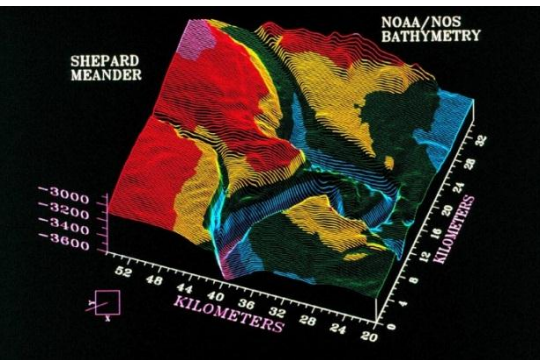


Coastal and Marine Spatial Planning Background Document

A Report Prepared for
The California Ocean Protection Council

JULY 12, 2011



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I. INTRODUCTION

The California Ocean Protection Council (OPC) commissioned this background document, *Coastal and Marine Planning and California*, to support its 2011 strategic planning initiative. The information in this document is intended to inform the OPC's four strategic plan focal areas – climate change, sustainable fisheries, improved management across the land sea interface, and preparing for industrial uses of the ocean.¹ For each of these focal areas, improving decision-making about human uses that affect our coast and ocean resources is essential to securing for California's people and the living marine resources, the healthy ocean on which they rely.

California has a long track record of leadership in ocean and coastal management and protection. Yet the health of California's coastal ecosystems continues to decline; a decline driven by the cumulative impacts of many human uses on land and in the water² and impacts from larger scale forces such as global climate change.³ In addition, many traditional uses of the coast and ocean are increasing in amount and intensity and are being joined by suite of new, emerging activities. These issues and changes, in turn, increase the frequency of conflicts among user groups, and among ocean and coastal uses and various aspects of marine ecosystems.

The state and its partners recognize that improvements to California's ocean and coastal management framework are needed to more fully address ecosystem degradation by aligning management decisions with ecosystem function. There are numerous instances of efforts in recent years to promote such alignment, often described as ecosystem-based management (EBM). Examples range from the OPC's facilitation of interagency working groups and funding of pilot EBM projects⁴ and the development of a West Coast EBM Network to share EBM best practices,⁵ to the creation of a state network of marine protected areas under the Marine Life Protection Act Initiative.

While such efforts in California and elsewhere have enhanced coordination and reduced fragmentation for important sectors, issues, or subregions, they also underscore a need for more comprehensive frameworks for sustainable resource management. Coastal and marine spatial planning (CMSP) has attracted interest as a means of overcoming institutional impediments to preserving the ecological and economic health of our coastal and ocean resources. As described later in this document, CMSP processes are being implemented around the United States and the world.

Many of the tools needed to conduct a CMSP process are not new; CMSP's innovation is in linking commonsense planning techniques with expanding knowledge about coastal and ocean ecosystems and dramatic advances in accessible and affordable information technology to better meet existing and new challenges to our ocean environment.

This report presents both general and California-specific information about CMSP as background information for policy makers, stakeholders, and the public who are considering the role CMSP could play in supporting California's coastal and ocean management activities. This document does not include specific recommendations for goals, objectives, and actions relating to CMSP; these will be developed by the OPC through a separate process, in consultation with key advisory panels, and eventually with the public through public and stakeholder engagement in its strategic planning initiative.

The CMSP background information is presented in the following sections:

- Section II. Understanding CMSP and Its Relevance to California: Briefly describes CMSP in concept and practice, the reasons driving the emergence of CMSP, and examples of CMSP processes in other states and overseas.
- Section III. The National Policy and Program Context for CMSP in California: Provides an overview of the new National Ocean Policy and federal CMSP initiative that California must consider in developing its approach to CMSP and California's engagement to date in the federal initiative.
- Section IV. California's CMSP Assets, Opportunities, and Limitations: Summarizes advantages and obstacles California faces in adopting CMSP approaches in light of its existing institutions and policies, science and information, funding mechanisms, and stakeholder engagement.
- Section V: The Ocean Protection Council's Role in CMSP: Highlights the OPC's CMSP-related mandates, limitations, and opportunities for the agency to consider in California's adoption of CMSP approaches for coastal and ocean management.

II. OVERVIEW OF CMSP AND ITS RELEVANCE TO CALIFORNIA

The discussion below describes CMSP in concept and practice, and provides an overview of the forces propelling CMSP in California and elsewhere.

What is CMSP?

CMSP brings to the marine environment an approach to siting and managing human activities that is familiar on land, from city and county general planning, to state and national park master plan development, but with features unique to the marine environment. CMSP processes may vary, but generally involve the following key elements:⁶

- Information for Decision-Making. Gathering and using relevant geospatial, socioeconomic, and other information about coastal and ocean ecosystems and their services; CMSP taps the best available information about human uses and natural resources in and on the seabed, water column, and surface to inform planning for geographic areas that takes into account marine ecosystem boundaries.
- Institutional Framework. Establishing effective coordination frameworks for agencies to provide and access data and formulate plans and other products of CMSP processes.
- Plans and/or Siting Criteria. Developing a forward-looking policy or plan addressing multiple uses before specific projects are proposed, with regular updates to reflect changing circumstances and new information.
- Public and Stakeholder Engagement. Engaging citizens and stakeholders from multiple sectors with responsible state and federal agencies in a transparent public process; this process is enhanced through the use of decision-support tools allowing participants and the public to evaluate alternative scenarios and tradeoffs among uses.

(See Appendix 1 for additional information on CMSP definitions, steps, and best practices.)

Implementing an advance planning process in the marine environment, as on land, can confer ecological, economic, and social benefits. For example, CMSP promotes the integration of data and technological advances in data sharing and mapping to allow more comprehensive identification and prioritization of biologically or ecologically important areas requiring protection. CMSP also provides a framework for comprehensively accounting for the range of human uses affecting a marine ecosystem, providing a system for better understanding and addressing the cumulative impacts of human uses on marine ecosystems.

While CMSP requires up-front investment in research and information, stakeholder processes, and other activities, it is intended to reduce costs and increase efficiencies for publicly funded agencies and marine users. For example, part of the State of Rhode Island's justification for its proposal to conduct a CMSP process was the time-savings compared to the U.S. Army Corps of Engineers traditional environmental impact statement process for the siting of a wind energy project.⁷ The Rhode Island Ocean Special Area Management plan was completed in a two-year span proposed; the Corps process was expected to take five to seven years. A recent European Union study of wind power development found that marine spatial plans that include siting guidance or requirements provide certainty for industrial developers and reduce the cost and duplication of effort by oversight agencies.⁸

CMSP can confer social benefits when local communities, citizens, and stakeholder groups are able to engage effectively in shaping a forward-looking plan that identifies and protects cultural, social, and spiritual values related to ocean uses. In addition, groups can respond through traditional public participation forums to specific project proposals.⁹ This is not to say that CMSP is a substitute for single sector policies and planning, it offers a way to better coordinate and integrate those frameworks.

California would not start with a blank slate in applying this approach in the marine environment. CMSP would build on foundations laid since the late 1960s in California and around the nation, such as coastal zone management (pioneered by the San Francisco Bay Conservation and Development Commission and California Coastal Commission)¹⁰ and area-based management (as exemplified by the establishment of National Marine Sanctuaries that span state and federal waters). These management frameworks were designed to address the shortcomings of existing regulatory programs for individual sectors such as fishing, coastal development, oil and gas development, marine transportation, and military training.

CMSP encompasses regular review and updating and can thus accommodate as-yet unforeseen ocean uses, science, and technology as well as evolving social, economic, and political conditions and priorities. CMSP is a proactive spatially focused planning process, but there is wide latitude in how policy makers can craft planning goals, process steps, and implementation mechanisms. For instance, implementation mechanisms could range from voluntary guidelines or agreements indicating priorities in specific areas to statutorily authorized management measures, such as those already in use for shipping lanes, military exclusion zones, and geographically-specific fishing closures.

Why CMSP is Emerging Now: Drivers of CMSP Around the Globe and in California

Proposals for new or expanded ocean uses, such as renewable ocean energy and open ocean aquaculture, have pushed the question of siting ocean uses onto the agendas of decision-makers and stakeholders. These trends, arising at a time of dramatic advances in ecosystem science and information technology, have spurred practitioners of coastal and ocean management to contemplate ways to integrate and better coordinate existing management frameworks, as well as the development of new

frameworks for managing emerging uses. This section highlights the changes in ocean uses, ecosystem science, and computer technology, examines California-specific drivers of CMSP, and presents examples of CMSP initiatives in other U.S. states and overseas.

Changes in Uses, Science, and Technology

Three developments are behind the growing interest in CMSP as a framework for improving coastal and ocean management. The first is greater human use of ocean spaces. In California as elsewhere, many traditional activities such as shipping and recreation have increased in intensity or amount over the past 150 years. They have been joined in recent decades by other uses such as military preparedness, onshore and offshore oil and gas facilities, undersea cables, and even more recently, proposals for industrial-scale desalination facilities, renewable ocean energy, and offshore aquaculture.

Secondly, while coastal and ocean uses have grown more numerous and intense, so too has scientists' awareness and understanding of the complex relationships of marine ecosystems and the way humans and other living organisms interact with the ocean environment. This improved knowledge has prompted calls for "ecosystem-based management" whose goal is to ensure that oceans always provide a full range of services for the well-being of people and other living things.¹¹ The *California Ocean Protection Act* embraces ecosystem-based management principles in its findings and mandates for the OPC.¹²

Dramatic breakthroughs in information technology represent the third major impetus for the emergence of CMSP. Low cost computing power, advances in software development, and internet-based interfaces have made possible user-friendly information management systems. These systems allow everyone – from agency staff, to academics, to the public – to corral and analyze vast amounts of information about coastal and ocean resources, human uses, and existing and potential environmental conditions in ways that were not possible a decade ago. In many cases, enable users to display and layer that information in easy-to-understand maps. New geospatial tools let the user ask questions not only about what is, but also about what might be, by providing them with the ability to posit alternate scenarios and evaluate tradeoffs among objectives. For example, in California, the MLPA Initiative was the focus of groundbreaking work in the development of MarineMap, an internet-based decision-support tool that allowed stakeholders to evaluate how different sizes and locations of marine protected areas would address legal requirements and impact fishing and other marine activities.¹³

Potential Drivers of CMSP in California

As noted earlier, California has been on the leading edge of ocean and coastal management for decades. Yet the state's current framework limits its ability to address ocean degradation and manage the human activities that affect and rely upon our coast and ocean. These limitations are discussed in more detail in Section IV. They include, for example, the fragmentation of important data holdings in separate agencies using incompatible standards and systems.¹⁴ Furthermore, the state takes a sector- and species-focused management framework that is not well equipped to respond to pervasive and growing threats to our ocean and coastal regions posed by cumulative impacts¹⁵ and climate change.¹⁶

Currently, in California there are a number of ongoing and recent ocean management initiatives that are driving interest in exploring whether or how CMSP might overcome the limitations in the state's current

approach to ocean and coastal management and be more cost and time effective. These initiatives include the following:

- Coastal Component of the California Climate Change Adaptation Strategy. Launched by a 2008 Governor's Executive Order and completed in 2009 through a multi-agency effort led by the California Natural Resources Agency, the state's comprehensive strategy for adapting to climate change impacts specifically addresses Ocean and Coastal Resources with a central focus on responding to sea level rise.¹⁷ The strategy calls on the state and its partners to identify policy and technical responses to sea level rise and other climate change impacts, including: comprehensively assess ecosystems and human uses; prepare strategies to protect or relocate threatened infrastructure and natural areas; recommend locations for siting new uses; tailor strategies to regional realities; and foster data collection, information sharing, and coordination among agencies and stakeholders, among others.. Cooperative pooling of resources to accomplish these activities is seen as key to leveraging scarce financial and human capital. All of these features could be encompassed by a CMSP framework.
- Area-based Management to Protect Fisheries and Habitat. From the designation of offshore Areas of Special Biological Significance for water quality protections in the 1970s,¹⁸ to California's development of a network of marine protected areas (still underway),¹⁹ to community-based undertakings such as the Humboldt Bay Initiative, the state and its partners have pursued efforts to protect and manage marine areas to benefit living marine resources. These efforts examine ecosystem needs and human uses that affect and depend on the ecosystem for a specific place, apply data and science to inform management decisions aimed at reducing and reversing ecosystem decline, and include the public in the formulation of these programs. However, taken together, they do not encompass the breadth of California marine ecosystems or human uses that a broader framework, such as that contemplated by CMSP, could apply in state waters.
- Emerging Uses of the Ocean. In California, as elsewhere around the United States and the world, emerging industrial uses of the ocean are a major impetus for CMSP. Estimated six renewable ocean energy projects have been proposed for coastal areas from Humboldt to San Diego.²⁰ Recurring open ocean finfish aquaculture proposals (and one pilot project cultivating white seabass) suggest this use is also on the horizon.²¹ Siting emerging ocean industries raises questions of compatibility with existing ocean uses such as fishing, recreation, and shipping, as well as concerns about impacts to marine ecosystems.²² At the same time, the State of California is aggressively seeking to increase renewable energy supplies to meet its citizens' and businesses' power needs,²³ and the state and nation's appetite for seafood continues to grow.

These developments have prompted California to move forward with a number of actions to respond to gaps in policy and data, including the OPC's establishment of an interagency California Marine Renewable Energy Working Group to foster cooperation across agencies and oversee development of needed geospatial information and tools; collaboration with Oregon and Washington through the WCGA on cross-jurisdictional coordination of ocean renewable energy siting;²⁴ and enactment by the California legislature of the *Sustainable Oceans Act of 2006* establishing requirements for finfish aquaculture in state waters.²⁵ Necessary as such initiatives are to develop specific technical and policy capacity for these industries, they maintain a single-sector approach that does not facilitate comprehensive consideration of how these uses interact with the ecosystem and other human uses, as CMSP would. For example, CMSP could provide a process for

collecting the human use and biological information needed to determine how new activities affect other marine management strategies, and then to reconcile conflicting priorities between marine protection and energy development.

Against the backdrop of these initiatives, the new National Ocean Policy is being implemented in part through CMSP that encompasses state waters. This federal initiative, if executed as planned, will take place regardless of whether the state develops its own approach to CMSP. California will thus face ongoing choices about how to interact with and engage in CMSP processes. (See below, Section III. “*The National Ocean Policy and Program Context for CMSP in California.*”)

CMSP in Other States and Overseas

Spurred in many cases by offshore ocean energy proposals, a number of U.S. states and foreign countries have begun to implement CMSP to varying degrees. Five such initiatives are discussed briefly below. In the U.S. examples, states have adopted or plan to adopt CMS plans as part of their federally-approved state coastal management programs.

Rhode Island Ocean Special Area Management Plan (OSAMP)

- Defined use zones for renewable energy development and other activities in a 1,547 square mile area of the state’s offshore waters, and protects “current uses and habitats including commercial fishing; critical habitats for fish, marine animals, and birds; marine transportation; and more.”²⁶
- Supports coordinated management efforts for climate change mitigation and adaptive management between Rhode Island agencies, federal agencies, and community members.²⁷
- Offshore wind farm was a “key driver” of the plan,²⁸ and the developer agreed to contribute up to \$3.2 million to underwrite the plan’s preparation.²⁹

Oregon Territorial Sea Plan (TSP) Renewable Ocean Energy Amendment

- The TSP’s “detailed guidance to state and federal agencies in managing uses within Oregon’s territorial sea” is undergoing amendments in response to wave energy proposals.
- The first phase of amendments in 2009 established “policies, review and evaluation standards, coordination process, and operational plan requirements for ocean renewable energy development.” The second phase, currently underway, is “a public process to conduct a spatial analysis of existing ocean uses and ecological resources to identify and designate specific areas within the territorial sea that may be appropriate for renewable energy development.”³⁰

Massachusetts Ocean Plan

- Wind energy proposals spurred the launch of a 2003-2004 Massachusetts Ocean Management Initiative that developed recommendations for “a comprehensive approach to managing ocean resources... [and] helped form the foundation for the *Oceans Act* of 2008.”
- Passage of the 2008 *Massachusetts Ocean Act* led to the development of a 2009 plan supporting management of human uses, including offshore wind energy production, and the protection of ecologically significant areas within Massachusetts waters.³¹

Great Barrier Reef Marine Park Authority (GBRMPA)

- The *Great Barrier Marine Park Act 1975* created GBRMPA to formulate a plan for “long-term protection and conservation of the environment, biodiversity, and heritage values of the Great Barrier Reef Region.”³²
- GBRMPA zoned areas for various levels of protection and indicated where human uses such as tourism, fishing, recreation, shipping, aquaculture, dredging, and other activities would be compatible with marine conservation goals.³³

United Kingdom Marine Spatial Planning

- The *Marine and Coastal Access Act 2009* launched a marine planning system administered by a new Marine Management Organization that consolidates marine-related fishery management, energy and climate change, and transportation responsibilities from other agencies, and creates a new program of marine spatial planning for UK waters.
- A 2011 Marine Policy Statement “is the framework for preparing Marine Plans, ensuring consistency across the UK, and provides direction for new marine licensing and other authorization systems” for England, Scotland, Wales, and Northern Ireland.³⁴
- Conservation and environmental concerns and offshore wind proposals provided the impetus for the UK’s CMSP policy, legislative, and program initiatives.³⁵

III. THE NATIONAL POLICY AND PROGRAM CONTEXT FOR CMSP IN CALIFORNIA

The issuing of the National Ocean Policy brought with it a significant new change in the federal approach to managing the nation’s oceans and coasts. This section begins with an overview of the types of existing laws, programs, and institutions playing a role in California coastal and marine management. It then examines the establishment of the National Ocean Policy, presents an overview of the federal government’s CMSP framework and describes California’s engagement with the federal CMSP initiative to date.

A complex array of federal laws, institutions, and programs play a significant role in marine resource management in California. These fall into three general categories: 1) those focused on spatial management of coastal and ocean areas; 2) those addressing specific resources or uses; and 3) information-related laws authorizing mapping, monitoring, survey, and research activities related to coastal and ocean resources. In particular:

- Spatially-focused. Spatially-focused examples include those concerned with coastal zone management (e.g., *Coastal Zone Management Act* implemented by the National Oceanic and Atmospheric Administration (NOAA)), coastal and marine managed areas (e.g., National Wildlife Refuges managed by the U.S. Fish and Wildlife Service (USFWS), and National Marine Sanctuaries Managed by NOAA)), and living and non-living marine resources in state waters (e.g., the *Submerged Lands Act* granting coastal states title to offshore lands).
- Sector- and Species-specific. Sector- and species-specific examples include fisheries management (e.g., *Magnuson-Stevens Fishery Conservation and Management Act* implemented by NOAA), endangered species protection (e.g., *Endangered Species Act* overseen by USFWS and NOAA), and

dredged material disposal (e.g., *Ocean Dumping Act* administered by the Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers).

- Information-related. Information-related examples include those related to navigation-related mapping (e.g., the *Coast and Geodetic Survey Act* implemented by the U.S. Geological Survey), coastal and ocean observing (e.g., the *Integrated Coastal and Ocean Observing Act* implemented by NOAA), and marine pollution (e.g., the *Marine Plastic Pollution Research and Control Act* implemented by EPA and other agencies).

Appendix 2, “*Synopsis of Existing Federal Roles in California Coastal and Ocean Areas*” provides brief descriptions of select existing federal policies and players that are most pertinent to CMSP in California.

The National Ocean Policy and Federal CMSP Framework

On July 19, 2010, President Obama issued Executive Order 13547, “Stewardship of the Ocean, Our Coasts, and the Great Lakes.”³⁶ The order adopts a National Ocean Policy to guide the federal government, with the participation of coastal states, tribes, and stakeholders, to protect, maintain, and restore the ecological health of the ocean, promote sustainable use of ocean and coastal resources, and strengthen coastal economies. The Executive Order incorporates by reference the recommendations of a presidentially-convened Interagency Ocean Policy Task Force (Task Force).³⁷ The Executive Order articulates the National Ocean Policy; establishes a National Ocean Council and other elements of a new structure for organizing and coordinating the work of federal agencies responsible for ocean issues; identifies priorities for federal action; and creates a new federal CMSP “framework for effective coastal and marine spatial planning...that establishes a comprehensive, integrated, ecosystem-based approach to address conservation, economic activity, user conflict, and sustainable use of ocean, coastal, and Great Lakes resources.” The Task Force recommendations call on federal agencies to reallocate staff and financial resources to meet their statutory obligations while still advancing the National Ocean Policy and implementing the federal CMSP framework.³⁸

The Federal Government’s CMSP Definition

Coastal and Marine Spatial Planning is a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. CMSP identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives.

– *Final Report of the Interagency Ocean
Policy Task Force*

The Task Force recommendations lay out a framework for CMSP that, among other things, does the following:

- Articulates federal CMSP goals;
- Explains that the federal CMSP process seeks to improve upon, not replace existing federal law.;
- Clarifies that CMS plans are not regulatory, but that participation and implementation by federal agencies is mandatory;

- Provides for federal-state-tribal Regional Planning Bodies as the main planning entities;
- Holds as a central tenet the integration of social and natural science information in ocean and coastal decision-making; and
- Lays out a five-year timeline for CMSP implementation in three phases over a five-year period.

See Appendix 3 for a more detailed explanation of the federal CMSP framework.

California's Engagement with the Federal CMSP Process

The State of California has engaged in the development of the federal CMSP process both directly and as a member of the WCGA. In response to the Task Force's interim CMSP proposal, the OPC submitted a letter articulating observations and recommendations for strengthening the federal proposal.³⁹ Table 1 summarizes the letter's main points.

Table 1: WCGA Comments and Recommendations Regarding the Federal CMSP Framework

OPC Observations	OPC Recommendations for Improvement
OPC Comments on the National Guiding Principles	
<ul style="list-style-type: none"> • Agree with national goals and principles. • Particularly endorse ecosystem-based and adaptive management, stakeholder and public engagement, use of best available science and technology. • Interested in CMSP fostering interagency coordination, improved comprehensive planning, reducing user conflicts, and managing emerging uses. 	<ul style="list-style-type: none"> • The National Guiding Principles for CMSP should not equate conservation of natural resources with human uses as a 'use' of the coast and ocean. • Elevate the importance of conservation and protection of natural resources by removing conservation from the list of potential uses under National Goal #1 and moving National Goal #2 up to #1 to emphasize that to 'Protect, maintain, and restore the Nation's ocean, coastal, and Great Lakes resources' is the primary goal of CMSP.
OPC Comments on Regional Planning Bodies	
<ul style="list-style-type: none"> • Agree Regional Planning Bodies (RPBs) should be consistent with Large Marine Ecosystems for issues best decided at that scale. • Agree existing regional governance structures such as WCGA should be integral to RPB. 	<ul style="list-style-type: none"> • Defer to state planning processes for matters more suited to state and local decision-making. • Make the WCGA the basis for the West Coast RPB. • Establish an advisory body to inform state representatives to RPBs consisting of state and local agency representatives with coastal and marine jurisdiction.

OPC Comments on Intended Strength of CMS Plans

- Agree the CMS Plans should take place at the regional, rather than national level.
- Note inconsistency of language regarding whether state and federal agencies must or may incorporate relevant CMS Plan components into their activities.
- Clarify the extent to which states and regions will be expected to incorporate and comply with regional CMS Plans, especially those that differ from existing state and regional plans.
- Allow states to adapt CMS Plans to complement existing resource management plans and uphold state authority to designate areas for certain uses or resource protection.

OPC Comments on Federal Support Required to Implement CMSP

- Any requirement that states and regions adopt new CMS Plans or incorporate plans into their existing management efforts will require federal support to ensure full state participation.
- States and regions should not be expected to reallocate existing funds for this purpose.
- Provide financial and technical assistance to states to develop and implement regional CMS Plans and to conduct data management efforts to support CMSP-related federal, regional, and state information exchange.

OPC Comments on the National Information Management System

- Support the strong emphasis on data integration, research, management, and access under a national information management system.
- Developing a single national data system will have many challenges in terms of responsiveness to user needs, cost feasibility, and avoiding duplication of money and effort.
- A national data system or tool should facilitate the two-way exchange of data developed at the federal level, and at the state/regional level.
- Explore the feasibility of adapting an existing federal data management system or search tool that can access state and regional data rather than developing a new information management system.
- Evaluate any system or tool according to user needs.
- Develop national data standards and data-sharing agreements to facilitate CMSP information exchange among federal, regional, and state agencies.

OPC Comments on the Development of an Environmental Sensitivity Index

- States and regions could more easily assess areas of ecological importance and compare CMS Plans and monitoring results across regions through a standard approach to identifying coastal and marine areas of high environmental sensitivity.
- Develop an environmental sensitivity index that assigns appropriate values to areas of ecological importance based on standard environmental criteria, taking into account a state or region's sensitive, vulnerable, and valuable habitats and species.

The WCGA submitted a February 2010 letter generally endorsing CMSP as a “useful framework for successful planning and management of [coastal and ocean] resources,” but also raising concerns and recommendations for changes and clarifications.⁴⁰ Table 2 summarizes the WCGA's support, recommendations, and concerns about the federal CMSP framework.

Table 2: WCGA Support, Recommendations, and Concerns Regarding the Federal CMSP Framework

WCGA Support for the Federal CMSP Framework
<ul style="list-style-type: none"> • Goals and principles. • Scope extending across political and aligned with large marine ecosystem (LME) boundaries. • Spectrum of stakeholder participation. • Engagement of Regional Ocean Partnerships (such as WCGA) in implementation.
WCGA Recommendations for Improving the Federal CMSP Framework
<ul style="list-style-type: none"> • Emphasize planning in nearshore and estuarine areas where human activities are numerous. • Explicitly designate WCGA to lead CMSP efforts in the region with appropriate changes to address the full scope of CMSP requirements and address tribal sovereigns' participation. • Develop a clear and flexible process for deciding the composition of Regional Planning Bodies. • Support Regional Planning Bodies with adequate funding and technical assistance.
WCGA Concerns Regarding the Federal CMSP Framework
<ul style="list-style-type: none"> • Acknowledge, complement, and integrate with existing ocean and coastal management efforts in the region. • Assuage stakeholder concern regarding plans' potential regulatory nature . • Provide a source of stable long-term funding and technical assistance. • Develop clear, realistic timelines for CMSP implementation. • Provide strong leadership by designating NOAA as the lead agency . • Build strong partnerships to link national and state information management systems. • Elevate the principles of conservation and protection of ecosystem health and services to prominent guiding principles of the overall framework.

Whether and how the federal government will address these concerns has yet to be clarified by the National Ocean Council.

California is currently engaged in the emerging federal CMSP framework through the Governance Coordinating Committee established as a federal advisory committee to the National Ocean Council. Its members include the following California representatives: Brian Baird, Assistant Secretary for Ocean and Coastal Policy in the California Natural Resources Agency, tribal representative Jacque Hostler, Chief Executive Officer of the Trinidad Rancheria, and local government representative Geraldine Knatz, Director of the Port of Los Angeles.

IV. CALIFORNIA'S CMSP ASSETS, LIMITATIONS AND OPPORTUNITIES

This section of the background document turns the focus to California's assets, limitations, and opportunities with respect to conducting a CMSP process. It begins with a general examination of the State of California's key ocean and coastal policies and institutions, consistent with the reality that California is at an early phase in considering whether, how, and in what form CMSP may be adopted by the state. This review is followed by discussions about science and information, funding, stakeholder engagement, and the role of the OPC as viewed through a CMSP lens.

Key California Institutions and Policies Relevant to CMSP

As noted earlier, CMSP does not require augmenting or replacing existing coastal and ocean management authorities. CMSP is intended to overcome barriers to agencies applying their existing authorities in a framework that permits a more comprehensive, coordinated, and ecosystem-based management of vital marine resources. A CMSP process is also intended to help avoid or reduce conflicts, increase efficiency in a time of limited public resources, and engage and provide certainty for stakeholders and the public in forward-looking plans developed in advance of specific project proposals. Although not a requirement, spatial plans developed through a CMSP process may be institutionalized through existing authorities, as was the case with the State of Massachusetts, which adopted the Massachusetts Ocean Plan as part of its federally-approved coastal management program. Similarly, the National Ocean Policy makes clear that federal CMSP processes will be carried out consistent with and under the authority of existing federal, state, and local statutes (see Appendix 3). The sections below consider the existing assets, limitations, and opportunities of key state institutions and policies that provide a foundation for CMSP processes in California.

Institutional and Policy Assets

Key institutions to consider for their potential role in CMSP include state agencies, regional and local government entities, and the programs they implement. While all of these entities are important, the discussion below applies to the subset of institutions that have the closest nexus to managing the state's coastal and ocean resources, listed in Table 3. (Note the agencies listed in a given category are recognized as the lead for that category, although other agencies may have important overlapping roles.)

Table 3: State Agencies of Primary Interest for CMSP

Primary Jurisdiction	Agency
Oversight and Coordination	California Environmental Protection Agency California Natural Resources Agency California Ocean Protection Council
Coastal Management	California Coastal Commission San Francisco Bay Conservation and Development Commission State Coastal Conservancy
Water Quality	Regional Water Quality Control Boards State Water Resources Control Board
Living Marine Resources	California Department of Fish and Game Fish and Game Commission
Land Management	California State Lands Commission California State Parks State Parks and Recreation Commission
Energy	California Energy Commission California Public Utilities Commission
Regional Coordination	West Coast Governors' Agreement on Ocean Health

In addition to the agencies with explicit coastal and ocean resource management portfolios, this list includes agencies dealing with energy demand and greenhouse gas reduction, for example, as well as the multi-state WCGA. Appendix 4 provides a synopsis of these organizations' roles and the legal authorities for their activities. It is also important to acknowledge the role of the Governor's office and State Legislature in ultimate policy oversight of state agencies' work and authorities.

These agencies have built deep staff expertise, public engagement experience, and repositories of science and information in carrying out the laws and programs constituting the State of California's framework for managing human activities that affect ocean and coastal resources. The past decade has seen numerous initiatives to improve that framework, as noted in the

introduction to this report and the discussion of a number of particularly CMSP-relevant activities in Section II above, including coastal aspects of climate change adaptation, area-based management efforts to protect fisheries and habitat, and the state's response to emerging ocean uses.

Other examples of California policy and institutional assets relevant to CMSP include, but are not limited to:

- The 1999 *Marine Life Management Act*, which represented a major shift toward ecosystem-based fishery management.
- The 2004 *California Ocean Protection Act* establishing the OPC as a leader for fostering interagency coordination on key ocean and coastal management issues and addressing science and information gaps.
- The Coastal Sediment Management Workgroup launched in 2003 as a problem-focused initiative by California agencies and partners to achieve cross-agency, cross-jurisdictional management of activities that match governance to ecosystem function; in this instance, activities affecting coastal erosion, beach recreation, dredging, and more.⁴¹

Institutional and Policy Limitations

It remains the case, however, that the number and disparate jurisdictions of California's coastal- and ocean-related management institutions pose challenges to the state's ability to comprehensively manage its marine resources, and to align its governance with ecosystem-based management principles. Specific current limitations include the following:

- Collaboration and coordination among agencies to address ocean and coastal uses is generally ad hoc and the exception, rather than the rule.
- Essential data to inform marine resource decisions are housed in separate agencies using incompatible standards and systems making access to data and data integration a significant challenge (for more on this see *Priority Science and Information Assets, Limitations, and Opportunities* below).
- Sector-by-sector management fails to provide an effective forum for making choices among competing policy priorities before projects are proposed.
- Most regulatory processes can only react to projects after a permit application is filed, resulting in duplicative review processes and piecemeal management decisions.
- Existing sector-based frameworks severely limit the state's capacity to address the pervasive and growing threats to our ocean and coastal regions posed by cumulative impacts and climate change.
- Agencies' focused mandates and culture create obstacles to joint information collection and, where appropriate, coordinated reviews that could stretch scarce public agency human and financial resources.
- Poor linkages between managers and the science community result in a lack of management-relevant research.

These observations are borne out in the state's own assessments and those of outside commentators. For example, the California Natural Resources Agency's 1997 *California's Ocean Resources: An Agenda for the Future* acknowledged that "[a] broad and complicated set of laws, regulations, and specific designations have been developed over time to protect and manage these ocean resources, although such measures were developed without the assistance of a comprehensive planning and management approach." A decade later California, along with its fellow West Coast partners in the WCGA, noted in the WCGA's 2008 Action Plan that "transitioning to [ecosystem-based management] is . . . complicated by the existing fragmented, single-issue approach to ocean management, budget constraints on state and federal agencies, gaps in data and information, and a lack of timely connections between research and management needs."⁴² Other observers have also pointed out the way fragmentation, lack of financial resources, and legal, administrative, and cultural barriers that stifle cooperation among state agencies have largely maintained a sector-by-sector management of California's ocean and coastal resources, which are contributing to the decline of the state's ocean ecosystems.⁴³⁴⁴

Recent investigations by the Center for Ocean Solution's California Marine Spatial Planning Project echoed many of these themes in characterizing policy and institutional problems contributing to the decline of California's marine ecosystems:⁴⁵

- Cumulative Effects. *California Environmental Quality Act* (CEQA) requires agencies to identify and address cumulative impacts of individual activities. However, the current state regulatory regime is hampered in its ability to limit cumulative adverse effects of human activities. Most agencies focus on primary impacts of a given activity, do not or are unable to integrate the full spectrum of relevant information and expertise about marine resources and human uses, and lack a consistent way to measure and forecast cumulative impacts over time. They generally are consistently unable to integrate analyses of impacts to marine areas originating from inland regions.
- Emerging Uses and Issues. In the absence of a comprehensive plan and rules that address emerging uses and issues, the state lacks a transparent, integrated mechanism to analyze the interactions, required tradeoffs, and priorities for action among policy goals. These include goals relating to sustaining human communities, conservation, energy security, and food and water security. Resource agencies consequently find it difficult to commit to joint decisions, even when they share common priorities.
- Stakeholder Engagement. The fragmented participation opportunities in existing decision-making processes results in stakeholder engagement that is more difficult and unpredictable and less efficient and transparent than it should be.

The complexity has increased as responding to climate change, for example, sets up new conflicts between the imperative of the California Energy Commission to mitigate greenhouse gas emissions by developing renewable energy resources, and the California Coastal Commission's mandate to protect the state's ocean and coastal resources from development impacts. At present, there is no overarching mechanism to help reconcile such conflicts and overlaps in agency mandates and activities and to make informed choices among marine resource use and protection options.

Institutional and Policy Opportunities

The discussions of California's existing coastal and ocean institutions and policies above and elsewhere in this report make clear both the valuable progress California has made in adopting more ecosystem-

based approaches to managing activities affecting marine resources, and persistent structural impediments to more integrated and coordinated management. Continued incremental progress will certainly occur via implementation of the many interagency and cross-jurisdictional initiatives highlighted throughout this report, and there are many other issue- and sector-specific efforts worth pursuing, as illustrated by the OPC's strategic planning focus on next steps for climate change adaptation, sustainable fisheries, land-sea interactions, and emerging industrial uses of the ocean.

Overcoming the limitations described above could be addressed in part by improvements in the quality, extent, and accessibility of information about the status of ocean and coastal ecosystems and human uses of those ecosystems. Such improvements are broadly supported and already underway. However, many limitations arise from barriers to greater agency coordination and integration of decision-making. An analysis of opportunities to address these problems pointed to state adoption of collaborative agency process and planning requirements that could provide increased accountability, transparency, and predictability. Such measures would obligate agencies to work together in plan development and use their regulatory programs to implement plan objectives in cooperative fashion through such mechanisms as siting and performance standards. Plans themselves would define common priorities for siting uses and conservation, and deploy cross-sector strategies reduce cumulative impacts and other impediments to healthy and productive ocean and coastal ecosystems.⁴⁶

A number of the state and overseas governments highlighted in Section II laid the groundwork for their CMSP initiatives with seminal reviews of their existing frameworks for decision-making. Examples include the Massachusetts Ocean Management Initiative's 2004 *Waves of Change: The Massachusetts Ocean Management Task Force Report and Recommendations*⁴⁷ and the UK's *Our seas – a shared resource. High level marine objectives*.⁴⁸

Priority Science and Information Assets, Limitations, and Opportunities

Assembling, developing, and integrating geospatial, socioeconomic, and other information about coastal and ocean ecosystems and their services is the foundation for CMSP processes. For discussion purposes, this report categorizes science and information for CMSP into three general categories: 1) data collection and analysis; 2) data synthesis; and 3) decision support tools. These categories are consistent with CMSP processes that collect ecological and human use data and synthesize this data into information products that can then be used to help inform decision-making. Advances in user-friendly computerized decision support tools allow unprecedented ability to access and manipulate information. These tools are a key component of implementing CMSP because they provide enhanced methodologies for visualizing a complex array of ocean dynamics and uses simultaneously. They also provide a way to analyze alternatives and tradeoffs among human use and resource protection scenarios. The discussion below examines California's assets, limitations, and opportunities with a focus on these categories of CMSP science and information.

Science and Information Assets

Over many decades of ocean and coastal marine resource management, California's state agencies have invested in and acquired tremendous amounts of marine and coastal science and information – ecological, physical, and socioeconomic data to support coastal and ocean resource management activities. A wealth of information important to California resource management has been and will continue to be contributed from other sources as well, including: the state's extensive network of

academic institutions such as the Universities of California and California State Universities; a broad network of non-governmental organizations; sub-regional intergovernmental entities such as the Southern California Coastal Water Research Project; federal sources such as the National Ocean Observing Systems, National Marine Sanctuaries and National Estuary Programs; and citizen-science collaborations such as Reef Check and collaborative fisheries research programs.

The state has made extensive progress in the last decade in supporting the development of these data resources and improving approaches to integrating current and policy-driven science into the state's marine and coastal management framework. The following are just a few examples of the scientific assets produced by these investments with significant value for informing CMSP processes in California.

OPC Science Advisory Team (OPC-SAT). Capitalizing on the state's robust network of academic scientists, the OPC-SAT is a group of well-respected, diverse, and independent scientists tasked with ensuring the best available science is applied to OPC policy decisions. Key OPC-SAT actions include developing recommendations on scientific issues identified by the OPC and convening working groups and forums to discuss ocean and coastal research priorities and critical management problems. The OPC-SAT is an important scientific asset because it lends credibility to the scientific information the OPC uses to inform and guide its decisions – a valuable contribution given the complexity and controversy that often accompanies ocean and coastal management.

Statewide Ocean and Coastal Baseline Data. The state has recently made significant investments in building statewide data that is useful for informing a wide range of coastal and marine management decisions. These include maps of the entire state seafloor and mapping of the California shoreline (LiDAR), as well as extensive baseline collection of ecological and socioeconomic data to support the management of established marine protected areas.

Data Synthesis. Examples of California data synthesis products include the regionally-specific profiles developed to support the MLPA planning,⁴⁹ strategic products such as a review of socioeconomic and environmental effects of wave energy development,⁵⁰ and the summary reports that will emerge from the MPA Monitoring Enterprise.⁵¹ Other examples of synthesis include environmental data products generated by California's two ocean observing systems⁵² and The Nature Conservancy's Marine Ecoregional Assessments for California.⁵³

"Decision Support Tools." This term refers to a host of computer software programs that aid decision-making by presenting users with information in easy to understand ways, as well as geographic information system (GIS) maps and analyses and models portraying trade-offs among scenarios and cost-benefit analyses. California's early experience developing such tools occurred in the context of the MLPA Initiative (e.g., MPA Decision Support Tool, MarineMap, and Web-based map services).⁵⁴ Since then, many more have been developed that provide maps or models for assisting with renewable energy siting, evaluating trade-offs of marine uses, estimating the value of ecosystem services, and considering cumulative effects of ocean uses; see Appendix 5 for a long, although not exhaustive list of these tools.

Science and Information Limitations

California agencies have participated in several forums over the last few years to identify science and tool requirements for conducting CMSP processes. These include: the 2009 "Collaborative Geospatial

Information and Tools for California Coastal and Ocean Managers” workshop;⁵⁵ the 2010 National Center for Ecological Analysis and Synthesis’ “Top Priorities for the Science, Policy, and Practice of Coastal and Marine Spatial Planning” workshop;⁵⁶ the 2009 WCGA “Renewable Energy” workshop that identified data gaps and priorities for CMSP for renewable energy siting;⁵⁷ and the 2010 WCGA stakeholder workshops and comments in conjunction with developing a proposal for federal funding of CMSP efforts on the West Coast.⁵⁸ Together, these efforts identified a spectrum of needs for addressing data access issues, improving data and data products to better inform decision-making, and customized decision support tools. These analyses, while informative, were developed in advance of knowing what form CMSP might take in California. Table 4 provides a summary of needs identified at the time. It is important to note that even in the short span of time since these workshops took place, significant progress has been made on many of these fronts such as seafloor mapping. This has the effect, however, of further accentuating the need to improve access to ever-expanding information resources.

Table 4: California Science and Information Needs for CMSP: Findings from 2009-2010 Workshops

Identified Data and Information Needs*	Identified Data Synthesis Needs*
<ul style="list-style-type: none"> Seafloor/ecosystem data (e.g., bathymetry and Areas of Ecological Importance, temporal/seasonal patterns) Climate change impacts (e.g., sea level rise, ocean acidification, and erosion) Socio-economic data (e.g., human use data and coastal economies) Tribal/indigenous knowledge Baseline and long-term monitoring (including fisheries, ecosystems, water quality, and MPAs) Hazard identification (e.g., tsunamis, storm surge, coastal erosion, coastal flooding, earthquakes, oil spills, marine debris) Boundary mapping (e.g., MPA and managed areas, jurisdictional, and ecological boundaries) 	<ul style="list-style-type: none"> White papers synthesizing existing climate change data (including citizen science and sea level rise monitoring) Synthesis products for current high-resolution data on bathymetric profiling, geomorphology, biologically significant areas, and hazard response tools Development of case studies regarding sediment budget, shoreline armoring effects, and climate change effects Cumulative impacts assessment Ecological models (e.g., endangered species, migratory pathways, aggregation points correlated to life histories)
Identified Decision Support Tools Needs*	
<ul style="list-style-type: none"> Identify California’s public agency needs including capacity to gather, manage, use, and share information and decision-support tools Develop a coastal atlas and creation of a data framework and portal (to improve data access, sharing, and synthesis, and data standardization) Development of marine renewable energy siting, human use, sediment transport and beach erosion, hazardous materials response, infrastructure development (marine and coastal), and climate change response focused tools, cumulative impacts, and trade-off analysis 	

** Please note that significant progress has been made on many of these fronts since the workshops took place, such as seafloor mapping.*

The 2009 workshop “Collaborative Geospatial Information and Tools for California Coastal and Ocean Managers” in particular identified internal (within a group, agency, or organization) and external (between agencies and external parties) limitations to successful sharing of data and decision support tools that impede effective distribution of geospatial information to the public, decision-makers, other

geospatial data users, and managers.⁵⁹ Table 5 provides an overview of identified key organizational and operational limitations.

Table 5: Preliminary Findings: Internal and External Limitations on Data and Tool Sharing

Internal Limitations	External Limitations
<ul style="list-style-type: none"> • Lack of staff members with adequate GIS expertise • Lack of clear, easy to use geospatial data and decision support tools • Lack Geospatial Information Systems • Inadequate Information Technology (IT) infrastructure • Lack geospatial data • Limited funding to adequately support geospatial technologies, staff, and infrastructure • Lack standards of best practices 	<ul style="list-style-type: none"> • Difficulty or inability to access available data • Lack of a California data-sharing policy • Insufficient data available in the “correct resolution, scale, or standard” • Confidential data sources • Limited compliant data meeting metadata standards • Limited file sharing capabilities because of file size • Unwillingness to sharing data (legal and intellectual property rights)⁶⁰

Science and Information Opportunities

In response, in part, to these examinations, in 2010 the OPC established the California Coastal and Marine Geospatial Working Group and the state legislature enacted AB 2125 of 2010 directing the OPC to lead improvements in state agency data management and sharing. The law requires OPC and state agencies to cooperate in promoting “state agencies’ use and sharing of scientific and geospatial information for coastal- and ocean-relevant decision-making, including marine spatial planning, by taking specified actions, to assess the needs of California’s public agencies with respect to their abilities to gather, manage, use, and share information and decision-support tools relevant to ecosystem-based management in the coastal and ocean environment.”⁶¹ OPC’s launch of this initiative in early 2011 represents a major opportunity to improve California coastal and marine geospatial information management systems.⁶² The anticipated system is summarized in Text Box 1. The OPC initiative is linked to a broader movement to improve state government’s performance with better information management and tools through the establishment of the cabinet-level California Technology Agency (CTA). The California Coastal and Marine Geospatial Working Group operates as a formal working group of the CTA’s California GIS Council.

Text Box 1: Anticipated Features of the California Coastal and Marine Geospatial Information Management System

The California coastal and marine geospatial information management system being scoped by OPC in response to AB 2125 is expected to:

1. Provide a web-based, user friendly and well-organized system for locating, accessing, downloading, and viewing California coastal and marine geospatial data, including ecological and socio-economic data;
2. Offer direct access to these geospatial data and derived information products (such as seafloor data and maps) for downloading to geospatial viewers (such as ArcGIS, Google Earth, etc.) and other decision support tools, along with accurate metadata;
3. Establish a long-term steward for this information management system;
4. Identify relevant standards and protocols for making data and derived information products available through the information management system, for meeting the user's data quality and resolution requirements, and for maintaining confidentiality standards; and
5. Facilitate access to third-party geospatial mapping and analysis tools and provide links to other relevant state, regional, and federal marine and coastal information management systems, such as the Integrated Ocean Observing Systems and the Multipurpose Marine Cadastre.

Depending on resources and implementation, the federal government's CMSP framework (see Part II above) will afford another significant opportunity for the development of science and information that would benefit California coastal and ocean resource management in general and any CMSP initiatives the state undertakes in particular.

Funding CMSP: Examples from California and Other Contexts

California's means of financing CMSP-related activities such as monitoring, data collection, mapping, and decision support tool development may include: state allocations from general revenues, user fees and taxes, federal funding, public-private partnerships, and philanthropic donations. For example, an oil and gas decommissioning study completed by the California Ocean Science Trust (OST) received funding from OPC, Chevron Corporation, the Ocean Conservancy, the Sportfishing Conservancy, and United Anglers.⁶³ OST's legal status allowed for flexibility in receiving funding from a wide array of sources, while its strong governance and fiduciary management ensured that funding was directed towards credible, unbiased science and decision-making. The Obama Administration's fiscal year 2012 budget request included funding for CMSP as part of the National Ocean Policy implementation. If Congress appropriates those funds, California could receive funding that would benefit CMSP-related activities in the state.⁶⁴

Options for how California might finance CMSP processes are further illustrated by four national and international examples of how CMSP initiatives are being financed; see Text Box 2.

Text Box 2: U.S. and Overseas Examples of CMSP Financing

Great Barrier Reef Marine Park (GBRMP) (*government, user fees, industry, and philanthropic donations*): The Great Barrier Reef Marine Park Authority receives the majority of its funding from national and state government appropriations.⁶⁵ Additional funding sources include the Environmental Management Charge,⁶⁶ a commercial user fee for facilities operating within the park, and revenue from the GBRMPA-managed aquarium, Reef HQ. Other research and operations funding comes from industry and philanthropic donors.

Massachusetts Ocean Management Plan (*user fee, public-private partnership, and philanthropic donations*): Massachusetts Ocean Partnership (MOP) is a non-profit organization that provided staff and financial support to the Executive Office of Energy and Environmental Affairs to develop and implement the state's Ocean Management Plan through a public-private partnership.⁶⁷ MOP received core support from the Gordon and Betty Moore Foundation (more than \$8M) and other philanthropic and private funders.⁶⁸ Presently, ocean development mitigation and user fees through the Ocean Resources and Waterways Trust Fund, established under the *Oceans Act 2008*, support planning and implementation efforts.⁶⁹

Oregon Territorial Sea Plan (*user fees, public-private partnership, and philanthropic donations*): The state of Oregon is in the process of revising its Territorial Sea Plan (TSP) to designate locations for siting renewable ocean energy facilities. Funding from foundations such as the David and Lucile Packard Foundation (Packard), the non-profit 501(c)(3) Oregon Wave Energy Trust,⁷⁰ and electricity surcharges promulgated by the State of Oregon in *Senate Bill 838* have supported the associated spatial planning efforts to date.⁷¹ Packard funded numerous projects to support the integration of science into the decision-making process,⁷² such as a shore-side socioeconomic analysis mapping commercial and consumptive recreational fishing use patterns and values along the Oregon Coast.

Rhode Island Ocean Special Area Management Plan (SAMP) (*government and user fees*): In the state of Rhode Island, the Ocean SAMP is primarily funded through the Rhode Island Renewable Energy Fund (REF)⁷³ generated through an electric bill surcharge and administered by the Rhode Island Economic Development Corporation (RIEDC).⁷⁴ Additional funding for SAMP development came from the state and the federal government (U.S. Department of Energy and *Recovery and Reinvestment Act* Funds).⁷⁵ The REF provided funding to project developer Deep Water Wind to pilot an offshore wind farm. However, as part of its agreement with RIEDC, Deep Water Wind was required to reimburse the RIEDC up to \$3.2 million for SAMP expenses.⁷⁶

Stakeholder Engagement Assets, Limitations, and Opportunities

Stakeholder engagement is a fundamental value and component of California's state agency decision-making,⁷⁷ as well as a fundamental tenet of CMSP. However, under a CMSP process this engagement is intended to differ from the "traditional" notice-and-comment participation processes that are often part of ocean and coastal resource management decision-making. CMSP processes are intended to provide stakeholders the opportunity to help plan across multiple sectors instead of responding to proposals for specific projects or a single sector. Stakeholders and the public are asked to consider trade-offs, and are supported in doing so with an array of spatial and non-spatial information about biological, physical, social, economic, and cultural issues. The quality and transparency of decisions is also enhanced by

giving participants access to data visualization and decision support tools that improve their abilities to understand complex relationships among various pieces of information, model alternative scenarios, and weigh the likelihoods and values of different planning outcomes.

The stakeholder engagement process of the MLPA Initiative provides a valuable California example of a stakeholder involvement process. The Initiative demonstrates several beneficial approaches and tools for stakeholder engagement, but also cautionary lessons about over-extending agencies and stakeholders that are important in considering CMSP approaches. The Initiative promotes a planning process emphasizing the use of data tools that support stakeholder discussions about the way current and future ocean uses may affect conservation goals, and provides a transparent process for considering alternatives to what and where uses should be allowed. The Initiative represents one of the first times that socioeconomic data about consumptive and non-consumptive human uses of marine waters (commercial and sport fishing and non-fishing recreation) were used to inform habitat-focused area-based management decisions, making stakeholder engagement all the more vital.

While the MLPA Initiative goal is a comprehensive statewide system of marine protected areas, the initiative has been implemented in five “bioregions” that comport with ecological boundaries, and also facilitate participation by those stakeholders most knowledgeable about, and potentially affected by, the designation of these areas. Regional Stakeholder Groups convene to propose networks of marine protected areas in their bioregion. They are provided with compiled ecological and human use information about the region, often via mapping and other computer-based decision support tools that allow them to consider alternative scenarios for the size and location of marine protected areas.

This locally-focused stakeholder engagement is complemented by a statewide Blue Ribbon Task Force (BRTF) of distinguished citizens who take comment at public meetings and provide their own recommendations on marine protected area networks; a Statewide Interests Group that facilitates communication between the BRTF and stakeholders about MLPA Initiative implementation and policy issues of statewide concern; and a Science Advisory Team that reviews and evaluates proposals.⁷⁸ The Fish and Game Commission, which provides traditional public comment opportunities on proposed state actions at its hearings, is the ultimate recipient and decision-making body on recommended plans for each bioregion’s network of marine protected areas.

An evaluation of the Central Coast Pilot MLPA Initiative made extensive recommendations that shaped stakeholder engagement for subsequent marine protected area designation processes in other coastal regions.⁷⁹ Among the findings from that evaluation that are particularly relevant to CMSP are recommendations about providing Regional Stakeholder Groups with an assembled portfolio of analyses of relevant natural and social science data and information in usable form that is then refined through a joint fact-finding process, as well as training in the use of decision support tools and negotiation techniques.

While the MLPA’s stakeholder engagement process is viewed as being exceptionally thorough and robust, there is also the sense that it was costly,⁸⁰ and a time-intensive process that led to a degree of “stakeholder fatigue.” State legislative members, agencies, and stakeholders are concerned that CMSP processes may be similarly demanding and simply too taxing for the state and stakeholders to undertake in the near future.

A careful review of the experience of the MLPA Initiative and CMSP processes conducted elsewhere

could help inform CMSP efforts to strike the most effective and efficient balance between strong stakeholder participation and limited time and financial capacity.

Ocean Protection Council Role in CMSP

The discussion below summarizes actions the OPC has already taken related to CMSP, and then considers OPC's limitations and opportunities to take actions that would result in adoption of some form of CMSP to support California's coastal management priorities.

Ocean Protection Council's CMSP-Related Mandates

The OPC has authority to support CMSP through its mandates to advance science and information management collaboration and coordination across agencies.⁸¹ In implementing these mandates, OPC projects have significantly expanded data acquisition and coordination efforts, including seafloor and shoreline mapping programs that would provide critical baseline information for a CMSP effort. Examples of OPC actions to support interagency coordination related to CMSP include OPC's leadership of the Coastal and Ocean Climate Action Team that developed the marine component of the state's comprehensive climate change adaptation strategy,⁸² and the Marine Renewable Energy Working Group. State legislation (AB 2125 of 2010⁸³) further formalized OPC's involvement in CMSP by mandating key coordination and funding actions to substantially accelerate science and information sharing among agencies (see Text Box 3). See also the discussion in Section III, pages 9-11, describing OPC's comment letter regarding the federal CMSP framework, which is in keeping with the OPC's responsibility to identify and recommend changes in federal law and policy.

Text Box 3: Summary of AB 2125 – Coastal Resources: Marine Spatial Planning

Assembly Bill 2125 (2010) establishes a leadership role for OPC in working with state agencies to improve the availability and use of scientific and geospatial information to support improved marine management decisions. The legislation does the following:

1. Requires OPC to support state agencies' use and sharing of scientific and geospatial information for coastal- and ocean-relevant decision-making. Specific goals include:
 - a. Assess the needs of California public agencies with respect to their abilities to gather, manage, use, and share information and decision-support tools relevant to ecosystem-based management in the coastal and ocean environment;
 - b. Increase the amount of baseline scientific and geospatial coastal and ocean ecosystem information that is available to public agencies in a publicly accessible, electronic, and geospatial format;
 - c. Support public agencies' collaborative management and use of scientific and geospatial information relevant to ecosystem-based management; and
 - d. Adapt or develop decision-support tools relevant to ecosystem-based management to serve the state's needs.
2. Empowers OPC to award grants, enter into interagency agreements, and provide assistance to public agencies and non-profit organizations to support the achievement of these goals, with preference given to public agencies.
3. Mandates each state agency, board, department, or commission with ocean or coastal management interests or regulatory authority to cooperate with OPC to achieve the above goals, subject to available funding and consistent with each entity's individual mandate.

In April 2011, The OPC initiated a scoping study to outline the geospatial data needs of California public agencies, as a first step towards implementing the law's requirements (see Section IV for more detail on that project).

The Ocean Protection Council's CMSP-Related Limitations and Opportunities

The OPC is a cabinet level policy body tasked with coordinating activities of ocean-related state agencies to improve the effectiveness of California's ocean resource protection efforts. Developing and conducting a CMSP process for California will require coordination and collaboration among ocean-related state agencies to determine the need for this process, the approach that provides the greatest benefits, and the tasks needed to successfully implement CMSP. The OPC is well suited to play this coordinating role, provide guidance and support to agencies in conducting CMSP activities, and help leverage funds for initial implementation. However, it is important to recognize that the OPC is a policy agency that does not direct the on-the-ground programs of these boards, departments, and commissions.

In the 2010 OPC evaluation, a number of stakeholders interviewed in the course of the evaluation voiced some reticence about CMSP, and a concern that CMSP is simply a “trendy twist” on multi-level planning efforts that are often already being undertaken.”⁸⁴ However, the evaluation also found widespread consensus among stakeholders that the OPC should play a leadership role in defining CMSP approaches for California, leading to the identification of CMSP as one of the top five issues for the OPC to consider in its strategic planning effort.⁸⁵

The national context creates another significant opportunity for the OPC to engage in CMSP. California is likely to continue participating with Oregon and Washington in the federal CMSP framework, contingent on federal funding and technical support.⁸⁶ The OPC has the opportunity to consider whether that federal CMSP framework will define the contours of CMSP for California and meet California’s needs, or whether it is in the state’s interest to pursue development of an independent framework that is compatible with the federal initiative, but meets California needs in key ways that the federal framework will not address.

The OPC has already taken a leadership role with respect to advancing crucial science and information building blocks required for CMSP. The OPC has the opportunity to pursue a number of its actions within its scope of authority to clarify for the state the policy, legal, and institutional questions regarding what form of CMSP is appropriate for California. What roles would agencies play? What ocean and coastal challenges would CMSP most benefit? How prescriptive should a CMSP process be? How could CMSP be funded? What is legislatively possible? In answering these questions, OPC leadership could help illuminate a possible role for CMSP in advancing California’s goal of healthy and productive coastal and ocean ecosystems.

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APPENDICES

Appendix 1: Coastal and Marine Spatial Planning Definitions, Steps, and Best Practices

Formal definitions for CMSP (also referred to as marine spatial planning) began to emerge in the 2000s, with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) recognized as an early proponent of the concept.⁸⁷ More recently, in the wake of the announcement of a new National Ocean Policy for the United States in July 2010 (see Section III, page 8), the federal government issued its own definition of CMSP. So too, for example, has the State of Washington in the course of implementing state legislation enacted in 2010 related to CMSP.⁸⁸ Text Box 4 presents these definitions of CMSP.

Text Box 4: Definitions of Coastal and Marine Spatial Planning

U.N. Educational, Scientific, and Cultural Organization (2009)

Marine spatial planning is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process.

White House Interagency Ocean Policy Task Force (2010)

Coastal and marine spatial planning is a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. CMSP identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives. In practical terms, CMSP provides a public policy process for society to better determine how the ocean, coasts, and Great Lakes are sustainably used and protected – now and for future generations.

Washington Substitute Senate Bill 6350 (2010)

“Marine spatial planning” means a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives. Often this type of planning is done to reduce conflicts among uses, to reduce environmental impacts, to facilitate compatible uses, to align management decisions, and to meet other objectives determined by the planning process.

Toward a California Definition of CMSP

At its November 2010 meeting the OPC adopted the following working definition for CMSP informed by some of the existing definitions (see box).

Coastal and marine spatial planning is a comprehensive, adaptive, integrated, ecosystem-based, and transparent planning process. It is based on sound science and integrates ecological, economic, and social information on current and projected uses of marine waters to inform management and regulatory decisions, reduce conflicts, and facilitate compatibility among projected uses, while sustaining the State's marine ecosystem and resources for present as well as future generations.

—California Ocean Protection Council⁸⁹

As the OPC develops in 2011 its five year strategic plan, it will use the strategic planning process to consider how CMSP processes can help advance the State of California's coastal and ocean management policies and further refine, as appropriate, a CMSP definition tailored to California's priorities and needs.

Synopsis of UNESCO-Recommended Steps for Marine Spatial Planning

According to UNESCO, "[m]arine spatial planning is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that are usually set by a political process." The table below presents steps for conducting marine spatial planning, adapted from the UNESCO guidebook, *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*.⁹⁰

Table 6: UNESCO-Recommended Steps for Conducting Marine Spatial Planning

MSP Component	Are The Following In Place?
1. Establishing need and authority	Clearly identified needs for MSP?
	Authorities for carrying out MSP and implementation?
2. Financing	Funding or potential funding mechanisms for MSP?
3. Process	A team to staff a MSP effort?
	A workplan for MSP?
	Boundaries for MSP?
	A timeframe for MSP?
	A defined set of principles to guide a MSP process (e.g., transparency, integration, precautionary)?
	Defined goals and objectives for MSP?
4. Stakeholder participation	An approach for identifying who should be involved in an MSP effort?
	A process for effectively engaging stakeholders in an MSP effort?
	Tools for effectively engaging stakeholders in an MSP effort?

MSP Component	Are The Following In Place?
5. Assessing existing conditions	Data and maps about ecological, environmental, and oceanographic conditions?
	Data and maps about human activities?
	Information about conflicts and compatibilities among existing human uses?
	Information about conflicts and compatibilities between existing human uses and the environment?
6. Anticipating future conditions	Projections of current trends in the spatial and temporal needs of existing human activities?
	Estimates of the spatial and temporal requirements for new demands of ocean space?
	Ability to assess cumulative impacts of ocean uses?
	Ability to assess future climate change impacts?
	Scenarios of possible alternative futures for the planning area?
7. Preparing and approving a spatial management plan	A preferred spatial sea use scenario?
	A set of identified alternative spatial and temporal management measures, incentives, and institutional arrangements?
	Criteria for selecting marine spatial management measures?
	A plan for indicating preferred uses or zoning?
	A process for evaluating a spatial management plan?
8. Implementing and enforcing a marine spatial management plan	A process for approving a spatial management plan?
	Capacity to implement a spatial management plan?
9. Monitoring and evaluating performance	Ability to ensure compliance with a spatial management plan?
	Capacity to develop a performance monitoring program, evaluate data, and report results?
10. Adaptive management	Processes for reconsidering and redesigning an MSP program?
	Processes for identifying applied research needs?

Appendix 2: Synopsis of Existing Federal Roles in California Coastal and Ocean Areas

A comprehensive review of state and federal laws and institutions, produced by OPC legal staff, is the principle source informing this brief distillation of international and federal laws, programs, and institutions that are relevant to the management of activities affecting California's ocean and coastal resources, and therefore relevant to CMSP.⁹¹ Another source was a compendium of legal authorities related to CMSP prepared for the National Ocean Council.⁹²

The federal laws highlighted below fall into three general categories: 1) those focused on spatial management of coastal and ocean areas; 2) those addressing specific resources or uses; and 3) those authorizing information-related activities (mapping, monitoring, survey, and research) related to coastal and ocean resources. The three tables below focus, respectively, on spatially-focused laws (Table 7), sector specific laws (Table 8), and mapping, monitoring, survey, and research laws. Each table highlights for a given marine issue a number of key federal laws and agencies, as well as principal interacting state laws and agencies (Table 9). For greater detail regarding many of the state laws and agencies, see Appendix 3 *Key California Agencies and Legal Authorities for CMSP*. The tables do not include two overarching federal and state laws that touch on all agencies and activities: the *National Environmental Protection Act* and *California Environmental Quality Act*.

Table 7: Spatially-Focused Federal Coastal and Ocean Laws

Issue	Federal Law	Lead Federal Agencies	Primary Interacting State Laws and Agencies
Coastal Zone Management	<ul style="list-style-type: none"> • <i>Coastal Zone Management Act (CZMA)</i> 	<ul style="list-style-type: none"> • National Oceanic and Atmospheric Administration (NOAA) 	<ul style="list-style-type: none"> • <i>Coastal Act, Coastal Conservancy Act, McAtteer-Petris Act,</i> • California Coastal Commission (CCC), SF Bay Conservation and Development Commission (SFBCDC), State Coastal Conservancy
Marine Managed Areas	<ul style="list-style-type: none"> • <i>Marine Sanctuaries Act</i> 	<ul style="list-style-type: none"> • NOAA 	<ul style="list-style-type: none"> • <i>Coastal Act, Porter-Cologne Water Quality Control Act (Porter-Cologne Act), Marine Life Protection Act, the Marine Managed Areas Improvement Act, and others</i> • CCC, DFG, FGC, California State Parks, State Water Resources Control Board (SWRCB)
Coastal Managed Areas (National Wildlife Refuges, Parks, Monuments, Estuarine Research Reserves)	<ul style="list-style-type: none"> • <i>Antiquities Act</i> • <i>Coastal Zone Management Act</i> • <i>National Park Service Organic Act</i> • <i>National Wildlife Refuge System Administration Act</i> 	<ul style="list-style-type: none"> • Bureau of Land Management • National Park Service • U.S. Fish and Wildlife Service (USFWS) 	<ul style="list-style-type: none"> • <i>Coastal Act, McAtteer-Petris Act, Fish and Game Code, Porter-Cologne Act</i> • CCC, CDFG, FGC, SFBCDC, California State Parks

Issue	Federal Law	Lead Federal Agencies	Primary Interacting State Laws and Agencies
All Living and Nonliving Marine Resources in State Waters ⁹³	<ul style="list-style-type: none"> • <i>Submerged Lands Act</i> 	N/A	<ul style="list-style-type: none"> • CCC, SFBCDC, State Lands Commission (SLC)

There are a far greater number of sector-specific laws guiding decision-making about coastal and ocean resources than listed below; this table presents selected laws.

Table 8: Sector-Specific Federal Coastal and Ocean Laws

Sectoral Management Issue	Federal Law	Lead Federal Agencies	Primary Interacting State Laws and Agencies
Aquaculture	<ul style="list-style-type: none"> • <i>National Aquaculture Act</i> 	<ul style="list-style-type: none"> • NOAA • U.S. Department of Agriculture • U.S. Department of the Interior 	<ul style="list-style-type: none"> • <i>Aquaculture Development Act</i>, Fish and Game Code, <i>Sustainable Ocean Act</i> • CCC, CDFG, Department of Health Services, California Environmental Protection Agency, FGC, Ocean Protection Council, SFBCDC
Dredged Material Disposal	<ul style="list-style-type: none"> • <i>Clean Water Act (CWA)</i> • <i>CZMA (federal consistency review authority)</i> • <i>Marine Protection, Research, and Sanctuaries Act (MPRSA)</i> • <i>Rivers and Harbors Act (RHA)</i> 	<ul style="list-style-type: none"> • Environmental Protection Agency (EPA) • U.S. Army Corps of Engineers (USACE) 	<ul style="list-style-type: none"> • <i>Coastal Act</i>, <i>McAteer-Petris Act</i>, <i>Porter-Cologne Act</i> • CCC, SFBCDC, SWRCB
Endangered Species Protection	<ul style="list-style-type: none"> • <i>Endangered Species Act</i> 	<ul style="list-style-type: none"> • NOAA • USFWS 	<ul style="list-style-type: none"> • <i>California Endangered Species Act</i> • CCC, CDFG, FGC, SFBCDC
Living Marine Resources Management	<ul style="list-style-type: none"> • <i>Magnuson-Stevens Fishery and Conservation Act</i> • <i>National Marine Sanctuaries Act</i> 	<ul style="list-style-type: none"> • NOAA 	<ul style="list-style-type: none"> • <i>Marine Life Management Act</i>, <i>Marine Life Protection Act</i> • CDFG, FGC
Invasive Species	<ul style="list-style-type: none"> • <i>National Invasive Species Act</i> 	<ul style="list-style-type: none"> • Coast Guard 	<ul style="list-style-type: none"> • <i>Marine Invasive Species Act</i> • SLC
Marine Debris	<ul style="list-style-type: none"> • <i>Beaches Environmental Assessment and Coastal Health Act</i> • <i>International Convention for the Prevention of Pollution from Ships (MARPOL)</i> • <i>Marine Plastics Pollution Research and Control Act</i> 	<ul style="list-style-type: none"> • USCG • EPA 	<ul style="list-style-type: none"> • <i>Porter-Cologne Act</i> • SWRCB, CCC, OPC

Sectoral Management Issue	Federal Law	Lead Federal Agencies	Primary Interacting State Laws and Agencies
Marine Mammal Protection	<ul style="list-style-type: none"> • <i>Marine Mammal Protection Act</i> 	<ul style="list-style-type: none"> • NOAA • USFWS 	<ul style="list-style-type: none"> • <i>Coastal Act</i> • CCC, FGC, CDFG
Military Preparedness	<ul style="list-style-type: none"> • Numerous laws pertaining to national security that authorize establishment of military bases onshore and operations offshore 	<ul style="list-style-type: none"> • U.S. Dept. of Defense 	<ul style="list-style-type: none"> • <i>Coastal Act</i> • CCC, CDFG
Offshore Energy Development	<ul style="list-style-type: none"> • <i>Energy Policy Act of 2005</i> • <i>Federal Power Act</i> • <i>Natural Gas Act</i> • <i>Outer Continental Shelf Lands Act</i> 	<ul style="list-style-type: none"> • Bureau of Ocean Energy Management, Regulation and Enforcement • Federal Energy Regulatory Commission 	<ul style="list-style-type: none"> • <i>Coastal Act, Public Utilities Act, Warren-Alquist Act</i> • CCC, SLC, California Energy Commission, California Public Utilities Commission
Oil Spill Prevention and Response	<ul style="list-style-type: none"> • <i>Oil Pollution Act</i> 	<ul style="list-style-type: none"> • U.S. Coast Guard 	<ul style="list-style-type: none"> • <i>Oil Spill Prevention and Response Act</i> • CCC, CDFG, SFBCCDC, SLC
Shipping and Ports	<ul style="list-style-type: none"> • <i>Deepwater Port Act</i> • <i>International Treaties</i> • <i>Maritime Transportation Security Act</i> • <i>Port and Tanker Safety Act</i> • <i>Ports and Waterways Safety Act</i> • <i>Rivers and Harbors Act</i> 	<ul style="list-style-type: none"> • U.S. Coast Guard • U.S. Maritime Administration 	<ul style="list-style-type: none"> • Harbors and Navigation Code • Individual ports and harbors
Water Quality	<ul style="list-style-type: none"> • <i>Beaches Environmental Assessment and Coastal Health Act</i> • CWA 	<ul style="list-style-type: none"> • EPA 	<ul style="list-style-type: none"> • <i>Coastal Act, Porter-Cologne Act</i> • CCC, SWRCB, Regional Water Quality Control Boards

Table 9 below highlights selected information-related laws and implementing agencies that address mapping, monitoring, surveying, and researching coastal and ocean resources and uses. There are as well many information gathering activities carried out under the spatially- and sectorally-focused programs authorized by the laws identified in the preceding tables.

Table 9: Selected Mapping, Monitoring, Survey, and Research-Related Law and Agencies

Issue	Federal Law	Lead Federal Agencies	Primary Interacting State Laws and Agencies
Coastal and Ocean Observing	<ul style="list-style-type: none"> • <i>Integrated Coastal and Ocean Observing System Act</i> 	<ul style="list-style-type: none"> • NOAA 	<ul style="list-style-type: none"> • <i>California Ocean Protection Act</i> • OPC
Marine Debris	<ul style="list-style-type: none"> • <i>Marine Plastic Pollution Research and Control Act</i> 	<ul style="list-style-type: none"> • EPA • NOAA 	<ul style="list-style-type: none"> • <i>Coastal Act</i> • CCC, OPC

Ocean and Coastal Mapping	<ul style="list-style-type: none"> • <i>Coast and Geodetic Survey Act</i> • <i>Energy Policy Act</i> (Multipurpose Marine Cadastre) • <i>Hydrographic Service Improvement Act</i> • <i>Ocean and Coastal Mapping Integration Act</i> 	<ul style="list-style-type: none"> • NOAA (lead) and numerous other federal agencies 	<ul style="list-style-type: none"> • <i>Coastal Act</i> • CCC, OPC, SFB CDC, SLC, others
Weather Forecasts	<ul style="list-style-type: none"> • <i>National Weather Service Organic Act</i> 	<ul style="list-style-type: none"> • NOAA 	<ul style="list-style-type: none"> • n/a

Appendix 3: Spotlight on the Federal CMSP Framework

Except where noted, the information below is adapted from the *Final Recommendations of the Interagency Ocean Policy Task Force*⁹⁴ incorporated by reference in the Executive Order establishing the National Ocean Policy.

Federal CMSP Goals. The Task Force recommendations set forth the following seven goals for federal CMSP:

1. “Support sustainable, safe, secure, efficient, and productive uses of the ocean, our coasts, and the Great Lakes, including those that contribute to the economy, commerce, recreation, conservation, homeland and national security, human health, safety, and welfare;
2. Protect, maintain, and restore the Nation’s ocean, coastal, and Great Lakes resources and ensure resilient ecosystems and their ability to provide sustained delivery of ecosystem services;
3. Provide for and maintain public access to the ocean, coasts, and Great Lakes;
4. Promote compatibility among uses and reduce user conflicts and environmental impacts;
5. Improve the rigor, coherence, efficiency, and consistency of decision-making and regulatory processes;
6. Increase certainty and predictability in planning for and implementing new investments for ocean, coastal, and Great Lakes uses; and
7. Enhance interagency, intergovernmental, and international communication and collaboration.”

Seeking to Improve Upon, Not Replace, Existing Federal Law. The Interagency Ocean Policy Task force prepared a compendium of federal legal authorities specifically relevant to CMSP, referencing statutes that explicitly authorize federal agencies to carry out ocean, coastal, and Great Lakes planning activities and decision-making processes.⁹⁵ As noted in the compendium:

“The processes and decision-making CMSP envisions would be carried out consistent with and under the authority of these [existing] statutes. State, tribal, and local authorities also have a range of existing authorities to implement CMSP, although this will vary among and within regions. This framework for CMSP is to provide all agencies with agreed upon principles and goals to guide their actions under these authorities, and to develop mechanisms so that Federal, State, tribal, and local authorities, and regional governance structures can proactively and cooperatively work together to exercise their respective authorities. [...] CMSP is intended to provide a better framework for application of these existing laws and agency authorities, but is not intended to supersede them. Where pre-existing legal constraints, either procedural or substantive, are identified for any Federal agency, the NOC would work with the agency to evaluate necessary and appropriate legislative solutions or changes to regulations to address the constraints. In the interim, agencies would comply with existing legal requirements but should endeavor, to the maximum extent possible, to integrate their actions with those of other partners to a CMS Plan.”

CMS Plans Are Not Regulatory, But Federal Participation and Implementation is Mandatory. The Task Force recommendations note that CMS plans will “not be regulatory or necessarily constitute final agency decision-making”;⁹⁶ they envision the federal CMSP framework as a mechanism for federal agencies to more effectively use their existing authorities, and to remove barriers to improved cooperation among federal, state, tribal, and local authorities, in order to address regional ocean and coastal challenges. It is important to note, however, that pursuant to the presidential Executive Order federal agencies must “participate in the process for coastal and marine spatial planning and comply with [National Ocean] Council certified coastal and marine spatial plans, as described in the Final Recommendations and subsequent guidance from the Council.”⁹⁷

Implementation Through Regional Planning Bodies. The locus of action for implementing the federal CMSP framework lies in “Regional Planning Bodies” (RPBs) in nine planning areas around the country; California is included in the West Coast region along with Oregon and Washington.⁹⁸ All key federal agencies in the planning area are required to participate in the RPB, with state and tribal governments strongly encouraged, but not required to participate. These include agencies responsible for coastal zone management, fisheries and other natural resource management, science, homeland and national security, transportation, and public health.

RPB responsibilities include: establishing coordination mechanisms to ensure a voice for other key entities like Regional Fishery Management Councils as well as stakeholder engagement; formulating governance components such as formal CMSP development agreements, dispute resolution mechanisms, and work plans; carrying out a planning process that conforms to federal guidance; developing the coastal and marine spatial plan; oversight by the National Ocean Council for consistency with national policy objectives; integrating science and stakeholder knowledge and using information technology to access relevant natural and social science information; and CMS plan implementation.

Role of Science and Information Technology. The emerging federal CMSP framework promises to hold as a central tenet the integration of social and natural science information in ocean and coastal decision-making. One principal mechanism for doing so is the creation of a new information management system, similar in concept to that proposed by California’s *Assembly Bill 2125* (discussed in Section II, page 4), to make compatible and accessible the federal government’s enormous store of existing data relevant to ocean and coastal concerns. The federal CMSP framework also calls for research to fill gaps in knowledge about “cumulative effects, ecosystem processes and resiliency, and the assessment and valuation of ecosystem services.”

The geographic scope for the federal CMSP process extends seaward from the mean high-water line and includes the territorial sea (0 to 12 nautical miles offshore), the Exclusive Economic Zone (EEZ; 0 to 200 nautical miles offshore), and the Continental Shelf. However, CMS Plans may take into consideration impacts from upland areas and regions beyond the EEZ.

Stakeholder Engagement. The Interagency Ocean Policy Task Force recommendations speak to stakeholder engagement in the following contexts:

- In the Twelve Guiding Principles for Coastal and Marine Spatial Planning in the United States: “CMSP development and implementation would ensure frequent and transparent broad-based, inclusive engagement of partners, the public, and stakeholders, including with those most impacted (or potentially impacted) by the planning process and with underserved communities.”

- CMSP work plans are required to include stakeholder and public engagement throughout the planning process.
- Regional Planning Bodies must “develop formal mechanisms for identifying and regularly engaging key stakeholders, scientific and technical experts, non-governmental organizations, and other partners in the CMSP processes that are transparent, participatory, and collaborative (e.g., via public meetings, written documents, and timely public notification).”
- Funding public outreach and stakeholder engagement mechanisms should be a priority for the National Ocean Council.

Timeline. The Task Force recommendations outline a timeline for CMSP implementation in three phases over a five-year period.⁹⁹

- Phase I – Months 1-12: In this phase, which began in late 2010, the new White House National Ocean Council and federal agencies are organizing within the federal family to assess and fill staffing, financial, and technical needs and start preparation of a CMSP strategic action plan, while also launching external engagement activities. These include establishment of an advisory Governance Coordination Council in February 2011 with state, tribal, and local government representatives,¹⁰⁰ organization of a June 2011 national workshop of federal, tribal, and state representatives, and planning for establishment of RPBs in summer 2011, among other activities. After their establishment, RPBs are expected to begin developing CMSP capacity assessments, governance and stakeholder engagement mechanisms, and other preliminary CMSP steps.
- Phase II – 9-24 months: The National Ocean Council provide RPBs with policy, technical, and to the extent possible, funding and staffing support in implementing initial, high-priority steps the RPBs identified in Phase I and developing RPB work plans.
- Phase III – 18 months to 5 years: In this phase, all RPBs are expected to conduct their CMS planning processes.

Appendix 4: Key California Agencies and Legal Authorities for CMSP

The following is a list of California state agencies that would be most relevant to CMSP implementation in the state. This is accompanied by a synopsis of the principal legal authority for each agency's activities. These represent only a subset of the most significant laws enacted by the state over 150 years of managing its ocean and coastal resources.¹⁰¹

AGENCY	PRINCIPAL LEGAL AUTHORITY
All State Agencies	
All State-level Agencies	The <i>California Environmental Quality Act of 1970</i> (CEQA) requires all public agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA requires mitigation measures or selection of project alternatives that avoid or mitigate significant adverse environmental effects, if feasible. CEQA is set forth in California Public Resources Code Section 2100 <i>et seq.</i> ¹⁰²
Oversight/Umbrella Agencies	
Office of the Secretary, California EPA (Cal/EPA)	The Cal/EPA was established via Governor Pete Wilson's Reorganization Plan 1, following the creation of a Cabinet level environmental quality Secretary under Executive Order W-5-91. ¹⁰³ The Cal/EPA unified California's environmental protection leadership in one cabinet level agency. Its responsibilities include coordinating the policy direction and activities of departments and boards under its purview, including the State Water Resources Control Boards and Regional Water Quality Control Boards.
Office of the Secretary, California Natural Resources Agency	<i>Assembly Bill 205</i> (1991) transferred all non-statutory marine and coastal resource programs to the Secretary for Natural Resources, including the review and coordination of federal Outer Continental Shelf (OCS) oil and gas lease sales and projects, policy coordination on issues related to Exclusive Economic Zone resources and uses, state representation to the Coastal States Organization and U.S. Department of the Interior OCS Policy Committee, and other marine and coastal resource issues.
Coastal and Ocean Management Agencies	
California Coastal Commission	The 1976 <i>Coastal Act</i> (PRC Section 30000 <i>et seq.</i>) established the California Coastal Commission (Coastal Commission) as a permanent state coastal management and regulatory agency with responsibility to administer the <i>Coastal Act</i> and the outer coast segment of the state's Coastal Management Program, which NOAA has approved pursuant to the federal <i>Coastal Zone Management Act</i> . <i>Coastal Act</i> policies implemented by the Coastal Commission address issues such as public access and recreation, marine and wetland ecosystem protection, agricultural operations, coastal development projects, port activities, and energy facility siting and production. With the State Water Resources Control Board, the Commission also plays a role in implementing the State's Coastal non-point source pollution program. ¹⁰⁴
California Ocean Protection Council (OPC)	The <i>California Ocean Protection Act of 2004</i> (SB 1319) sought to integrate and coordinate the state's laws and institutions responsible for protecting and conserving ocean resources, and created the OPC to implement, "coordinate, and fund, new actions to protect and manage California's coastal waters and ocean resources." ¹⁰⁵ In addition, the 2010 <i>Coastal Resources: Marine Spatial Planning Bill</i> (AB 2125), which amended the <i>Ocean Protection Act</i> , requires the OPC to support, subject to availability of funding, "state agencies' use and sharing of scientific and geospatial information for coastal- and ocean-relevant decision-making, including marine spatial planning." AB 2125 also requires other relevant agencies, boards, and departments to cooperate with OPC, subject to available funding. ¹⁰⁶

San Francisco Bay Conservation and Development Commission (BCDC)	In 1965, the <i>McAteer-Petris Act</i> established BCDC as a temporary agency and tasked it with developing the San Francisco Bay Plan, which it completed in 1969. In August 1969, the Act was amended to permanently establish BCDC and incorporate the Bay Plan principles into law. The Commission's authority was expanded in 1977 to include Suisun Marsh. BCDC regulates development in San Francisco Bay and administers the San Francisco Bay segment of the state's Coastal Management Program. ¹⁰⁷
State Coastal Conservancy	The Legislature created the State Coastal Conservancy in 1976 (PRC Section 31000 <i>et seq.</i>). The Conservancy has the responsibility to acquire, protect, restore, and enhance coastal and San Francisco Bay resources, as well as to expand public access to the shore in partnership with local governments, other public agencies, nonprofit organizations, and private landowners. The Conservancy's Executive Director also serves as Secretary to the OPC. ¹⁰⁸
Water Quality	
State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards	The State Water Code Section 174 established the SWRCB and the Regional Water Quality Control Boards to "exercise the adjudicatory and regulatory functions of the state in the field of water resources." In addition, the SWRCB garners authority to implement the <i>Environmental Quality Act of 1970</i> from Title 23 (PRC Section 3720 <i>et seq.</i>). Pursuant to Section 6217 of the CZMA, the State Water Resources Control Board works with the California Coastal Commission and other agencies to develop and maintain the statewide non-point source pollution control plan. The SWRCB adopts statewide water quality control plans for ocean and coastal waters (California Ocean Plan; Bays and Estuaries Plan; and Thermal Plan) in accordance with the <i>Porter-Cologne Water Quality Control Act</i> and the <i>Federal Clean Water Act</i> . ¹⁰⁹
Fish and Game	
Department of Fish and Game (DFG)	DFG's authorities regarding California's living marine resources are established by sections of the California Fish and Game Code and Public Resources Code; in State regulations (Title 14, California Administrative Code), and various federal statutes. Statutes of interest that assign responsibility DFG include the <i>Marine Life Protection Act</i> (1999), <i>Marine Life Management Act</i> (1999), and the <i>Marine Management Areas Improvement Act</i> (2000). Other State agencies must consult with DFG concerning projects that may affect fish and wildlife resources and their habitat. Through a 2002 "Cooperative Enforcement Agreement" between NOAA and the State of California, DFG enforces the <i>Magnuson-Stevens Fishery Conservation and Management Act</i> , <i>Endangered Species Act</i> , <i>Marine Mammal Protection Act</i> , <i>Lacey Act</i> , and the <i>National Marine Sanctuaries Act</i> .
Fish and Game Commission (FGC)	Article IV, Section 20 of the State Constitution establishes the FGC, which sets policies for the Department of Fish and Game (DFG). The FGC also regulates fishing and hunting under authority granted by the legislature. The Legislature has retained the authority for the regulation of most commercial marine fisheries, pursuant to Article 1, Section 200 of the Fish and Game Code, while the FGC sets regulations for most of the State's recreational fisheries and some fisheries regulated under the federal <i>Magnuson-Stevens Fishery Conservation and Management Act</i> . FGC conforms state regulations to federal requirements within state waters. Together with the DFG, the FGC is also directed to design and manage a system of marine protected areas (MPAs) under the <i>Marine Life Protection Act</i> (1999).
Land Management	
California State Parks	"Division 5 of the Public Resources Code establishes the State Park System, with the Department of Parks and Recreation as the managing agency for the system. The department is the single largest coastal landholder and manager and is a significant stakeholder in coastal resource management and coastal erosion policy implementation. The department's mission is to help preserve the state's extraordinary biological diversity, protect its most valued natural and cultural resources, and create opportunities for high quality outdoor recreation." ¹¹⁰ The department also designates and administers marine managed areas under the MMAIA and other sections of the Public Resources Code.

California State Parks and Recreation Commission (SPRC)	Section IV, Article 5 (Section 1590 et seq.) of Chapter 5 of Division 2 of the Fish and Game Code states that before the Fish and Game Commission can remove or modify state marine managed area harvest restrictions they shall obtain agreement from the SPRC. The SPRC must receive agreement from the Fish and Game Commission if it wishes to remove or modify a state marine managed area designation. In addition, the SPRC shall designate units that are or shall become part of the State Park System “into one of the categories specified in this article. Classification of state marine (estuarine) reserves, state marine (estuarine) parks, and state marine (estuarine) conservation areas, requires the concurrence of the Fish and Game Commission for restrictions to be placed upon the use of living marine resources.” ¹¹¹
State Lands Commission (SLC)	The SLC was established in 1938 under Division 6 of the Public Resources Code. The Commission consists of three members, the Lieutenant Governor, The State Controller, and the State Director of Finance. ¹¹² The SLC manages state sovereign lands (including submerged lands), maintains title and lease records, licenses and regulates uses of sovereign lands pursuant to the Public Trust Doctrine, and issues regulations to address the release of aquatic invasive species in California waters.
Energy	
California Energy Commission (CEC)	Established by the <i>Warren-Alquist State Energy Resources Conservation and Development Act of 1974</i> , the CEC addresses the energy challenges of the State. The CEC’s primary ocean-related authority is in siting “coastal or offshore ‘thermal power plants’ of 50 MW or greater in California. Three acts confer authority on the CEC to consider applications for certification of new power plants located in California’s Coastal Zone: the <i>Warren-Alquist Act</i> (1974), the <i>Coastal Act</i> (amended 2010), and the McAteer-Petris Act (1965). In addition, AB 32, the <i>California Global Warming Solutions Act</i> (2006) requires the CEC to work with other agencies and organizations to reduce California’s greenhouse gases in relation to its existing authorities. The CEC must address these climate change priorities as well as priorities relating to meeting energy demand, by, among other means, encouraging the development of renewable energy supplies.
Ports	
California Ports	The California Legislature vested primary authority over submerged public trust lands within the five major ports of California at San Francisco, Oakland, Los Angeles, Long Beach, and San Diego. Lands managed by the ports are subject to the protections and restrictions of the Public Trust Doctrine. ¹¹³ Harbors and Navigation Code, Div. 8, Part 4 gives California ports broad authority over shipping and marine terminal planning and development.
Boating and Waterways	
Department of Boating and Waterways	The Department of Boating and Waterways is involved in a variety of small craft harbor improvement programs, waterway cleanups, and beach erosion control programs. The Department, together with its Commission, provides loans and grants for the construction of small craft harbors and boat launching facilities on the coast and throughout the state.
West Coast Governors’ Agreement on Ocean Health	
Governors of California, Oregon and Washington	In response to the U.S. Commission on Ocean Policy and the Pew Oceans Commission recommendations for regional collaboration to manage and protect ocean and coastal resources on an ecosystem basis, the Governors of California, Oregon, and Washington signed an agreement on September 18, 2006 establishing the WCGA. ¹¹⁴ In 2008, the WCGA issued its Action Plan ¹¹⁵ with seven priority areas and 24 actions being addressed by 10 intergovernmental and multi-stakeholder Action Coordination Teams, ¹¹⁶ including the Renewable Ocean Energy, Sustainable Coastal Communities, and Seafloor Mapping ACTs. The WCGA is recognized by the federal government as the regional ocean partnership for the West Coast.

Appendix 5: List of Existing Decision Support Tools

An October 2009 workshop sponsored by the WCGA, “Marine Spatial Planning for Renewable Energy on the West Coast,” brought together 115 representatives from government, tribes, industry, academia, and non-governmental organizations to lay the ground work for development of guidelines for siting renewable ocean energy projects off the West Coast. In the course of their deliberations, participants identified a long list of decision support tools, listed in Table 10. Note that the list is not exhaustive and does not include more recently-developed tools, such as the Natural Capital Project’s InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs), a set of tools to map and value goods and services from nature that includes models for coastal and marine ecosystem services in relation to wave energy, coastal vulnerability, marine fish aquaculture, aesthetic quality, overlap analysis (fisheries-recreation), and habitat risk assessment.¹¹⁷

Table 10: Decision Support Tools Identified at the 2009 Workshop “Marine Spatial Planning for Renewable Energy on the West Coast”¹¹⁸

• 3 Dim Hydrodynamic Model	• MIRADI	• Ocean OBS
• AEOR Geographic Response Plans	• MMS Programmatic EIS	• Ocean Users Map
• Analysis Framework	• MPA Inventory	• Oregon Wave and Energy Trust (OWET) Cumulative Effects
• ARC Marine	• Multipurpose Marine Cadastre	• (PaCOOS) Habitat Mapper
• Climate Change Ocean Index for Salmon	• NANOOS and Pacific Coast Ocean Observing Systems	• Pacific Institute SLR Maps
• Coastal Data Information Program (CDIP)	• NatCap (Social Science Tool)	• Puget Sound Adaptive MOT
• CSC HD.gov	• National Marine Renewable Energy Center	• South West Washington Communities Group Portal
• CSMW Sediment Decision Tool	• National Seismic Hazard Database	• Tidal DSTool (Golder)
• DCI-Wave Models	• Natural Acuity	• TNC Ecoregional Assessments
• EBM Tools Network	• Natural Equity	• TOPP
• Environmental Justice	• Nature Serve Vista	• United States Geological Service (USGS) Infobank
• GNOME (oil spill model)	• NCEAS Cumulative Impacts Models	• United States Seabed
• Google Earth/Ocean	• NCEAS Larval Transport	• USCB Ecosystem Trade Off Analysis
• Habitat Use Database (HUD)	• NOAA Community Profiles	• WA and OR Coastal Atlases and corresponding data tools
• HF Radar Tools	• NOAA Human Use Atlas	• Water Monitoring Council
• Legislative Atlas	• NOAA’s Integrated Ecosystem Assessments (IEAs)	• Western Regional Partnership (DOD)
• MarineMap (UCSB, Ecotrust, TNC)	• NOEP National Ocean Economics Program	• Western Regional Partnership (DOD)
• Marxan	• N-SPECT	• Western Regional Partnership (DOD)
• Marzone	• Ocean Map	• Western Regional Partnership (DOD)

ENDNOTES

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- ² California Department of Fish and Game, California Natural Resources Agency, and Eric J. Larson. *California's Living Marine Resources: A Status Report*. Rep. Ed. William S. Leet, Christopher M. Dewees, and Richard Klingbeil. California Department of Fish and Game, Dec. 2001. Web. 12 May 2011. <http://www.dfg.ca.gov/marine/status/status2001.asp>.
- ³ California Natural Resources Agency. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*. Rep. 1 Dec. 2009. Web. 11 Apr. 2011. <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>
- ⁴ For example, the OPC funded researchers at U.C. Santa Barbara to evaluate and synthesize methods for deriving the value of ecosystem services provided by coastal marine resources in California. National Center for Ecological Analysis & Synthesis. *The Economic Value of Coastal Ecosystems in California*. Rep. California Ocean Protection Council, 31 Mar. 2009. Web. 17 May 2011. http://www.opc.ca.gov/webmaster/ftp/project_pages/Fund_Studies/NCEAS_NonMkt_Value_Report.pdf.
- ⁵ Visit the West Coast EBM Network's website at <http://www.westcoastebm.org/Home.html> to learn about initiatives at Humboldt Bay, Elkhorn Slough, San Luis Obispo, and the Ventura River.
- ⁶ Ehler, Charles, and Fanny Douvère. *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO. 2009 (English). <http://www.unesco-ioc-marinesp.be/>. See in particular, http://www.unesco-ioc-marinesp.be/msp_faq.
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- ⁸ The European Union study quantified time and cost savings for wind power development due to greater efficiency in government decision-making, lower transaction costs (search, legal, administrative, and opportunity costs), and enhanced investment conditions arising from greater certainty as a result of CMSP. Brussels. European Commission. Directorate-General for Maritime Affairs and Fisheries. *Study on the Economic Effects of Maritime Spatial Planning Final Report*. By Policy Research Corporation. 11 June 2010. Web. 5 Apr. 2011. http://ec.europa.eu/maritimeaffairs/studies/economic_effects_maritime_spatial_planning_en.pdf.
- ⁹ Except where noted otherwise, the points that follow are drawn from http://www.unesco-ioc-marinesp.be/msp_faq and Ehler, Charles, and Fanny Douvère. *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO. 2009 (English). <http://www.unesco-ioc-marinesp.be/>.
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