	155,290	0.85
Flatfishes	218,328	0.90	218,328	1.20
Sea Cucumbers	222,007	0.92	222,007	1.22
Sculpin & Bass	93,203	0.38	93,203	0.51
Shark	34,397	0.14	34,397	0.19
sub-total (counted)	24,103,965	99.47	18,112,598	99.29
Others Not Included				
Abalone ³	0	0.00	0	0.000
Swordfish	50,087	0.21	50,087	0.275
Roundfish	32,736	0.14	32,736	0.179
Others	22,493	0.09	22,493	0.123
Yellowtail	8,066	0.03	8,066	0.044
Shrimp	3,505	0.01	3,505	0.019
Mussels & Snails	5,819	0.02	5,819	0.032
Salmon	5,119	0.02	5,119	0.028
Rays & Skates	993	0.00	993	0.005
Surf Perch	412	0.00	412	0.002
Grenadiers	106	0.00	106	0.001
Octopus	105	0.00	105	0.001
sub-total (not counted)	129,441	0.53	129,441	0.710
sub-total, excluding Abalone	129,441	0.53	129,441	0.710
Total All Species/Species Groups	24,233,406	100.00	18,242,039	100.000
Total All Species/Species Groups, excluding Abalone	24,233,406	100.00	18,242,039	100.000

1. Prawn, Rockfish and Tuna values are 2003 values due to steep declining trends.

2. CA Sheephead value is the 2000-2003 average.

3. Abalone value is the 2000-2003 average since Abalone harvest has been prohibited since 1997.

EXHIBIT 5 – Commercial Fishing within the CINMS, Average Annual Value by Species (1996-2003)

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Species/ Species Group	Add'l State Value	%	Federal Value	%	Total: New Value	%	Existing St. Value	%	Total: Cumulative Value	%
	Squid	70,603	0.65	42,362	0.39	112,965	1.05	1,355,606	12.57	1,468,572
Kelp	0	0.00	0	0.00	0	0.00	328,568	5.48	328,568	5.48
Urchins	38,247	0.89	0	0.00	38,247	0.89	656,403	15.19	694,650	16.08
Spiny Lobster	8,474	0.83	0	0.00	8,474	0.83	167,242	16.32	175,716	17.15
Prawn	19,694	9.33	16,995	8.06	36,689	17.39	6,431	3.05	43,120	20.44
Rockfish	7,250	4.74	9,054	5.92	16,304	10.66	20,278	13.26	36,582	23.93
Crab	1,767	0.43	0	0.00	1,767	0.43	58,924	14.21	60,692	14.63
Tuna	39	1.27	304	9.86	343	11.13	50	1.62	393	12.75
Wetfish	9,603	2.02	45,114	9.51	54,717	11.54	35,564	7.50	90,281	19.04
CA Sheephead	195	0.13	0	0.00	195	0.13	26,645	17.16	26,840	17.28
Flatfishes	1,157	0.53	3,826	1.75	4,983	2.28	23,760	10.88	28,743	13.17
Sea Cucumbers	690	0.31	0	0.00	690	0.31	37,030	16.68	37,720	16.99
Sculpin & Bass	1,891	2.03	5,300	5.69	7,191	7.72	8,360	8.97	15,551	16.69
Shark	345	1.00	770	2.24	1,115	3.24	4,431	12.88	5,546	16.12
Total	159,955	0.66	123,725	0.51	283,680	1.18	2,729,295	11.32	3,012,974	12.50

* Columns titled **Add'l State Value**, **Federal Value**, and **Total: New Value** describe proposed MPAs and refer to the estimated potential loss in commercial fishing revenue in the State and federal waters portions of these MPAs

EXHIBIT 6 – Estimated Potential Impacts to Commercial Fishing (by Species)

Port	Additional St		Federal		Total: New		Existing St		Total: Cumulative	
	Value	% ¹	Value	% ¹	Value	% ¹	Value	% ¹	Value	% ¹
1. Moss Landing	\$10	0.00	\$20	0.00	\$30	0.00	\$98	0.00	\$128	0.00
2. Morro Bay	\$1,801	0.09	\$1,557	0.07	\$3,358	0.16	\$1,460	0.07	\$4,817	0.23
3. Avila/Port San Luis	\$103	0.01	\$91	0.01	\$195	0.02	\$1,561	0.12	\$1,756	0.14
4. Santa Barbara	\$42,955	0.58	\$10,111	0.14	\$53,066	0.71	\$684,042	9.20	\$737,108	9.91
5. Ventura Harbor	\$24,255	0.50	\$17,848	0.37	\$42,104	0.87	\$364,564	7.50	\$406,668	8.37
6. Channel Islands	\$26,072	0.65	\$15,597	0.39	\$41,669	1.04	\$271,390	6.81	\$313,059	7.85
7. Port Hueneme	\$52,329	0.51	\$65,951	0.64	\$118,280	1.15	\$873,265	8.50	\$991,545	9.65
8. San Pedro	\$6,232	0.05	\$6,098	0.05	\$12,330	0.11	\$106,625	0.93	\$118,955	1.04
9. Terminal Island	\$5,307	0.04	\$5,655	0.04	\$10,962	0.08	\$91,824	0.68	\$102,786	0.77
10. Avalon & Other LA	\$317	0.02	\$333	0.02	\$650	0.05	\$1,845	0.14	\$2,495	0.19
11. Newport Beach	\$448	0.05	\$386	0.04	\$834	0.09	\$374	0.04	\$1,208	0.13
12. San Diego	\$87	0.00	\$79	0.00	\$166	0.01	\$2,677	0.11	\$2,842	0.11

1. Percents are the amount of ex vessel value as a percent of the total ex vessel value of landings at the Port (1996-2003 Average Annual Value), for all species groups, except Prawn, Rockfish and Tuna, which were valued using 2003 value of landings and CA Sheephead that was valued using the 2000-2003 average value of landings.

* Columns titled **Add'l State Value**, **Federal Value**, and **Total: New Value** describe proposed MPAs and refer to the estimated potential loss in commercial fishing revenue in the State and federal waters portions of these MPAs

EXHIBIT 7 – Estimated Potential Impacts to Commercial Fishing (by Port)

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Alternative	Additional State	1%	Federal	%	Total New Proposal	%	Existing State	%	Cumulative Total	%
Person-Days²										
1	7,361	1.6	15,005	3.3	22,365	5	61,651	13.8	84,016	18.8
2	7,562	1.7	21,075	4.7	28,637	6.4	61,651	13.8	90,288	20.2
Income³										
1	\$452,604	1.7	\$935,292	3.5	\$1,387,895	5.3	\$3,275,128	12.4	\$4,663,023	17.7
2	\$465,200	1.8	\$1,318,509	5	\$1,783,709	6.8	\$3,275,128	12.4	\$5,058,837	19.2
Employment⁴										
1	20	1.8	42	3.7	62	5.4	138	12.1	200	17.6
2	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.

*Columns titled **Additional State**, **Federal**, and **Total New Proposal** describe proposed MPAs and refer to the estimated potential impacts on recreational fishing from the portions of these MPAs in State and federal waters

EXHIBIT 8 – Summary of Estimated Potential Impacts on Recreational Fishing (proposed project is described as Alternative 1)

EXHIBIT No. 8
Application No.
CD-072-06