

Chapter 2. Project Description

This chapter describes the Proposed Project, which involves designation of MPAs for the central coast of California under the MLPA. This chapter discusses the project location, goals and objectives, MPAs, and alternatives.

2.1. Project Location

The Proposed Project is located in California state waters along the central California coast from Pigeon Point (San Mateo County) to Point Conception (Santa Barbara County) (Figure 1-1). The study region covers approximately 866 nm² and includes waters and seafloor from the shoreline (mean high tide) to a maximum water depth of approximately 1,475 m (in the Monterey Submarine Canyon). Estuarine waters are included in Elkhorn Slough, Morro Coho Slough, and Morro Bay. The study region abuts five coastal California counties: San Mateo, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara. More detail on the project location is included in Chapter 1.

2.2. Project Goals and Objectives

The goals and objectives of the project are listed below:

- **Goal 1:** To protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems.
 - **Objective 1.1:** Protect areas of high species diversity and maintain species diversity and abundance, consistent with natural fluctuations, of populations in representative habitats.
 - **Objective 1.2:** Protect marine life communities associated with areas with diverse habitat types in close proximity to each other.
 - **Objective 1.3:** Protect natural size and age structure and genetic diversity of populations in representative habitats.
 - **Objective 1.4:** Protect natural trophic structure and food webs in representative habitats.
 - **Objective 1.5:** Protect ecosystem structure, function, integrity, and ecological processes to facilitate recovery of natural communities from both natural and human-induced disturbances.
- **Goal 2:** To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted.
 - **Objective 2.1:** Help protect or rebuild populations of rare, threatened, endangered, depleted, or overfished species, where identified, and the habitats and ecosystem functions upon which they rely.

- **Objective 2.2:** Protect larval sources and restore reproductive capacity of species most likely to benefit from MPAs through retention of large, mature individuals.
- **Objective 2.3:** Protect selected species and the habitats on which they depend while allowing the harvest of migratory, highly mobile, or other species where appropriate through the use of state marine conservation areas and state marine parks.
- **Goal 3:** To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbances, and to manage these uses in a manner consistent with protecting biodiversity.
 - **Objective 3.1:** Ensure that some MPAs are close to population centers and research and education institutions; include areas of traditional nonconsumptive recreational use; and are accessible for recreational, educational, and study opportunities.
 - **Objective 3.2:** Enhance the likelihood of scientifically valid studies, and replicate appropriate MPA designations, habitats, or control areas (including areas open to fishing) to the extent possible.
 - **Objective 3.3:** Develop collaborative scientific monitoring and research projects evaluating MPAs that link with fisheries management information needs, classroom science curricula, volunteer dive programs, and fishermen of all ages, and identify participants.
 - **Objective 3.4:** Protect or enhance recreational experience by ensuring natural size and age structure of marine populations.
- **Goal 4:** To protect marine natural heritage, including protection of representative and unique marine life habitats in central California waters, for their intrinsic value.
 - **Objective 4.1:** Include within MPAs the following habitat types: estuaries, heads of submarine canyons, and pinnacles.
 - **Objective 4.2:** Protect species associated with, and replicate to the extent possible, representatives of all marine habitats identified in the MLPA or the master plan framework across a range of depths.
- **Goal 5:** To ensure that central California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines.

- **Objective 5.1:** Minimize negative socioeconomic impacts and optimize positive socioeconomic impacts for all users, to the extent possible, if consistent with the MLPA and its goals and guidelines.
- **Objective 5.2:** For all MPAs in the region, develop objectives, a long-term monitoring plan that includes standardized biological and socioeconomic monitoring protocols, and a strategy for MPA evaluation, and ensure that each MPA objective is linked to one or more regional objectives.
- **Objective 5.3:** To the extent possible, effectively use scientific guidelines in the master plan framework.
- **Goal 6:** To ensure that the central coast's MPAs are designed and managed, to the extent possible, as a component of a statewide network.
 - **Objective 6.1:** Develop a process for regional review and evaluation of implementation effectiveness that includes stakeholder involvement to determine whether regional MPAs are an effective component of a statewide network.
 - **Objective 6.2:** Develop a mechanism to coordinate with future MLPA regional stakeholder groups in other regions to ensure that the statewide MPA network meets the goals of the MLPA.

2.3. Types of MPAs

An MPA refers to a named, discrete geographic marine or estuarine area seaward of the high-tide line or the mouth of a coastal river, including any area of intertidal or subtidal terrain, together with its overlying water and associated flora and fauna, with regulations that are more restrictive than the general regulations in the general area and that are designed to protect or conserve marine life and habitat. MPAs are primarily intended to protect or conserve marine life and habitat; therefore, they are a subset of marine managed areas (MMAs), which are broader groups of named, discrete geographic areas along the coast that protect, conserve, or otherwise manage a variety of resources and uses, including living marine resources, cultural and historical resources, and recreational opportunities.

MPAs include state marine reserves (SMRs), state marine parks (SMPs), and state marine conservation areas (SMCAs). Definitions of these MPA types and associated restrictions and allowances are identified in Table 2-1. In addition to having somewhat different purposes, each type of MPA represents a different level of restriction on activities within MPA boundaries. One other MMA is identified in the Proposed Project—a state marine recreational management area (SMRMA). Other categories of MMAs (state marine cultural preservation areas [SMCPAs] and state marine water quality areas [SMWQAs]) are not a part of the Proposed Project.

2.3.1. State Marine Reserve

In the simplest terms, an SMR prohibits all take, including injury, damage, or possession of any living, geological, or cultural resource. However, scientific collecting by permit may be allowed for the purpose of research, restoration, or monitoring. SMRs must balance protection and access in marine reserves. The form that this balance takes in an individual SMR depends on the goals and objectives of that reserve. While the MLPA specifically precludes commercial and recreational fishing in SMRs, it also allows for the possibility of restrictions on other activities, including nonextractive activities (e.g., diving, kayaking, snorkeling). Any such restrictions, however, must be based on specific objectives for an individual site and the best readily available science. It is important to note that this statement does not imply that navigation will necessarily be restricted through MPAs or that other nonextractive activities will be regulated, although in some instances the latter may be necessary. For example, it may be necessary to protect populations of sensitive marine birds or mammals in their nesting or breeding areas by prohibiting access to some areas.

2.3.2. State Marine Park

SMPs differ from SMRs to different degrees in their purposes and types of restrictions. Unlike SMRs, SMPs allow some or all types of recreational fishing. The types of restrictions on fishing may vary with the focal species, habitats, and objectives of an individual SMP within a region. Where the primary goal of MPAs in general is biodiversity conservation, restrictions on fishing may be different from those in an SMP, where the primary goal is enhancing recreational opportunities.

2.3.3. State Marine Conservation Area

SMCAs also differ from SMRs and SMPs in their purposes and types of restrictions. This type of MPA allows some level of recreational and/or commercial fishing. The restrictions on fishing may vary with the focal species, habitats, and objectives of an individual MPA within a region, and may, for example, be in the form of restrictions on the catch of particular species or the use of certain types of fishing gear. SMCAs may be useful in protecting more sedentary, benthic (bottom-dwelling) species, while allowing the harvest of pelagic finfish¹ species. Another use of an SMCA would be to allow the continued use of traps, which typically have relatively low bycatch² rates and are more efficient for harvesting invertebrates, while prohibiting the harvest of finfish species of concern by hook-and-line or trawls, the latter of which typically have

¹ *Pelagic finfish* are defined in 14 CCR 632 as northern anchovy (*Engraulis mordax*), barracudas (*Sphyraena* spp.), 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 sharks (*Alopias* spp.), swordfish (*Xiphias gladius*), tunas (family Scombridae), and yellowtail (*Seriola lalandi*).

² *Bycatch* is the fish and other marine animals that are unintentionally caught in fishing gear targeting other species.

Table 2-1. MPA Definitions, Restrictions, and Allowable Uses

Characteristic	State Marine Reserve	State Marine Park	State Marine Conservation Area
<p>Definition</p>	<p>A nonterrestrial marine or estuarine area that is designated so that the managing agency may achieve one or more of the following:</p> <ul style="list-style-type: none"> • protect or restore rare, threatened, or endangered native plants, animals, or habitats in marine areas; • protect or restore outstanding, representative, or imperiled marine species, communities, habitats, and ecosystems; • protect or restore diverse marine gene pools; or • contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding, representative, or imperiled marine habitats or ecosystems. 	<p>A nonterrestrial marine or estuarine area that is designated so that the managing agency may provide opportunities for spiritual, scientific, educational, and recreational opportunities, as well as one or more of the following:</p> <ul style="list-style-type: none"> • protect or restore outstanding, representative, or imperiled marine species, communities, habitats, and ecosystems; • contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding, representative, or imperiled marine habitats or ecosystems; • preserve cultural objects of historical, archaeological, and scientific interest in marine areas; or • preserve outstanding or unique geological features. 	<p>A nonterrestrial marine or estuarine area that is designated so that the managing agency may achieve one or more of the following:</p> <ul style="list-style-type: none"> • protect or restore rare, threatened, or endangered native plants, animals, or habitats in marine areas; • protect or restore outstanding, representative or imperiled marine species, communities, habitats, and ecosystems; • protect or restore diverse marine gene pools; • contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding, representative, or imperiled marine habitats or ecosystems; • preserve outstanding or unique geological features; or • provide for sustainable living marine resource harvest.

Table 2-1. Continued

Characteristic	State Marine Reserve	State Marine Park	State Marine Conservation Area
Restrictions	It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource, except under a permit or specific authorization from the managing agency for research, restoration, or monitoring purposes. While to the extent feasible the area shall be open to the public for managed enjoyment and study, the area shall be maintained to the extent practicable in an undisturbed and unpolluted state. Therefore, access and use (e.g., walking, swimming, boating ,diving) may be restricted to protect marine resources.	It is unlawful to injure, damage, take, or possess any living or nonliving marine resources for commercial exploitation purposes. Any human use that would compromise protection of the species of interest, natural community or habitat, or geological, cultural, or recreational features may be restricted by the designating entity or managing agency.	It is unlawful to injure, damage, take, or possess any specified living, geological, or cultural marine resources for certain commercial, recreational, or combination of commercial and recreational purposes. In general, any commercial or recreational uses that would compromise protection of the species of interest, natural community, habitat, or geological features may be restricted by the designating entity or managing agency.
Allowable Uses	Research, restoration, and monitoring may be permitted by the managing agency. Educational activities and other forms of nonconsumptive human use may be permitted by the designating entity or managing agency in a manner consistent with the protection of all marine resources.	All other uses are allowed, including scientific collection with a permit, research, monitoring, and public recreation (including recreational harvest, unless otherwise restricted). Public use, enjoyment, and education are encouraged in a manner consistent with protecting resource values.	Research, education, recreational activities, and certain commercial and recreational harvest of marine resources may be permitted.

Note: These terms are defined in California Public Resources Code Sections 36700 and 36710.

relatively high bycatch rates. At present, the large fishery closures known as the Cowcod Conservation Areas and Rockfish Conservation Area (only the latter occurs in the central coast region) may function similarly to marine conservation areas because bottom fishing for finfishes is prohibited but other types of fishing are allowed. Because the specific regulations, boundaries, and depth range prohibited for fishing in these areas are subject to change depending on stock assessments, they are more accurately portrayed as traditional fisheries management and do not have the same ecosystem benefits as more continuous protection.

2.3.4. State Marine Recreational Management Area

In an SMRMA, activities that would compromise the recreational value of the area are restricted. Recreational opportunities may be protected, enhanced, or restricted, while preserving basic resource values of the area. While not specifically a marine protected area, SMRMAs are useful for consideration in areas where certain recreational use is allowed while extraction of subtidal living marine resources is prohibited. Specifically, these areas can be used where allowing waterfowl hunting is consistent with the desired level of subtidal resource protection. The use of this designation can specifically allow hunting, while preserving the subtidal resources in a manner similar to a SMR.

2.3.5. Comparisons of Levels of Protection among MPAs

SMRs provide the greatest level of protection to species and ecosystems by allowing no take of any kind (except for scientific take for research, restoration, or monitoring). The high level of protection created by an SMR is based on the assumption that no other appreciable level of take or alteration of the ecosystem is allowed (e.g., seawater pumping, kelp harvest).

SMPs allow some level of extraction of one or more species. The indirect effects of this extraction are poorly understood with regard to how other species in the ecosystem are affected (e.g., predators, prey, competitors) and incidental take of other species (i.e., bycatch). Because of this uncertainty, SMRs can provide managers with greater certainty in meeting the objectives of ecosystemwide protection and with comparisons to other types of MPAs to better understand the consequences of the direct and indirect effects of extraction allowed in those MPAs.

SMPs are designed to provide recreational opportunities and therefore can allow some or all types of recreational take of a wide variety of fish and invertebrate species by various means (e.g., hook-and-line, spear fishing). Because of the variety of species that potentially can be taken and the potential magnitude of recreational fishing pressure, SMPs that allow recreational fishing provide relatively low protection and conservation value relative to other, more restrictive MPAs (e.g., SMRs and some SMCAs).

SMCAs potentially have the most variable levels of protection and conservation of the three MPA designations because they allow any combination of commercial and recreational fishing, as well as other extractive activities (e.g., kelp harvest). Coastal MPAs (i.e., MPAs within state waters) are most effective at protecting species with limited range of movement and close associations to seafloor habitats. Less protection is afforded to more wide-ranging, transient species like salmon and other pelagic finfish. This may lead to proposals of SMCAs that prohibit take of bottom-dwelling species, while allowing the take of pelagic finfish. However, fishing for some pelagic finfish, like salmon near the bottom or in relatively shallow water, increases the likelihood of taking bottom species that are targeted for protection (e.g., California halibut, lingcod, rockfishes). Rates of bycatch in the commercial and recreational salmon fisheries may be higher in shallow water where bottom fish may move closer to the surface and become susceptible to the fishing gear. In addition, for recreational salmon fishing, the practice of “mooching”³ has a potentially higher bycatch rate than that of trolling⁴.

The SAT recognized that there is great variation in the type and magnitude of activities that may be permitted within the three types of MPAs, in particular SMPs and SMCAs. This variety intentionally provides designers of MPA network components with flexibility in proposing MPAs that either individually or collectively fulfill the various goals and objectives specified in the MLPA. However, this flexibility can result in complex and possibly confusing levels of protection afforded by any individual MPA or collection of MPAs. In particular, SMCAs allow for many possible combinations of recreational and commercial extractive activities. MPA network component proposals with similar numbers and sizes of SMCAs may in fact differ markedly in the type, degree, and distribution of protection throughout the study region. Therefore, the purpose of categorizing MPAs by their relative level of protection is to simplify comparisons of the overall conservation value of MPAs within and among proposed network components.

2.3.5.1. Rationale for Categories of Protection

MPA proposals should be evaluated in particular with respect to five MLPA goals: 1, 2, 3, 4, and 6. Goal 1 addresses protection of the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems. Goal 2 is intended to help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted. One aspect of Goal 3 that should be evaluated is the opportunity to study marine ecosystems that are subject to minimal human disturbance. As related to this goal, proposals should be evaluated with respect to the replication of appropriate MPA designations, habitats, and control areas. Goal 4 pertains to the protection of marine natural heritage, including protection of representative and unique marine life habitats in central California waters. Goal 6 is

³ *Mooching* is a rod-and-reel fishing technique using a cut plug or whole anchovy or herring in locations such as back eddies where fish congregate in large numbers or in places where bait fish school in large numbers.

⁴ *Trolling* is a style of fishing in which bait is trailed behind a boat and dragged in front of the fish to entice it to bite.

intended to ensure that MPAs are designed and managed to the extent possible as a network. Goal 5 seeks to ensure that MPAs have clearly defined objectives, effective management, and adequate enforcement, and are based on sound scientific guidelines. The first three parts of Goal 5 are not evaluated scientifically, and the last is the reason that master plan includes significant discussion of scientific guidelines.

The likelihood that any particular MPA or collection of MPAs will meet any of these five goals is based largely on the type and magnitude of removal or mortality (collectively referred to as “take”) of living marine resources that occur within the MPAs. Three forms of take include

- direct removal of a species from an MPA,
- unintended incidental removal of a species in the process of targeting another species (referred to as “bycatch”), and
- perturbation of the ecosystem in such a way that it leads to increased mortality of a species (e.g., alteration of habitat that leads to reduced refuge from predators).

Take is not limited to fishing activities. For example, coastal power-generating stations impinge fishes and invertebrates and entrain their larvae in the process of drawing ocean water for cooling systems. Likewise, many minor seawater intakes and sewage outfalls occur along the coast. The impacts of seawater intakes and sewage outfalls can be diffuse in nature and can affect ecosystems both locally and regionally.

In addition, commercial kelp harvest can reduce habitat availability and may directly and indirectly increase mortality of juvenile fishes. Therefore, the level of protection and conservation value afforded by any particular MPA depends very much on the type and magnitude of fishing and other human activities that will be allowed within the MPAs.

SMRs provide the greatest level of protection to species and ecosystems by allowing no take of any kind (except scientific take for research, restoration, or monitoring). The high level of protection created by an SMR is based on the assumption that no other appreciable level of take or alteration of the ecosystem is allowed (e.g., sewage discharge, seawater pumping, kelp harvest). In particular, SMRs provide the greatest likelihood of achieving MLPA Goals 1, 2, and 4.

The other MPA designations (SMCA and SMP) allow some level of extraction of one or more species. The indirect effects of this extraction are poorly understood, with regard to how other species in the ecosystem are affected (e.g., predators, prey, competitors) and incidental take of other species (i.e., bycatch). Because of this uncertainty, SMRs can provide managers with a greater certainty in meeting the objectives of ecosystemwide protection (Goal 1) and provide them with comparisons to

other types of MPAs to better understand the consequences of the direct and indirect effects of extraction allowed in those MPAs.

SMPs are designed to provide recreational opportunities; therefore, they can allow some or all types of recreational take of a wide variety of fish and invertebrate species by various means (e.g., hook-and-line, spear fishing). Because of the variety of species that potentially can be taken and the potential magnitude of recreational fishing pressure, SMPs that allow recreational fishing provide low protection and conservation value relative to other, more restrictive MPAs (e.g., SMRs and some SMCAs). Although SMPs have lower value for achieving MLPA Goals 1 and 2, they may assist in achieving other MLPA goals.

SMCAs potentially have the most variable levels of protection and conservation of the three MPA designations because they allow any combination of commercial and recreational fishing, as well as other extractive activities (e.g., kelp harvest). Coastal MPAs (i.e., within state waters) are most effective at protecting species with limited range of movement and close associations to seafloor habitats. Less protection is afforded to more wide-ranging, transient species such as salmon and other pelagic finfish. This may lead to proposals of SMCAs that prohibit take of bottom-dwelling species while allowing take of pelagic finfish. However, fishing for some pelagic finfish, such as salmon near the bottom or in relatively shallow water, increases the likelihood of taking bottom species that are targeted for protection (e.g., California halibut, lingcod, rockfishes). Rates of bycatch are particularly high in shallow water, where bottom fish may move close to the surface and become susceptible to the fishing gear. In addition, for recreational salmon fishing, the practice of “mooching” has a potentially higher bycatch rate than trolling.

Participants at a recent national conference⁵ on benthic-pelagic coupling considered the nature and magnitude of interactions among benthic and pelagic finfish, as well as the implications of these interactions for the design of MPAs. At this meeting, scientists and recreational fishing representatives agreed that bycatch is higher in water depths less than 50 m (164 feet [ft]) and lower in deeper water. This information, along with incidental catch statistics provided by the Department, formed the basis of categorization of SMCAs into three relative levels of protection of bottom-dwelling species and their habitats.

SMCA High Protection

These SMCAs protect benthic communities, both directly and indirectly, and allow only take of pelagic finfish. Proposed SMCAs that prohibit take of all species except salmon and other pelagic finfish in water depth more than 50 m (164 ft) were placed in this category. SMCAs with high protection are equivalent to SMRs for

⁵ The conference Benthic-Pelagic Linkages in MPA Design: A Workshop to Explore the Application of Science to Vertical Zoning Approaches. It was held in November 2005 and sponsored by the NOAA National Marine Protected Area Center, Science Institute, Monterey, California.

protecting many, but not all, species and habitats. However, our understanding of the interactions among pelagic finfish and the benthic community is incomplete. Moreover, salmon fishing in deep water (more than 50 m) can be conducted near the bottom, resulting in bycatch of benthic species. Therefore, these SMCAs do not have as high protection and conservation value as no-take SMRs and are less likely to achieve MLPA Goals 1, 2, and 4. Moreover, SMRs are needed to evaluate the effects of SMCAs that allow take of pelagic finfish.

SMCA Moderate Protection

These SMCAs protect most benthic species and their habitats while allowing for the take of pelagic finfish, selected benthic fishes and invertebrates, and giant kelp (hand-harvested only; see “Kelp Harvesting” below). It is recommended that proposed SMCAs in central California that prohibit take of all species except pelagic finfish, squid, jacksmelt, butterfish, crab, spot prawn, and giant kelp should be placed in this category (a modified list of species may be appropriate in other parts of the state). These MPAs are considered to provide relatively lower protection than SMRs and SMCAs (high) primarily because they allow the take of species (crab, spot prawn, and, to a lesser extent, squid) that have direct interaction as predator, prey, or habitat of those species targeted for protection. Therefore, removal of these species can potentially affect the overall ecosystem (Goal 1) and particular species targeted for protection that feed on or otherwise interact with these species (Goal 2). In addition, take of crabs and spot prawns that live on the seafloor increases the likelihood of bycatch of those bottom-dwelling species that may be targeted for protection (i.e., rockfishes).

Although bycatch of bottom-dwelling species in market squid landings is considered minimal, the presence of bycatch has been documented through the Department’s port sampling program. The port sampling program records bycatch (i.e., presence or absence evaluations), but actual amounts of bycatch have not been quantified to date. During 2004, bycatch was present in about 49% of the observed squid landings in central California, but species that constituted bycatch were primarily pelagic finfish. Benthic species targeted for protection by MPAs comprised a very small component of the squid fishery (Reilly pers. comm.). Spawning squid occur near the bottom when attaching their egg masses directly onto sand sediment. Occurrence of squid as bycatch in bottom trawls also indicates their presence on or near the bottom and their co-occurrence with benthic species. Landing receipts from the commercial butterfish and jacksmelt fisheries in central California indicate some bycatch of benthic soft-bottom species such as white croaker.

The magnitude of bycatch in the commercial spot prawn trap fishery was quantified from a Department observer program in 2000–2001 (Reilly and Geibel 2002). In central California (Point Conception to Monterey Bay), an average of about 150 pounds of bottom-dwelling fish was taken with every 1,000 pounds of spot prawns. Thirty species of finfish were observed as bycatch in the spot prawn trap fishery. The top five species, in decreasing frequency of occurrence, were sablefish, rosethorn rockfish, greenblotched rockfish group (includes greenblotched, greenspotted, and pink

rockfish), spotted cusk eel, and filetail catshark, comprising 78% of all fishes in the catch (by weight). Observed bycatch included 17 species of rockfishes. Sea stars constituted the vast majority of invertebrates taken as bycatch. Other invertebrates included red rock crab, a large sea slug, galatheid crab, urchin, octopus, box crab, hermit crab, decorator crab, brittle star, feather star, and sea cucumber. Most invertebrates and many fish species, other than rockfishes, could be returned to the water alive.

Bycatch associated with the Dungeness crab trap fishery has not been documented. Although some fishes associated with sand sediments are likely caught in this fishery, other crabs (mostly rock crab) are the only species reported in Dungeness crab landings (Reilly pers. comm.).

SMCA Low Protection

These SMCAs protect some benthic species and their habitats. These proposed SMCAs allow various forms of commercial and recreational fishing and kelp harvesting. Both the directed take and potential bycatch from those fisheries will greatly limit the conservation value of these MPAs relative to SMRs and SMCAs of high and moderate protection. Also, mechanical harvest of giant kelp and the harvest of bull kelp by any method result in both direct and indirect take of many invertebrate and fish species (see “Kelp Harvesting” section below). Therefore, these SMCAs are least likely to assist in achieving MLPA Goals 1, 2, and 4.

Kelp Harvesting

Potential impacts of kelp harvesting depend on the species of kelp, method of harvest (mechanical or hand collection), and volume of plant material removed. For both methods, take is constrained by regulations to the upper 1.2 m (4 ft) of the forest canopy formed at the surface of the ocean. Harvest of kelp forests is targeted primarily at the giant kelp, *Macrocystis pyrifera*, and secondarily the bull kelp, *Nereocystis luetkeana*. Importantly, giant kelp is a perennial (individual plants can live multiple years), and reproduction and new growth occur at the bottom of the plant. In contrast, bull kelp is an annual (individuals live only 1 year), and reproduction and new growth occur at the top of the plant. In addition the gas-filled bladder responsible for keeping the bull kelp erect is located at the surface. Therefore, kelp harvesting, regardless of method, has a greater negative impact on bull kelp than on giant kelp.

Assessments of the impact of harvest (both mechanical and hand) on giant kelp suggest minimal impact on the kelp plants themselves because the plants are not removed entirely and can regrow rapidly to replace the removed canopy. Moreover, the reproductive portion of the plant is left intact at the bottom of the plant. However, harvest near the end of the summer may result in loss of the canopy for the remainder of the growing season. Whereas the amount of harvested bull kelp is much less than giant kelp, no impact assessment of harvesting has been conducted for bull kelp in California. However, the negative impact on individuals and populations of bull kelp is

likely to be much more than giant kelp because the reproductive and growth capacity of the plants is terminated with harvest.

Of additional, perhaps greater, concern with the harvesting of kelp is the:

- loss of habitat provided by the forest canopy for other species;
- loss of production of plant material that is fed on by numerous grazers and detritivores in kelp forests and other habitats where drift kelp contributes to local productivity (e.g., heads of submarine canyons and sandy beaches); and
- take (i.e. bycatch) of other species closely associated with the canopy habitat.

The two harvesting methods differ markedly with respect to these three impacts. Mechanical kelp harvest is conducted by large, specially designed vessels that remove large volumes of the forest canopy and kill many associated species of fishes and invertebrates, including many species of juvenile rockfishes. Loss of habitat and food provided by kelp canopies translates to changes in growth, survival, and reproduction of those species associated with the canopy. The coastwide impact of this mortality on juvenile rockfishes has not been assessed. However, the impact on an individual kelp forest within a proposed MPA is likely to be substantial, with the loss of large numbers (thousands) of juveniles. Because of the impacts of mechanical kelp harvest on the well-understood role of kelp to the structure, function, and services provided by kelps to shallow reef ecosystems (Goal 1) and on many species targeted for protection (Goal 2), SMCAs that allow mechanical harvest of kelp, even if no other extractive activities are permitted, should be *considered* as having low protection and conservation value.

Impacts of hand harvest of kelp in support of the abalone mariculture industry have received less attention, in large part because of the presumed lesser impact of this method compared to mechanical harvest. The reduced impact is based in part on the lower volume of plant material removed and the likelihood that juvenile fishes are less likely to be removed with the canopy. However, experiments by the Department in 1977 indicated that kelp canopy removal might increase the likelihood that young-of-the-year rockfishes are consumed by opportunistic, predatory fishes such as juvenile bocaccio (Houk and McCleneghan 1993). Repeated collection of the kelp canopy from the same area likely increases local-scale impacts on habitat and food production. Because the impacts of hand harvest on the well-understood role of kelp to the structure, function, and services provided by kelps to shallow reef ecosystems (Goal 1) and on many species targeted for protection by MPAs (Goal 2) are less than the impacts from mechanical harvest, SMCAs that allow hand harvest of kelp should be considered as having moderate protection and conservation value.

2.4. Proposed Project

The Commission-preferred alternative,⁶ identified on August 15, 2006, at a special meeting in Monterey, represents the Proposed Project for the purposes of this EIR. Under the Proposed Project, MPAs would be designated as shown on Figures 2-1a and 2-1b and in Tables 2-2 and 2-3. Please note that some existing MPAs would be altered or eliminated. Proposed allowed take in MPAs would be as described in Table 2-4. The representation of different habitats in the Proposed Project would be as shown on Table 2-5.

Table 2-2. Overall Summary for Proposed Project

Type of MPA*	Total Proposed	Area (Square Miles)	Percent of Study Region
State Marine Reserve	15	96.61	8.40
State Marine Park	2	6.35	0.55
State Marine Conservation Area	12	100.91	8.77
All MPAs Combined	29	203.87	17.73

* These are proposed MPA designations, not levels of protection assigned by the SAT. The southern portion of the proposed Morro Bay SMRMA was included with the SMRs for the analysis. The remainder of the proposed Morro Bay SMRMA was included with the SMCA for the analysis and count of proposed MPAs.

Table 2-3. Individual MPAs in Proposed Project

MPA Name ^a	Level of Protection ^a	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Año Nuevo SMR		11.07	8.4	0–175
Greyhound Rock SMCA	3	11.81	3.1	0–216
Natural Bridges SMR		0.58	4.1	0–21
Soquel Canyon SMCA	1	23.41	7.8	247–2,113
Portuguese Ledge SMCA	1	10.91	5.4	302–4,838
Elkhorn Slough SMR		1.48	4.4	0–10
Elkhorn Slough SMP	4	0.09	1.4	0–10
Moro Cojo SMR		0.46	5.0	0–10
Edward F. Ricketts SMCA	3	0.22	1.0	0–74
Lovers Point SMR		0.30	1.0	0–88
Pacific Grove SMCA	3	0.93	1.5	0–151
Asilomar SMR		1.51	2.3	0–172
Carmel Pinnacles SMR		0.53	1.0	69–223
Carmel Bay SMCA	3	2.12	3.1	0–471
Point Lobos SMR		5.36	4.7	0–408

⁶ The Commission-preferred alternative represents a variant between Package 3R and the Department staff-recommended Package P.

MPA Name ^a	Level of Protection ^a	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Point Lobos SMCA	2	8.85	3.2	268–1,858
Point Sur SMR		9.72	5.4	0–183
Point Sur SMCA	1	9.96	5.4	139–624
Big Creek SMCA	2	10.11	2.5	0–1,964
Big Creek SMR		12.35	3.3	0–2,393
Piedras Blancas SMR		10.40	6.4	0–157
Piedras Blancas SMCA	1	8.76	4.9	94–337
Cambria SMP	4	6.26	5.8	0–105
Cambria SMR		2.32	3.5	0–99
Morro Bay SMRMA	1, 3 ^c	3.01	9.4	0–22
Morro Bay East SMR		0.30	1.4	0–10
Point Buchon SMR		6.66	2.9	0–208
Point Buchon SMCA	1	11.55	5.9	191–377
Vandenberg SMR		32.84	14.3	0–127

^a Listed north to south. Symbols following proposed MPA name indicate level of protection as determined by the SAT: 1 indicates SMCA High, 2 indicates SMCA Moderate, 3 indicates SMCA Low, and 4 indicates SMP Low. Level of protection was used in the SAT evaluation.

^b Along-shore span measured as direct line from one end of the MPA to the other.

^c 1 for southern portion, 3 for northern portion.

Table 2-4. Allowed Take for Individual MPAs in Proposed Project

MPA Name ^a	Proposed Take Allowed
Año Nuevo SMR	No commercial or sport take.
Greyhound Rock SMCA	Recreational finfish by hook and line from shore only and recreational and commercial giant kelp (<i>Macrocystis pyrifera</i>) by hand, salmon, and squid.
Natural Bridges SMR	No commercial or sport take.
Elkhorn Slough SMR	No commercial or sport take.
Elkhorn Slough SMCA (SMP) ¹	Recreational finfish by hook and line and clams in area adjacent to DFG wildlife area in west.
Moro Cojo Slough SMR	No commercial or sport take.
Soquel Canyon SMCA	Pelagic finfish ²
Portuguese Ledge SMCA	Pelagic finfish ²
Edward F. Ricketts SMCA	Recreational finfish by hook and line, and commercial take of kelp by hand north of 36° 38.83' North Latitude. NOTE: Sub-Options are provide for the time of day and location where recreational fishing is allowed in this MPA.
Lovers Point SMR	No commercial or sport take.

MPA Name ^a	Proposed Take Allowed
Pacific Grove Marine Gardens SMCA	Recreational finfish and commercial kelp by hand.
Asilomar SMR	No commercial or sport take.
Carmel Pinnacles SMR	No commercial or sport take.
Carmel Bay SMCA	Recreational finfish and commercial kelp by hand.
Point Lobos SMR	No commercial or sport take.
Point Lobos SMCA	Recreational and commercial salmon, albacore, and spot prawn.
Point Sur SMR	No commercial or sport take.
Point Sur SMCA	Recreational and commercial salmon and albacore.
Big Creek SMCA	Recreational and commercial salmon, albacore, and spot prawn west of line approximating 25 fathoms.
Big Creek SMR	No commercial or sport take.
Piedras Blancas SMR	No commercial or sport take.
Piedras Blancas SMCA	Recreational and commercial salmon and albacore.
Cambria SMCA (SMP) ¹	All recreational take. NOTE: Sub-Options are provided for the southern and northern boundaries of this MPA
Cambria SMR	No commercial or sport take. NOTE: Sub-Options are provided for the northern boundary of this MPA.
Morro Bay SMRMA	No commercial or sport take in South. Recreational finfish and commercial bait fish receiving, and commercial aquaculture by permit in north. Waterfowl hunting under DFG regulations in entire area.
Morro Bay SMR	No commercial or sport take.
Point Buchon SMR	No commercial or sport take.
Point Buchon SMCA	Recreational and commercial salmon and albacore.
Vandenberg SMR	No commercial or sport take.

^a Listed north to south.

¹ These areas will initially be designated as state marine conservation areas, though their regulations allow later change to state marine parks by the State Park and Recreation Commission.

² Pelagic Finfish are defined as: northern anchovy (*Engraulis mordax*), barracudas (*Sphyraena spp.*), 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 sharks (*Alopias spp.*), swordfish (*Xiphias gladius*), tunas (family Scombridae), and yellowtail (*Seriola lalandi*). *Marlin is not allowed for commercial take.

Table 2-5. Habitat Representation in Proposed Project

Habitat	Percentage of Habitat in Each Type of MPA*			
	SMR	SMP	SMCA	Total
Intertidal				
Sandy or gravel beaches	21.00	2.49	4.42	27.91
Rocky intertidal and cliff	26.38	1.80	5.07	33.25
Coastal marsh	39.56	3.89	9.88	53.33
Tidal flats	44.81	4.86	19.59	69.26
Seagrass beds (0–30 meters): Surfgrass	29.34	2.99	7.77	40.10
Seagrass beds (0–30 meters): Eelgrass	28.67	0.62	70.71	100.00
Estuary	30.32	1.02	23.19	54.53
Soft Bottom				
0–30 meters	15.20	1.69	1.05	17.94
30–100 meters	4.85	0.08	8.95	13.88
100–200 meters	1.56	0.00	21.49	23.05
>200 meters	6.68	0.00	12.91	19.59
Hard Bottom				
0–30 meters	22.27	1.82	4.91	29.00
30–100 meters	11.56	0.00	15.76	27.32
100–200 meters	0.07	0.00	36.83	36.90
>200 meters	0.19	0.00	20.73	20.92
Kelp Forest				
Average kelp (1989, 1999, 2002, 2003)	24.50	5.26	6.17	35.93
Persistent kelp	17.93	10.38	9.12	37.44
Submarine Canyon				
0–30 meters	12.39	0.00	24.78	37.17
30–100 meters	5.88	0.00	4.07	9.95
100–200 meters	4.79	0.00	14.03	18.81
>200 meters	7.41	0.00	14.99	22.40

* These are proposed MPA designations, not levels of protection assigned by the MLPA Master Plan Science Advisory Team. The southern portion of the proposed Morro Bay State Marine Recreational Management Area was included with the SMRs for the analysis. The remainder of the proposed Morro Bay SMRMA was included with the SMCAs for the analysis.

2.5. Alternative MPA Networks Considered

2.5.1. Alternative 1

Alternative 1 was developed by CCRSG members representing recreational and commercial fishing interests and was called Package 1. Under Alternative 1, MPAs would be designated as shown on Figures 2-2a and 2-2b and Tables 2-6 and 2-7. Some existing MPAs would be altered or eliminated. Proposed allowed take in MPAs would be as described in Table 2-8. The representation of different habitats in Alternative 1 would be as shown in Table 2-9. Of the various alternatives, Alternative 1 would designate the smallest number and area of MPAs.

Table 2-6. Overall Summary for Alternative 1

Type of MPA Proposed*	Number Proposed	Area (Square Miles)	Percent of Study Region
State Marine Reserve	15	59.56	5.18
State Marine Park	1	4.41	0.38
State Marine Conservation Area	13	107.37	9.34
All MPAs combined	29	171.33	14.90

* These are proposed MPA designations, not levels of protection assigned by the SAT. The proposed Morro Bay South SMRMA was included with the SMRs for the above summary and for the analysis.

Table 2-7. Individual MPAs in Alternative 1

MPA Name ^a	Level of Protection*	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Año Nuevo SMR		0.53	4.7	0–7
Greyhound Rock SMCA	2	10.93	2.9	0–209
Greyhound Rock SMR (second analysis)	2	3.64	4.0	0–138
Elkhorn Slough SMR		1.59	7.0	0–10
Moro Cojo Estuary SMR		0.74	7.6	0–10
Monterey Submarine Canyon No Bottom Contact SMCA	1	16.93	6.5	496–4,838
Ed Ricketts SMCA	3	0.15	0.7	3–56
Hopkins SMR		0.31	1.0	3–71
Pacific Grove – Monterey SMCA	3	3.67	3.3	0–237
Carmel Pinnacles SMR		0.47	0.9	69–223
Carmel Bay SMCA	3	2.10	3.1	3–471
Point Lobos SMCA	2	11.81	5.6	228–1,858

MPA Name ^a	Level of Protection*	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Point Lobos SMR		3.67	4.0	0–404
Point Sur Deep Reef SMCA	1	10.25	7.9	162–359
Julia Pfeiffer Burns SMR		6.14	5.1	3–498
Julia Pfeiffer Burns Offshore SMCA	2	6.18	2.6	206–1,975
Julia Pfeiffer Burns Offshore SMR		7.13	2.6	226–2,227
Big Creek SMR		2.26	2.4	0–264
Alder Creek SMR		6.51	5.4	0–192
Alder Creek SMCA	1	13.23	5.4	131–1,316
Point Piedras Blancas SMR		0.72	3.3	0–55
Cambria SMP	4	4.41	4.7	0–102
Morro Bay Harbor SMCA	3	2.64	7.0	0–22
Morro Bay South SMRMA	1	0.66	3.4	0–10
Point Buchon SMR		1.36	1.6	3–139
Point Buchon SMCA	1	9.72	3.5	141–377
Diablo Canyon Security Zone SMCA	1	3.16	2.3	0–174
Vandenberg SMR		23.83	13.3	0–98
Vandenberg Danger Zone 4 SMCA	2	16.60	8.6	95–235

^a Listed north to south. Symbols following proposed MPA name indicate level of protection as determined by the SAT: 1 indicates SMCA High, 2 indicates SMCA Moderate, 3 indicates SMCA Low, and 4 indicates SMP Low. Level of protection was used in the SAT evaluation.

^b Along-shore span measured as direct line from one end of the MPA to the other.

Table 2-8. Allowed Take for Individual MPAs in Alternative 1

MPA Name ^a	Proposed Take Allowed
Año Nuevo SMR	No commercial or sport take.
Greyhound Rock SMCA	Recreational and commercial take of pelagic finfish ¹ , squid, Dungeness crab, and salmon. Salmon may not be taken shallower than 25 fathoms.
Greyhound Rock SMR	No commercial or sport take.
Elkhorn Slough SMR	No commercial or sport take.
Moro Cojo Estuary SMR	No commercial or sport take.
Monterey Submarine Canyon No Bottom Contact SMCA	Pelagic finfish ¹ and squid.

MPA Name ^a	Proposed Take Allowed
Ed Ricketts SMCA	Recreational finfish by hook and line, and commercial take of kelp by hand north of 36° 38.83' North Latitude.
Hopkins SMR	No commercial or sport take.
Pacific Grove-Monterey SMCA	Recreational finfish, Dungeness crab, and squid. Commercial Dungeness crab, pelagic finfish ¹ , squid, and kelp.
Carmel Pinnacles SMR	No commercial or sport take.
Carmel Bay SMCA	Recreational finfish and commercial kelp and squid.
Point Lobos SMR	No commercial or sport take.
Point Lobos SMCA	Recreational and commercial salmon and commercial spot prawns.
Point Sur Deep Reef SMCA	Pelagic Finfish ¹
Julia Pfeiffer Burns Offshore SMR	No commercial or sport take.
Julia Pfeiffer Burns SMR	No commercial or sport take.
Julia Pfeiffer Burns Offshore SMCA	Salmon and spot prawn.
Big Creek SMR	No commercial or sport take.
Alder Creek SMR	No commercial or sport take.
Alder Creek SMCA	Pelagic Finfish ¹
Point Piedras Blancas SMR	No commercial or sport take.
Cambria SMCA (SMP) ²	All recreational take.
Morro Bay Harbor SMCA	Recreational take, commercial bait fish receivering, and commercial aquaculture by permit.
Morro Bay South SMRMA	No commercial or sport take except recreational hunting of waterfowl unless otherwise prohibited.
Point Buchon SMR	No commercial or sport take.
Point Buchon SMCA	Recreational and commercial salmon.
Diablo Canyon Security Zone SMCA	No commercial or sport take.
Vandenberg SMR	No commercial or sport take.
Vandenberg Danger Zone 4 SMCA	Recreational and commercial salmon and crabs.

^a Listed north to south.

¹ Pelagic Finfish are defined as: northern anchovy (*Engraulis mordax*), barracudas (*Sphyraena spp.*), 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 sharks (*Alopias spp.*), swordfish (*Xiphias gladius*), tunas (family Scombridae), and yellowtail (*Seriola lalandi*). *Marlin is not allowed for commercial take.

² These areas will initially be designated as state marine conservation areas, though their regulations allow later change to state marine parks by the State Park and Recreation Commission.

Table 2-9. Habitat Representation in Alternative 1

Habitat	Percentage of Habitat in Each Type of MPA *			
	SMR	SMP	SMCA	Total
Intertidal				
Sandy or gravel beaches	14.33	1.57	5.61	21.51
Rocky intertidal and cliff	22.27	1.41	5.87	29.56
Coastal marsh	54.28	1.04	12.84	68.16
Tidal flats	58.61	0.64	23.26	82.51
Seagrass beds (0–30 meters): Surfgrass	25.01	2.16	5.33	32.50
Seagrass beds (0–30 meters): Eelgrass	25.16	0.00	73.62	98.78
Estuary	31.43	0.20	26.86	58.49
Soft Bottom				
0–30 meters	10.66	1.15	2.53	14.34
30–100 meters	2.36	0.03	8.35	10.75
100–200 meters	0.81	0.00	17.88	18.69
>200 meters	5.86	0.00	24.50	30.36
Hard Bottom				
0–30 meters	11.79	1.55	7.20	20.54
30–100 meters	3.20	0.00	9.40	12.61
100–200 meters	0.27	0.00	11.82	12.09
>200 meters	0.99	0.00	32.06	33.05
Kelp Forest				
Average kelp (1989, 1999, 2002, 2003)	14.62	4.13	5.84	24.59
Persistent kelp	26.74	6.29	6.92	39.96
Submarine Canyon				
0–30 meters	8.85	0.00	26.55	35.40
30–100 meters	3.39	0.00	0.90	4.30
100–200 meters	4.46	0.00	3.14	7.59
>200 meters	4.96	0.00	26.04	31.00

* These are proposed MPA designations, not levels of protection assigned by the SAT. The proposed Morro Bay South SMRMA was included with the SMRs for the analysis.

2.5.2. Alternative 2

Alternative 2 was developed by CCRSG members representing nonconsumptive users. It was known as Package 2 and was modified as Package 2R by the BRTF. Under Alternative 2, MPAs would be designated as shown on Figures 2-3a and 2-3b and Tables 2-10 and 2-11. Some existing MPAs would be altered or eliminated. Proposed allowed take in MPAs would be as described in Table 2-12. The representation of different habitats in Alternative 2 would be as shown on Table 2-13. Of the various alternatives, Alternative 2 would designate the largest number and area of MPAs.

Table 2-10. Overall Summary for Alternative 2

Type of MPA*	Total Proposed	Area (Square Miles)	Percent of Study Region
State Marine Reserve	21	147.68	12.84
State Marine Park	1	9.84	0.86
State Marine Conservation Area	8	63.93	5.56
All MPAs Combined	30	221.45	19.26

* These are proposed MPA designations, not levels of protection assigned by the SAT. The proposed Morro Bay SMRMA was included with the SMRs for the above summary and for the analysis.

Table 2-11. Individual MPAs in Alternative 2

MPA Name ^a	Level of Protection*	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Año Nuevo SMR (second analysis)	2	18.99	11.5	0–209
Baldwin to Natural Bridges SMR		0.59	4.1	0–21
Elkhorn Slough SMR		1.56	7.0	0–10
Morro Cojo Estuary SMR		0.74	7.6	0–10
Soquel Canyon SMCA	1	23.41	7.8	247–2113
Portuguese Ledge SMR		10.90	5.4	302–4838
Edward C. Cooper SMR		0.11	0.6	4–54
Ed Ricketts SMCA	3	0.09	0.4	3–56
Hopkins SMR		0.35	1.0	3–71
Pacific Grove SMCA	3	0.41	1.2	0–59
Asilomar SMR		0.85	1.5	0–63
Carmel Pinnacles SMR		1.25	1.8	3–223
Carmel Bay SMCA	3	1.71	3.1	3–471
Point Lobos SMR		4.36	4.8	0–320
Point Lobos SMCA	2	11.28	5.2	227–2111

MPA Name ^a	Level of Protection*	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Point Sur SMR		19.48	5.4	3–624
Julia Pfeiffer Burns SMR		18.03	4.8	3–2227
Big Creek SMR		3.24	3.1	0–314
Big Creek SMCA	2	12.97	4.3	3–2393
Piedras Blancas SMR		22.09	7.0	0–337
Cambria SMP	4	9.84	5.3	0–150
Ken Norris SMR (second analysis)	3	5.50	3.6	0–187
Estero Bluff SMR		0.14	1.4	0–10
Morro Bay SMCA	3	2.10	7.0	0–22
Morro Bay East SMR		0.40	2.4	0–10
Morro Bay SMRMA	1	0.79	3.4	0–10
Point Buchon SMR		8.38	4.6	0–217
Point Buchon SMCA	1	11.96	4.6	167–377
Purisma Point SMR		19.27	5.0	0–190
Point Arguello SMR		10.66	8.2	0–189

^a Listed north to south. Symbols following proposed MPA name indicate level of protection as determined by the SAT: 1 indicates SMCA High, 2 indicates SMCA Moderate, 3 indicates SMCA Low, and 4 indicates SMP Low. Level of protection was used in the SAT evaluation.

^b Along-shore span measured as direct line from one end of the MPA to the other.

Table 2-12. Allowed Take for Individual MPAs in Alternative 2

MPA Name ^a	Proposed Take Allowed
Año Nuevo SMR	No commercial or sport take.
Baldwin to Natural Bridges SMR	No commercial or sport take.
Elkhorn Slough SMR	No commercial or sport take.
Moro Cojo Estuary SMR	No commercial or sport take.
Soquel Canyon SMCA	Salmon and albacore.
Portuguese Ledge SMR	No commercial or sport take.
Edward C. Cooper SMR	No commercial or sport take.
Ed Ricketts SMCA	November 1 through the end of February, the commercial take of kelp north of 36° 36.83' N. lat. by hand only. Not more than 15 tons of kelp may be harvested from the portion of Administrative Kelp Bed 220 within the Ed Ricketts State Marine Conservation Area in the open time period.
Hopkins SMR	No commercial or sport take.

MPA Name ^a	Proposed Take Allowed
Pacific Grove SMCA	Finfish may be taken recreationally in the area between the seaward extension of Esplanade Street and boundary of the Hopkins State Marine Reserve by hook and line or spear. Take is prohibited by use of poke-pole gear. Take is prohibited for any competition involving two or more persons in which persons are ranked, or winners are determined, based on size, weight, number of species, type of species, or number of fish taken by means of spearfishing. Commercial take prohibited except kelp harvesting allowed by hand harvest with restrictions to limit take approximately to existing levels.
Asilomar SMR	No commercial or sport take.
Carmel Pinnacles SMR	No commercial or sport take.
Carmel Bay SMCA	Recreational finfish by hook and line or spear except poke-pole gear is prohibited. Take is prohibited for any competition involving two or more persons in which persons are ranked, or winners are determined, based on size, weight, number of species, type of species, or number of fish taken by means of spearfishing. Commercial take of kelp by hand.
Point Lobos SMR	No commercial or sport take.
Point Lobos SMCA	Recreational and commercial salmon, albacore, and spot prawn.
Point Sur SMR	No commercial or sport take.
Julia Pfeiffer Burns SMR	No commercial or sport take.
Big Creek SMCA	Recreational and commercial salmon, albacore, and spot prawn deeper than 50 fathoms.
Big Creek SMR	No commercial or sport take.
Piedras Blancas SMR	No commercial or sport take.
Cambria SMCA (SMP) ¹	All recreational take.
Ken Norris SMR	No commercial or sport take.
Estero Bluff SMR	No commercial or sport take.
Morro Bay SMCA	Recreational take and commercial receiving of finfish for bait and permitted aquaculture of oysters.
Morro Bay SMRMA	No-Take. Waterfowl hunting under DFG regulations is allowed.
Morro Bay East SMR	No commercial or sport take.
Point Buchon SMR	No commercial or sport take.
Point Buchon SMCA	Recreational and commercial salmon and albacore.
Purisima Point SMR	No commercial or sport take.
Point Arguello SMR	No commercial or sport take.

^a Listed north to south.

¹ These areas will initially be designated as state marine conservation areas, though their regulations allow later change to state marine parks by the State Park and Recreation Commission.

Table 2-13. Habitat Representation in Alternative 2

Habitat	Percentage of Habitat in Each Type of MPA*			
	SMR	SMP	SMCA	Total
Intertidal				
Sandy or gravel beaches	23.46	2.34	2.39	28.19
Rocky intertidal and cliff	33.94	1.42	2.68	38.05
Coastal marsh	57.16	1.29	4.05	62.50
Tidal flats	64.24	0.64	18.83	83.70
Seagrass beds (0–30 meters): Surfgrass	35.27	2.52	3.90	41.68
Seagrass beds (0–30 meters): Eelgrass	32.62	0.00	67.10	99.71
Estuary	36.72	0.10	21.36	58.19
Soft bottom				
0–30 meters	13.34	1.79	1.17	16.30
30–100 meters	10.96	0.67	4.38	16.00
100–200 meters	8.97	0.00	14.37	23.34
>200 meters	11.20	0.00	15.46	26.66
Hard bottom				
0–30 meters	28.02	1.71	1.54	31.26
30–100 meters	19.41	0.02	9.58	29.01
100–200 meters	11.48	0.00	26.37	37.85
>200 meters	9.47	0.00	12.87	22.34
Kelp forest				
Average kelp (1989, 1999, 2002, 2003)	30.60	4.94	4.83	40.36
Persistent kelp	29.58	9.75	7.55	46.88
Submarine canyon				
0–30 meters	1.77	0.00	35.40	37.17
30–100 meters	4.07	0.00	8.82	12.89
100–200 meters	3.80	0.00	17.00	20.79
>200 meters	11.50	0.00	14.12	25.62

* These are proposed MPA designations, not levels of protection assigned by the SAT. The proposed Morro Bay SMRMA was included with the SMR totals.

2.5.3. Existing Marine Protected Areas (No Project Alternative)

There are 13 existing MPAs (including one special closure) in the central coast study region, as shown in Figures 2-4a and 2-4b and Tables 2-14 and 2-15. Existing MPAs represent the No Project Alternative. Allowed take in existing MPAs are

described in Table 2-16. The representation of habitats within existing MPAs is shown on Table 2-17.

Table 2-14. Overall Summary for Existing MPAs

Type of MPA	Total Existing	Area (Square Miles)	Percent of Study Region
Special Closure	1	2.20	0.19
State Marine Conservation Area	7	33.50	2.91
State Marine Park	0	0.00	0.00
State Marine Reserve	5	7.45	0.65
All MPAs Combined	13	43.15	3.75

Table 2-15. Existing Individual MPAs

MPA Name ^a	Size (Square Miles)	Along-Shore Span (Miles) ^b	Depth Range (Feet)
Special Closure: Año Nuevo Invertebrate Area	2.20	5.52	0–55
Elkhorn Slough SMR	1.36	3.16	0–10
Hopkins SMR	0.15	0.52	3–71
Pacific Grove SMCA	1.54	3.45	0–65
Carmel Bay SMCA	2.80	3.11	0–471
Point Lobos SMR	1.19	1.96	0–203
Julia Pfeiffer Burns SMCA	2.65	2.07	3–628
Big Creek SMR	2.27	2.19	0–264
Atascadero Beach SMCA	6.33	1.61	0–234
Morro Beach SMCA	6.82	1.96	0–232
Pismo SMCA	0.08	0.38	3–17
Pismo-Oceano SMCA	13.29	3.80	0–133
Vandenberg SMR	2.48	3.68	3–65

^a Listed north to south.

^b Along-shore span measured as direct line from one end of the MPA to the other.

Table 2-16. Allowed Take for Existing Individual MPAs

MPA Name^a	Take Allowed
Año Nuevo Special Closure	All except invertebrates between November 30 and April 30.
Elkhorn Slough SMR	No commercial or sport take.
Hopkins SMR	No commercial or sport take.
Pacific Grove SMCA	Recreational finfish, and invertebrates other than mollusks or crustaceans. Commercial sardines, mackerel, anchovies, squid, and herring by ring net, lampara net, or bait net.
Carmel Bay SMCA	Recreational finfish by hook-and-line or spear and commercial kelp under specific conditions.
Point Lobos SMR	No commercial or sport take.
Julia Pfeiffer Burns SMCA	Recreational finfish, chiones, clams, cockles, rock scallops, native oysters, crabs, lobsters, ghost shrimp, sea urchins, mussels and marine worms (except no worms may be taken in any mussel bed unless taken incidentally to the take of mussels). Commercial finfish, crabs, ghost shrimp, jackknife clams, sea urchins, squid, kelp and worms (except no worms may be taken in any mussel bed, nor may any person pick up, remove, detach from the substrata any other organisms, or break up, move or destroy any rocks or other substrata or surfaces to which organisms are attached).
Big Creek SMR	No commercial or sport take.
Atascadero Beach SMCA	All except clams.
Morro Beach SMCA	All except clams and commercial take of giant kelp and bull kelp.
Pismo SMCA	All finfish and the commercial take of algae other than giant and bull kelp.
Pismo-Oceano Beach SMCA	All except clams and commercial take of giant kelp and bull kelp.
Vandenberg SMR	No commercial or sport take.

^a Listed north to south.

Table 2-17. Existing Habitat Representation

Habitat	Percentage of Habitat in Each Type of MPA				
	SC	SMCA	SMP	SMR	Total
Intertidal					
Sandy or gravel beaches	2.71	6.45	0.00	2.36	11.51
Rocky intertidal and cliff	1.30	6.07	0.00	7.99	15.36
Coastal marsh	0.00	0.00	0.00	25.08	25.08
Tidal flats	0.00	0.00	0.00	39.02	39.02
Seagrass beds (0–30 meters): Surfgrass	2.85	7.34	0.00	6.05	16.23
Seagrass beds (0–30 meters): Eelgrass	0.00	0.00	0.00	2.80	2.80

Habitat	Percentage of Habitat in Each Type of MPA				
	SC	SMCA	SMP	SMR	Total
Estuary	0.00	0.61	0.00	13.84	14.45
Soft Bottom					
0–30 meters	0.70	5.48	0.00	1.67	7.85
30–100 meters	0.00	2.63	0.00	0.23	2.86
100–200 meters	0.00	0.03	0.00	0.00	0.03
>200 meters	0.00	0.00	0.00	0.00	0.00
Hard Bottom					
0–30 meters	0.45	2.88	0.00	1.41	4.74
30–100 meters	0.00	1.79	0.00	0.69	2.48
100–200 meters	0.00	0.00	0.00	0.00	0.00
>200 meters	0.00	0.00	0.00	0.00	0.00
Kelp Forest					
Average kelp (1989, 1999, 2002, 2003)	0.02	6.23	0.00	3.35	9.61
Persistent kelp	0.00	6.61	0.00	6.29	12.90
Submarine Canyon					
0–30 meters	0.00	31.86	0.00	0.00	31.86
30–100 meters	0.00	1.58	0.00	0.00	1.58
100–200 meters	0.00	0.17	0.00	0.00	0.17
>200 meters	0.00	0.00	0.00	0.00	0.00

2.5.4. Comparison of Project and Alternatives in Meeting MLPA Goals

The SAT for the central coast study region has evaluated the Proposed Project and alternatives in terms of the extent to which each meets the SAT guidelines and project goals (as described in section 2.2). The SAT team has concluded that the Proposed Project and alternatives would increase conservation benefits and create better ecological MPA network components relative to existing MPAs. As such, all the packages presented would meet project goals.

The packages differ substantially in the amount of area protected and level of protection in each of the 10 habitat types that were evaluated. The 10 habitat types that were evaluated included deep rock, shallow rock, deep sand, shallow sand, deep canyon, shallow canyon, estuary, kelp, rocky intertidal, and sandy beach. The SAT made the following key conclusions:

- With respect to the amount of area receiving any protection, regardless of levels, the packages are ordered in the following manner (least to most)

protection): Alternative 1 (15%), Proposed Project (18%), and Alternative 2 (19% protection).

- With respect to the amount of area receiving moderate- to high-level protection (i.e., SMR, SMCA High, and SMCA Moderate), the alternatives packages are ordered as follows: Alternative 1 (14% protection), Proposed Project (16%), and Alternative 2 (18%). However, there are large differences among alternatives when evaluated on a habitat-by-habitat basis. For example, for shallow rock and kelp habitats, Alternative 1 places about half as much area in moderate- to high-level protection as Alternative 2. The Proposed Project protects about 84% as much of shallow rock and kelp habitats as Alternative 2.
- With respect to the amount of area receiving high-level protection (SMR & SMCA High), the packages are ordered as follows: Alternative 1 (9% protection), Proposed Project (14%), and Alternative 2 (16%). However, when evaluated on a habitat-by-habitat basis, for shallow rock, shallow sand, and kelp habitats, Alternative 1 places about half as much area in high-level protection as the Proposed Project or Alternative 2. Likewise, the Proposed Project protects about 60% to 70% of shallow rock, kelp, and rocky intertidal habitats as Alternative 2 at the high level.
- Finally, when considering the amount of area receiving the highest-level (SMR) protection, the packages are ordered (least to most) as: Alternative 1 (5%), Proposed Project (8%), and Alternative 2 (13%). When evaluated on a habitat-by-habitat basis, for five habitats (shallow rock, deep sand, shallow sand, deep canyon, and kelp), Alternative 1 protects about half as much area in SMRs as the Proposed Project or Alternative 2. Similarly, for deep sand, shallow rock, kelp, and rocky intertidal habitats, the Proposed Project protects about 65% to 80% of the amount of area in SMRs as Alternative 2.

Other SAT comments regarding specific packages are as follows:

Proposed Project

- Provides moderate- to high-level protection for at least 20% of eight habitats.
- Provides high-level protection for at least 20% of six habitats: deep rock, estuary, intertidal, kelp, sandy beach, shallow rock.
- SMRs protect less than 1% of available deep rock habitat, and 8% or less of available shallow sand, shallow canyon, deep canyon, and deep sand habitat.

Alternative 1

- Provides moderate- to high-level protection for at least 20% of five habitats.
- Provides high-level protection for at least 20% of four habitats: rocky intertidal, estuaries, deep canyon, and deep sand.
- Provides high-level protection for at least 30% of only one habitat: estuaries.
- SMRs include less than 1% of available deep rock habitat and less than 5% of available deep sand, shallow sand, deep canyon, and shallow canyon habitats.

Alternative 2

- Provides moderate- to high-level protection for at least 20% of eight habitats.
- Provides high-level protection for at least 20% of six habitats: rocky intertidal, estuaries, deep rock, shallow rock, kelp, and sandy beach.
- Provides high-level protection for close to 30% (or more) of four habitats: shallow rock, rocky intertidal, estuaries, and kelp.
- Provides high-level protection to less than 5% of available shallow canyon habitat.

A comparison of allowed and disallowed uses associated with the Proposed Project and alternatives is presented in Table 2-18. Side-by-side comparison maps of the Proposed Project and Alternatives 1 and 2, illustrated by subregion, can be found in Appendix D.

2.6. Management, Enforcement and Monitoring of MPAs

2.6.1. Management

Following adoption of final regulations based on the Proposed Project or an alternative, a regional management plan will be prepared. In addition to generally guiding day-to-day management, research, education, enforcement, monitoring, and budgeting, the plan will distill the reasoning for key elements of the network component that should be monitored, evaluated, and revised in response to new information and experience. The plan will not contain specific details for methodology, protocol, or activities, but will provide a foundation for developing more specific action plans, as necessary, and for adapting management measures to new information.

The management plan will include a schedule for review and possible revision at least every 5 years, and a mechanism for revisions in the interim in response to

Table 2-18. Comparison of MPA Regulations for the Proposed Project and Alternatives

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
Ano Nuevo Special Closure (SMCA Low)	Take of invertebrates is not allowed between November 30 and April 30.	Ano Nuevo State Marine Reserve (SMR)	No take	Ano Nuevo State Marine Reserve (SMR)	No take.	Ano Nuevo State Marine Reserve (SMR + SMCA Moderate ¹)	No take
		Greyhound Rock State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except: 1. Only the following species may be taken recreationally: salmon (<i>Oncorhynchus</i> spp.), and, by hook-and-line from shore only, other finfish. 2. Only the following species may be taken commercially: giant kelp (<i>Macrocystis</i> spp.) by hand harvest only, salmon (<i>Oncorhynchus</i> spp.), and squid.	Greyhound Rock State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except pelagic finfish [subsection 632(a)(2)], squid, and Dungeness crab (<i>Cancer magister</i>). Salmon may not be taken in depths less than 25 fathoms.		
				Greyhound Rock State Marine Reserve	No take.		

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
				(SMR + SMCA Moderate ¹)			
		Natural Bridges Intertidal State Marine Reserve (SMR)	No take			Baldwin to Natural Bridges State Marine Reserve (SMR)	No take
Elkhorn Slough State Marine Reserve (SMR)	No take	Elkhorn Slough State Marine Reserve (SMR)	No take	Elkhorn Slough State Marine Reserve (SMR)	No take	Elkhorn Slough State Marine Reserve (SMR)	No take
		Elkhorn Slough State Marine Park (SMP Low)	Take of all living marine resources is prohibited except: 1. Only the following species may be taken recreationally: finfish by hook- and-line only and clams. Clams may only be taken on the north shore of the slough in the area adjacent to the Moss Landing Wildlife Area.				
		Moro Cojo Estuary State Marine	No take	Moro Cojo Estuary State Marine	No take	Moro Cojo Estuary State Marine	No take

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
		Reserve (SMR)		Reserve (SMR)		Reserve (SMR)	
		Sequel Canyon State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except pelagic finfish	Monterey Submarine Canyon No Bottom Contact State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except pelagic finfish [subsection 632(a)(2)]	Sequel Canyon State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except salmon and albacore.
		Portuguese Ledge State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except pelagic finfish			Portuguese Ledge State Marine Reserve (SMR)	No take
						Edward C. Cooper State Marine Reserve (SMR)	No take
		Edward F. Ricketts State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except: 1. The recreational take of finfish by hook-and-line is permitted. 2. The commercial take of kelp is permitted by hand north of 36° 38.83'	Ed Ricketts State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except the recreational take of finfish by hook and line only and the commercial take of kelp north of 36° 36.800' N.	Ed Ricketts State Marine Conservation Area (SMCA Moderate)	Allows hand take of kelp from November through February only. No more than 15 tons of kelp may be taken in any calendar month during this period. All other take prohibited.

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
			N. Latitude. Any licensed commercial kelp harvester may take no more than 12 tons of kelp from the portion of Administrative Kelp Bed 220 within the Edward F. Ricketts State Marine Conservation Area in any calendar month. Options for breakwater fishing hours and days are provided ¹		lat. by hand only.		
Hopkins State Marine Reserve (SMR)	No take	Hopkins State Marine Reserve (SMR)	No Take.	Hopkins State Marine Reserve (SMR)	No take	Hopkins State Marine Reserve (SMR)	No take.
Pacific Grove State Marine Conservation Area (SMCA Low)	Only the following species may be taken recreationally: finfish, and invertebrates other than mollusks or crustaceans. Only the following species may be taken commercially by ring net, lampara net, or	Pacific Grove Marine Gardens State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except: 1. The recreational take of finfish is permitted 2. The commercial take of kelp by hand is permitted. Any licensed commercial kelp harvester may take	Pacific Grove – Monterey State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except: 1. Only the following species may be taken recreationally: finfish and squid. 2. Only the following species may be taken	Pacific Grove State Marine Conservation Area (SMCA Low)	No take except for the recreational take of finfish and the commercial take of kelp by hand. No more than 44 tons of kelp may be taken in any calendar month. Finfish may only be taken between the border of the Hopkins State Marine Reserve and the seaward

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
	bait net: sardines, mackerel, anchovies, squid, and herring.		no more than 44 tons of kelp from the portion of Administrative Kelp Bed 220 within the Pacific Grove Marine Gardens State Marine Conservation Area in any calendar month.		commercially: pelagic finfish, squid, and kelp.		extension of Esplanade Avenue. Take is prohibited by use of poke-pole gear. Take is prohibited for any competition involving two or more persons in which persons are ranked, or winners are determined, based on size, weight, number of species, type of fish taken by means of spearfishing.
		Asilomar State Marine Reserve (SMR)	No take			Asilomar State Marine Reserve (SMR)	No take
		Carmel Pinnacles State Marine Reserve (SMR)	No take	Carmel Pinnacles State Marine Reserve (SMR)	No take	Carmel Pinnacles State Marine Reserve (SMR)	No take
Carmel Bay State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except the recreational take of finfish by hook-and-line or spear and the commercial take of	Carmel Bay State Marine Conservation Area (SMCA Low)	A) Take of all living marine resources is prohibited except: 1. The recreational take of finfish is allowed 2. The commercial take of giant kelp	Carmel Bay State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except the recreational take of finfish and the commercial take of kelp and squid	Carmel Bay State Marine Conservation Area (SMCA Low)	Take of all living marine resources is prohibited except the recreational take of finfish and the commercial take of kelp by hand. Take is prohibited for any competition involving

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
	kelp under specific conditions.		by hand is allowed. Any licensed commercial kelp harvester may take no more than 44 tons of kelp from the portion of Administrative Kelp Bed 219 within the Carmel Bay State Marine Conservation Area in any calendar month.				two or more persons in which persons are ranked, or winners are determined, based on size, weight, number of species, type of species, or number of fish taken by means of spearfishing.
Point Lobos State Marine Reserve (SMR)	No take	Point Lobos State Marine Reserve (SMR)	No take. Note: Current regulations at Point Lobos Reserve (State Park Unit) limiting diver access do not apply to new areas covered by this proposal.	Point Lobos State Marine Reserve (SMR)	No take allowed. Note: Current regulations at Point Lobos limiting diver access do not apply to new areas covered by this proposal.	Point Lobos State Marine Reserve (SMR)	No take. Note: Current regulations at Point Lobos limiting diver access do not apply to new areas covered by this proposal.
		Point Lobos State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except the recreational and commercial take of salmon, albacore, and spot prawn.	Pt. Lobos State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except the recreational take of salmon and tunas (family Scombridae) and the commercial take of salmon, tunas (family	Point Lobos State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources prohibited except salmon, albacore, and spot prawn.

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
					Scombridae) and spot prawn (<i>Pandalus platyceros</i>).		
		Point Sur State Marine Reserve (SMR)	No take			Point Sur State Marine Reserve (SMR)	No take
		Point Sur State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except the recreational and commercial take of salmon and albacore.	Point Sur Deep Reef State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except the recreational and commercial take of pelagic finfish [subsection 632(a)(2)].		
				Julia Pfeiffer Burns State Marine Reserve (SMR)	No take.	Julia Pfeiffer Burns State Marine Reserve (SMR)	No take
Julia Pfeiffer Burns State Marine Conservation Area (SMCA Low)	Only following species may be taken recreationally: finfish, chiones, clams, cockles, rock scallops, native oysters, crabs, lobsters, ghost shrimp, sea urchins, mussels			Julia Pfeiffer Burns Offshore State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except salmon, tunas, and spot prawn.		

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
	and marine worms (except no worms may be taken in any mussel bed unless taken incidentally to the take of mussels). Only following species may be taken commercially: finfish, crabs, ghost shrimp, jackknife clams, sea urchins, squid, kelp and worms (except no worms may be taken in any mussel bed, nor may any person pick up, remove, detach from the substrata any other organisms, or break up, move or destroy any rocks or other substrata or surfaces to which organisms are attached).						
				Julia Pfeiffer Burns Offshore State Marine	No Take		

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
Big Creek State Marine Reserve (SMR)	No take.	Big Creek State Marine Reserve (SMR)	No take	Reserve (SMR) Big Creek State Marine Reserve (SMR)	No take. The area will retain its current no-entry regulations and exemptions.	Big Creek State Marine Reserve (SMR)	No take. Note: Current regulations applying to diver access at Big Creek do not apply to new areas covered by this proposal.
		Big Creek State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except the commercial and recreational take of salmon, albacore, and spot prawn west of a straight line connecting the following two points: 36° 07.20' N. lat. 121° 39.00' W. long.; and 36° 05.20' N. lat. 121° 38.00' W. long.			Big Creek State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except salmon, albacore, and spot prawn.
				Alder Creek State Marine Reserve (SMR)	No take.		
				Alder Creek State Marine Conservation	Take of all living marine resources is		

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
				Area (SMCA High)	prohibited except pelagic finfish.		
		Piedras Blancas State Marine Reserve (SMR)	No take	Point Piedras Blancas State Marine Reserve (SMR)	No take.	Piedras Blancas State Marine Reserve (SMR)	No take
		Piedras Blancas State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except salmon and albacore				
		Cambria State Marine Park (SMP Low)	No commercial take.	Cambria State Marine Park (SMP Low)	No commercial take.	Cambria State Marine Park (SMP Low)	No commercial take.
		Cambria State Marine Reserve (SMR+ SMCA Low1)	No-take			Ken Norris State Marine Reserve (SMR + SMCA-Low ¹)	No take.
						Estero Bluff State Marine Reserve (SMR)	No take
Atascadero Beach State Marine Conservation Area (SMCA Low)	Take of clams is prohibited. Take of other living marine resources is allowed.						

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
		Morro Bay South State Marine Recreational Management Area (SMCA High +SMCA Low)	Take of all living marine resources is prohibited except recreational take of finfish, permitted aquaculture of oysters, and receiving of finfish for bait purposes north of latitude 35° 19.700' N. Recreational hunting of waterfowl is permitted unless otherwise restricted by hunting regulations.	Morro Bay Harbor State Marine Conservation Area (SMCA Low)	Commercial take of all living marine resources is prohibited except permitted aquaculture of oysters and receiving of finfish for bait purposes.	Morro Bay State Marine Conservation Area (SMCA Low)	Commercial take of all living marine resources is prohibited except permitted aquaculture of oysters and receiving of finfish for bait purposes.
				Morro Bay South State Marine Recreational Management Area (SMCA High)	Take of all living marine resources is prohibited. Recreational hunting of waterfowl is permitted unless otherwise restricted by hunting regulations.	Morro Bay State Marine Recreational Management Area (SMCA-High)	Take of all living marine resources is prohibited. Recreational hunting of waterfowl is permitted unless otherwise restricted by hunting regulations.
		Morro Bay East State Marine Reserve (SMR)	No take			Morro Bay East State Marine Reserve (SMR)	No take

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
Morro Beach State Maine Conservation Area (SMCA Low)	Take of clams is prohibited. Take of other living marine resources is allowed.						
		Point Buchon State Marine Reserve (SMR)	No take	Point Buchon State Marine Reserve (SMR)	No take.	Point Buchon State Marine Reserve (SMR)	No take
		Point Buchon State Marine Conservation Area (SMCA High)	Take of all living marine resources is prohibited except salmon and albacore	Point Buchon State Marine Conservation Area (SMCA High)	No take of living marine resources, except salmon	Point Buchon State Marine Conservation Area (SMCA High)	No take of living marine resources, except salmon and albacore.
				Diablo Canyon Security Zone State Marine Conservation Area (SMCA High)	No take, no entrance.		
Pismo State Marine Conservation Area (SMCA Low)	Take of all invertebrates and marine aquatic plants is prohibited except commercial take of algae other than giant kelp and bull kelp. Take of finfish is allowed.						
Pismo-Oceano State Marine	Take of clams is prohibited. Commercial take of						

Existing MPAs		Proposed Project		Alternative 1		Alternative 2	
MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses	MPA Name (Level of Protection)	Allowed/ Disallowed Uses
Conservation Area (SMCA Low)	giant kelp and bull kelp is prohibited. Take of other living marine resources is allowed.						
Vandenberg State Marine Reserve (SMR)	No take.	Vandenberg State Marine Reserve (SMR)	No take	Vandenberg State Marine Reserve (SMR)	No take.	Purisma Point State Marine Reserve (SMR)	No take
				Vandenberg Danger Zone 4 State Marine Conservation Area (SMCA Moderate)	Take of all living marine resources is prohibited except salmon and crabs of the genus <i>Cancer</i> .	Point Arguello State Marine Reserve (SMR)	No take

Notes:

- SC = special closure
- SMCA = state marine conservation area
- SMP = state marine park
- SMR = state marine reserve
- SMRMA = state marine recreational management area

¹ Options for breakwater fishing hours and days are provided as follows: 1) Recreational hook-and-line fishing allowed in entire MPA at all times; 2) Recreational fishing from the Monterey breakwater allowed on Sunday night, weekdays, and Friday afternoon only; 2a) Recreational fishing from the Monterey breakwater allowed on Sunday night, weekdays, and Friday afternoon only with allowance for disabled fishing; 3) Recreational fishing in entire MPA on Sunday night, weekdays and Friday afternoon only; 4) Recreational fishing from Monterey breakwater on Sunday, weekdays, and Friday afternoon only; 4a) Recreational fishing from Monterey breakwater on Sunday, weekdays, and Friday afternoon only with allowance for disabled fishing; 5) Recreational fishing in entire MPA on Sunday, weekdays, and Friday afternoon only

significant events, such as unexpected monitoring results, budget shifts, or changes in the status of the populations of focal species, habitats, or character or effectiveness of management outside individual MPAs.

Although the Department and in some circumstances the DPR exercise primary authority for the management of California's MPAs, these agencies can draw on the capacity of other agencies and organizations in carrying out critical management activities. MPAs located adjacent to facilities such as onshore protected areas, marine labs, or similar institutions may be effectively co-managed by the local management entities. The management plan will describe the potential management partners, including various federal, state, and local agencies, fishery participants, academia, marine conservation and other nonprofit groups, and other stakeholders.

2.6.2. Enforcement

The Department's enforcement staff is charged with enforcing marine resource management laws and regulations over an area encompassing approximately 1,100 miles of coastline and out to sea. Department staff also provides enforcement of federal laws and regulations within federal and state waters. Enforcement duties include ensuring compliance with all commercial and sport fishing statutes and regulations (including FGC, Title 14 CCR, and regulations specifically associated with MPAs), responding to and investigating marine water pollution incidents, assisting with homeland security operations, and promoting and ensuring general public safety.

A federal cooperative enforcement agreement with NOAA deputizes the Department to enforce the Magnuson-Stevens Act, ESA, Marine Mammal Protection Act (MMPA), National Marine Sanctuaries Act (NMSA), and Lacey Act. Department enforcement patrols regularly extend into federal waters between 3 and 12 nm from shore as well as the EEZ beyond 12 nm. A significant portion of commercial and recreational fishing effort, and subsequently enforcement effort, occurs outside state waters in the EEZ.

The Department maintains seven large patrol boats in the 54- to 65-ft class stationed at major ports throughout the state. These patrol boats are staffed by a cadre of 22 officers and five support personnel. The Department also has eight patrol boats in the 24- to 30-ft range, and 15 patrol skiffs stationed at ports and harbors throughout the state. Overall, the Department has approximately 230 wardens in the field responsible for a combination of both inland and marine patrol. A portion of these wardens have a "marine emphasis," focusing primarily on ocean enforcement but also enforcing inland regulations. The Department has single- and twin-engine fixed-wing aircraft that work in conjunction with both marine- and land-based wardens to help identify and investigate violations.

In the central California coast region, there are presently 30 to 40 wardens in the field. About 15 have a marine emphasis and are responsible for enforcing regulations over the study region.

The Department's Special Operations Unit (SOU) consists of enforcement officers who are tasked with conducting statewide covert investigations primarily dealing with the commercialization of fish and wildlife. SOU investigations allow a team of well-trained Department wardens to take time and effort usually not available to field wardens to thoroughly investigate large poaching operations that are severely impacting California's fish and wildlife resources. The SOU reports directly to the marine assistant chief out of Sacramento headquarters. The unit has no patrol responsibility anywhere in the state. The unit is directed to specific investigations using information gathered from a variety of sources throughout the state.

The investigations conducted by SOU are varied and include commercialization of recreationally caught or illegally taken bear, deer, turkey, abalone, lobster, sturgeon, salmon, steelhead, and a variety of other marine and inland fish, as well as many other wildlife species. Covert investigations are very time-consuming and expensive to conduct. The investigations can last from a few days to several years. The SOU supervisor works closely with a local district attorney during all investigations, which helps to facilitate aggressive prosecution of most SOU cases. SOU may be used to assist with major MPA violations.

The Department's law enforcement branch also works closely with a number of other agencies, including the DPR, NMFS, National Marine Sanctuary Program, National Park Service, and U.S. Coast Guard on matters of mutual enforcement interest. Although these programs often provide financial or logistical support, they do not provide significant staff resources statewide, especially for offshore patrols or patrols of areas not adjacent to their own facilities. As part of seeking new cooperative agreements, the Department will make efforts to acquire more direct assistance from appropriate agencies.

In addition to the existing resources, an enforcement plan that identifies additional enforcement resources and strategies will be prepared for the Proposed Project. For detailed information regarding the contents of an enforcement plan, please refer to the MLPA Master Plan for Marine Protected Areas (CDFG 2006).

2.6.3. Monitoring and Adaptive Management

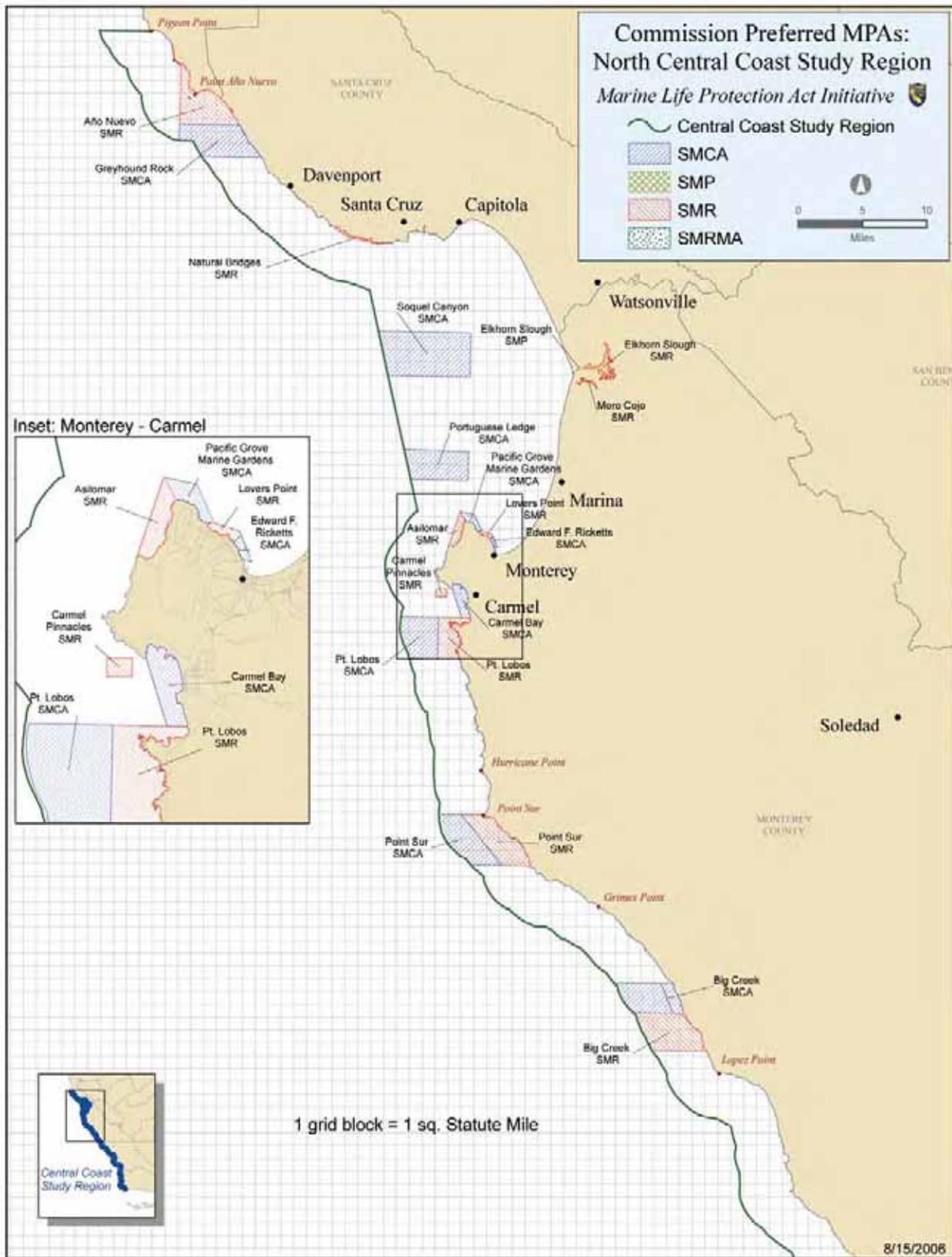
A monitoring program for the Proposed Project will be prepared and implemented as part of the regional management planning and implementation process described above. The monitoring program will:

- identify regional goals and objectives and individual MPA objectives;
- select indicators to evaluate biophysical, socioeconomic, and governance patterns and processes;
- plan the evaluation, including an assessment of existing data and resource needs for measuring selected indicators, determination of the audiences to

receive the evaluation results, review of relevant monitoring and evaluation programs at existing MPAs, identification of participants in the evaluation, and development of a timeline and work plan for the evaluation;

- review and revise planned monitoring and evaluation program using structured peer and public review processes;
- implement the evaluation work plan, including selection of methods and approach to data collection, data management and analysis, and peer review and independent evaluation to ensure robustness and credibility of results; and
- communicate results to target audiences and implement adaptive management as needed.

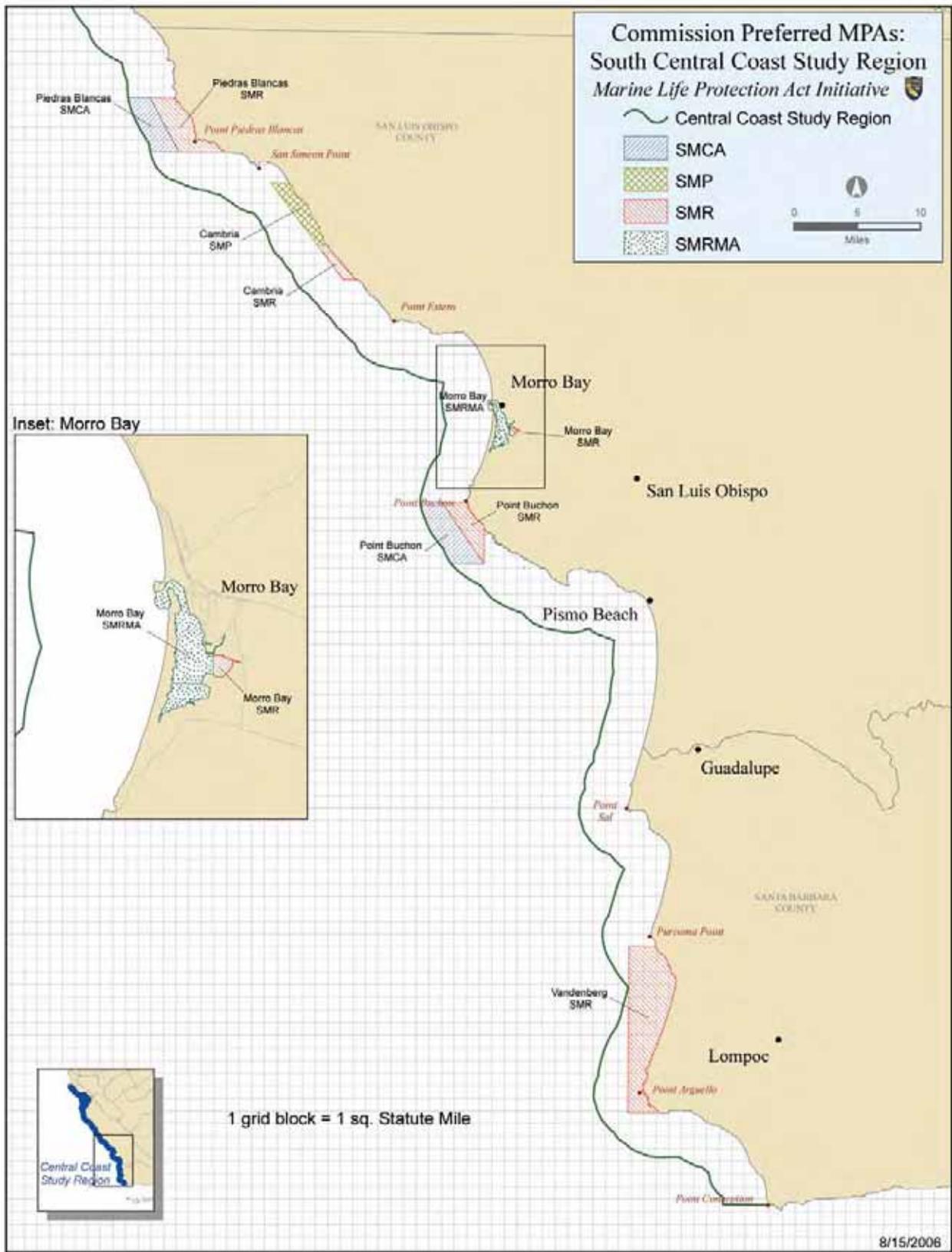
Although the results from ongoing monitoring and evaluation will be reviewed periodically, a comprehensive analysis of monitoring results will be conducted every 3 to 5 years. The longer timeframe for review takes into account that biological changes are slow to occur and trends are more likely to become apparent on this time scale. In addition to evaluating monitoring methods and results, the review will evaluate whether the monitoring results are consistent with the objectives of the individual MPA, the goals and objectives of the region, and those of the MLPA. If the results are not consistent, the review will develop recommendations for adjustments in the management of the MPA network.



SMCA = state marine conservation area SMP = state marine park
 SMR = state marine reserve SMRMA = state marine recreational management area

Source: CDFG, 2006

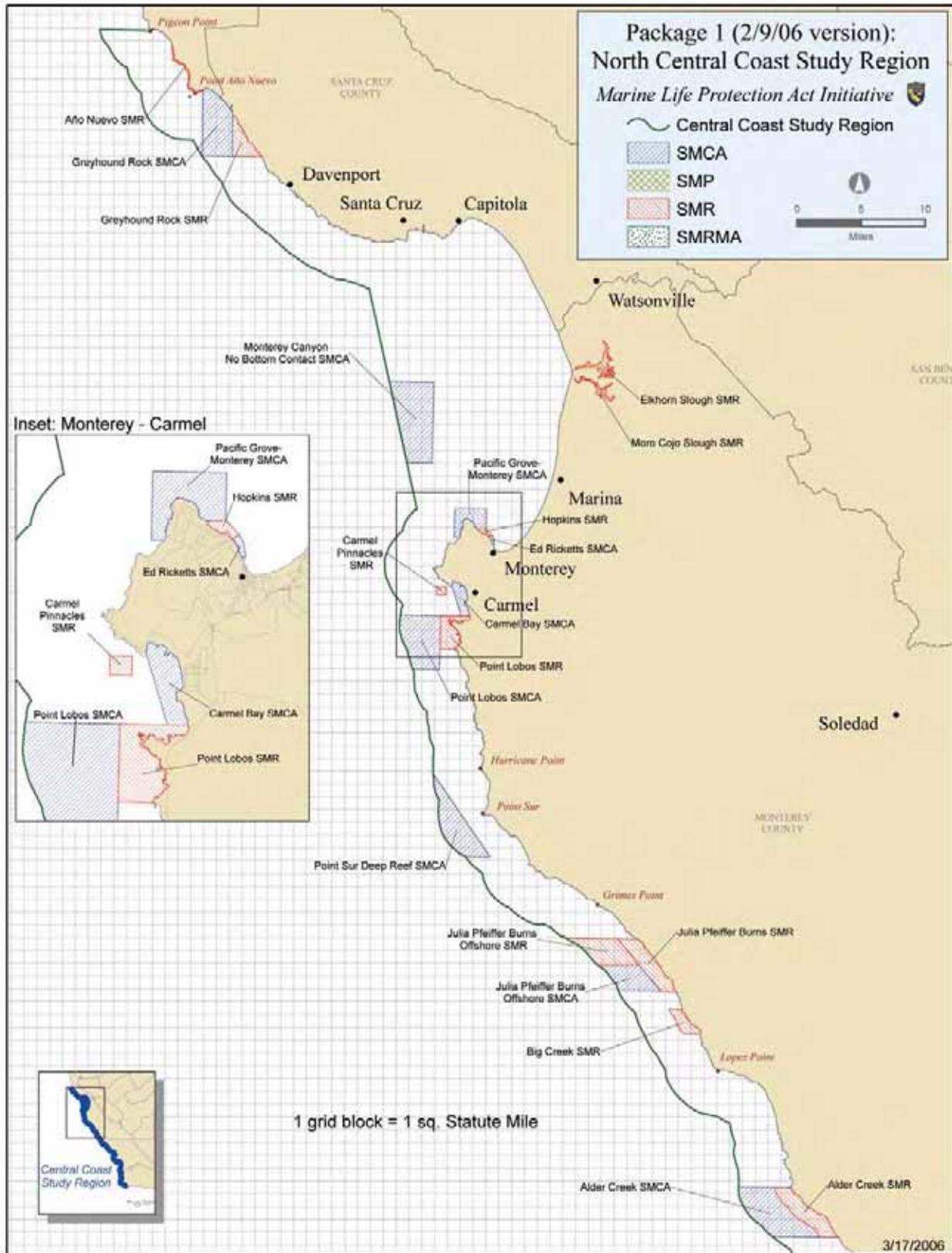
Note: Project features and data layers can be viewed in greater detail online at <http://marinemap.org/mlpa/viewer.htm>



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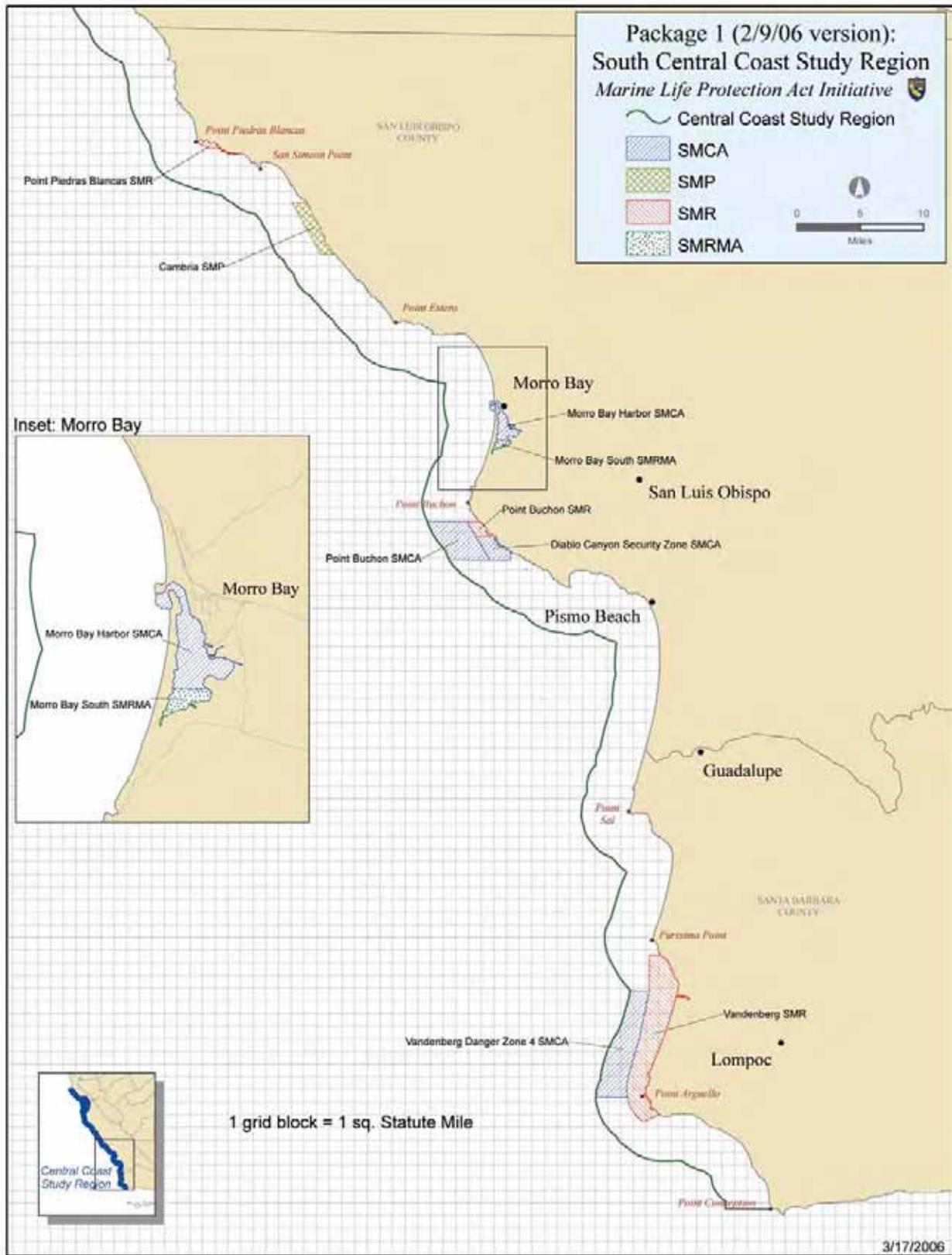


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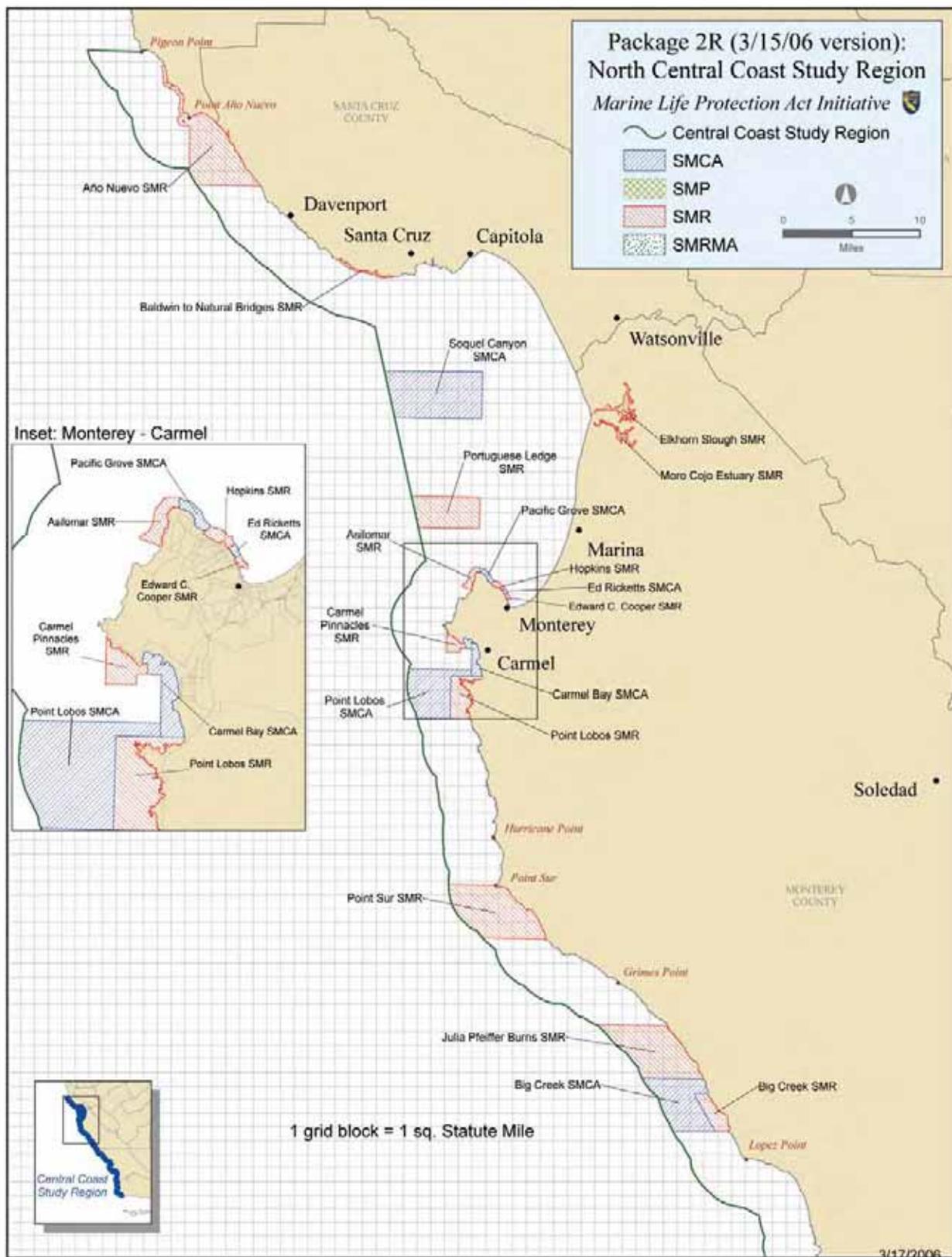
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