



Marine Protected Areas Federal Advisory Committee

September 14, 2011

Dr. Jane Lubchenco
Under Secretary of Commerce for Oceans and Atmosphere, and
NOAA Administrator
Department of Commerce
1401 Constitution Avenue, NW, Room 5810
Washington, DC 20230

Eileen Sobeck
Deputy Assistant Secretary for Fish and Wildlife and Parks
Department of the Interior
1849 C Street, NW, MIB-3156
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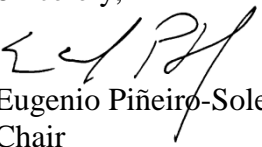
Dear Under Secretary Lubchenco and Deputy Assistant Secretary Sobeck:

On behalf of the diverse group that make up the Marine Protected Areas Federal Advisory Committee (MPA FAC), I am pleased to share the following recommendations that address linkages between marine protected areas and Coastal and Marine Spatial Planning (CMSP). These recommendations were developed in response to the charge provided to the Committee by the Departments of Commerce and the Interior. I particularly want to recognize the leadership of the CMSP Subcommittee, and the commitment of the MPA FAC members, who overcame budget constraints to complete this work via multiple conference calls. These recommendations were passed by a majority vote during a virtual meeting held on September 12th.

We respectfully request that you share these recommendations to agency partners that are members of the National Ocean Council. The Committee would like to receive guidance as to how bodies such as the MPA FAC can best contribute to the National Ocean Policy process. We look forward to your response, and to continuing our work with the Department of Commerce and the Department of the Interior to support the National Ocean Policy.

Thank you for your consideration.

Sincerely,


Eugenio Piñero-Soler
Chair

Attachments

cc. Lauren Wenzel, Acting Director, National Marine Protected Areas Center, NOAA

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Recommendations for the Coastal and Marine Spatial Planning Process

Marine Protected Areas Federal Advisory Committee
September 2011

Executive Summary

The Department of Commerce (DOC) and the Department of the Interior (DOI) recently charged the Marine Protected Areas Federal Advisory Committee (MPA FAC) with providing advice on ensuring conservation and integrating the National System of Marine Protected Areas (national system) within the Coastal and Marine Spatial Planning (CMSP) initiative. Specifically, the MPA FAC was asked:

1. What role should the national system play within the broader CMSP initiative?
2. What steps are needed to ensure that conservation is sufficiently addressed within regional coastal and marine spatial plans?
3. How can NOAA and DOI build on the spatial data decision support tools and conservation planning processes used to develop the national system of MPAs to inform CMSP?

Toward that end, the MPA FAC has prepared this “white paper”, which reviews many of the salient concepts used in creating the national system and makes recommendations applicable to the CMSP initiative. The MPA FAC believes that wide adoption and success of CMSP requires meeting both conservation and sustainable human use objectives. Both elements, which were deeply embedded in the creation of the national system, are addressed in this white paper and its recommendations.

On July 19, 2010, the Final Recommendations of the Interagency Ocean Policy Task Force (Final Recommendations) were released, setting a new direction for the improved stewardship of the ocean, our coasts, and the Great Lakes. As noted in the document, the Final Recommendations provided: “...(1) our Nation's first ever *National Policy for the Stewardship of the Ocean, Our Coasts, and the Great Lakes* (National Policy); (2) a strengthened governance structure to provide sustained, high-level, and coordinated attention to ocean, coastal, and Great Lakes issues; (3) a targeted implementation strategy that identifies and prioritizes nine categories for action that the U.S. should pursue; and (4) a framework for CMSP that establishes a comprehensive, integrative, ecosystem-based approach to address conservation, economic activity, user conflict, and sustainable use of ocean, coastal and Great Lakes resources.”¹ In light of this historic shift toward comprehensive ocean management, the MPA FAC suggests the following recommendations to strengthen the implementation of this new National Policy with respect to CMSP.

Specifically, the MPA FAC recommends:

Strategic Actions

- **The CMSP Strategic Action Plan (SAP) should include the identification and protection of ecologically and culturally important areas as a national objective.** To that end, the MPA FAC recommends that the CMSP SAP include the following steps: establish conservation goals and principles; provide guidance for stakeholder processes; assist with assembling best available data;

¹ The White House Council on Environmental Quality. “Final Recommendations of the Interagency Ocean Policy Task Force.” July 19, 2010 p. 2-3. http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf

develop a standardized biogeographic classification system; assess vulnerabilities; identify and protect ecologically and culturally important areas; and evaluate protected areas over time. (p. 5)

- **The CMSP SAP should include the following long-term ecological objectives for regional coastal and marine spatial plans (CMS Plans): maintain or restore native species diversity, habitat diversity (including key spawning and nursery areas), key species and connectivity, with the intent of enhancing structural diversity, functional diversity, and overall ecosystem resilience. (p. 6)**
- **The CMSP SAP should include the following long-term human use objectives for regional CMS Plans: maintain and protect cultural diversity and communities, community economic vitality, and access to strategic national resources and critical infrastructure. (p. 13)**
- **Coastal Marine Spatial (CMS) planners should respect the history, knowledge and needs of local communities, carefully consider their cultural heritage and identity, and use CMSP as one tool to protect regional stability for the future. (p. 13)**
- **The CMSP SAP should incorporate an evaluation process into regional plans that retains citizen involvement and maintains public trust, and facilitate use of evaluation tools that incorporate biophysical, socio-economic, cultural and governance benefits, along the lines of the MPA FAC's National System Evaluation Planning Tool. (p. 13, 18)**
- **The CMSP SAP should include guidance on dispute resolution. (p. 21)**
- **The CMSP SAP (and Regional Ecosystem Protection and Restoration SAP) should encourage, consistent with the MPA Executive Order, use of existing authorities to strengthen and expand the national system to protect ecologically and culturally important areas, to achieve the ecosystem protection and restoration goals outlined in the Final Recommendations. (p. 11)**
- **The National Marine Sanctuaries' Site Evaluation List (SEL) should be reactivated, per Action 7 of the Regional Ecosystem Protection and Restoration SAP Full Content Outline, and sites of national ecological or cultural significance should be added to the SEL.² (p. 11)**

Data Collection, Coordination and Management

- **DOI and NOAA should support federal and regional efforts to create databases needed for CMSP; in particular, the agencies should:**
 - **Continue to foster the development of publicly accessible data portals (e.g. through the National Information Management System [NIMS]) containing all the data available on the environmental characteristics, human uses, and cultural and historic attributes of the planning areas and that are capable of incorporating new data as they become available;**
 - **Identify a minimum set of spatial data that should be prioritized for collecting as funds become available, following existing data quality standards, and developing new ones where gaps are identified;**
 - **Support regional data gap analyses and activities to identify and fill high priority gaps in both environmental and human use/economic data; and**
 - **Require Regional Planning Bodies (RPBs), as a condition of receiving federal funds for CMSP, to develop clear timelines and work plans for all phases of the CMSP effort, including initial data gathering. (p. 7-8)**
- **Assemble a team of national and regional experts to assist RPBs with the assembly of geospatial data and development of decision support tools (DSTs). (p. 10)**

² The National Ocean Council (June 2, 2011). Regional Ecosystem Protection and Restoration Strategic Action Plan Full Content Outline p.13.

http://www.whitehouse.gov/sites/default/files/microsites/ceq/sap_6_repr_full_content_outline_06-02-11_clean.pdf

- *The team of experts described above should also advise on approaches to assessing an area's vulnerability to human impacts.*
- *The best available ocean use data should include socio-economic information that will aid decision makers when creating CMS Plans. (p. 16)*

Tools, Technical Support and Considerations

- **DOC and DOI should provide technical and policy assistance to RPBs for identifying ecologically important areas and economically or culturally important resources and uses. Specifically, the MPA FAC recommends that the DOC and DOI:**
 - **Charge appropriate experts with reviewing DSTs and methodologies** for identifying ecologically and culturally important areas and best practices for employing those tools and methodologies. This review can be carried out in parallel with data assembly, and should start as soon as possible to avoid unnecessary delays in the implementation of the CMSP process;
 - **Recommend appropriate protocols and guidelines** for identifying important ecological and cultural areas for RPBs to use in the development of regional CMS Plans based on the review discussed above. While different approaches may be appropriate in different regions of the United States, “best practices” for use of these tools and methodologies should be universally adhered to in all regions, especially since a growing body of “lessons learned” about such practices is now available;³ and
 - **Develop an inventory of DSTs to facilitate sound scientific and management decisions by RPBs. (p. 9-10, 22)**
- **CMSP should include user-friendly and readily accessible spatial planning tools to facilitate public participation in the process. (p. 15)**
- **Regional CMS plans should consider local employment bases when proposing changes in ocean use patterns. (p. 13)**
- **CMSP managers and planners should consider coastal and ocean infrastructure needs and prepare for potential future environmental impacts that may threaten local communities and economies. (p. 14)**
- **The CMSP process should be an adaptive one that anticipates and reacts to changing national and community needs over time. (p. 16)**
- **NOAA and DOI, where feasible, should propose a Cultural Landscape Approach to RPBs to integrate the human and natural aspects of marine areas into CMSP with the objective of more holistic management. (p. 22)**
- **The cultural heritage and identity of local communities should be a key consideration of all CMSP discussions. (p. 14)**
- **RPBs should take advantage of this opportunity to properly engage tribal and indigenous peoples, recognize and respect their historic rights and cultural values, and integrate their knowledge and local expertise into present-day planning. (p. 14)**
- **RPBs should conduct appropriate economic analyses for their region to better understand the benefits and costs of CMS Plans. (p. 17)**

³ For example, all approaches should include a process for incorporating public input; a process for clarifying the sources and limitations of data; a strategy for addressing data gaps; a means of incorporating ecological principles; a commitment to providing transparency; and clear timelines for completing this task.

Recommendations for the Coastal and Marine Spatial Planning Process

I. Purpose of this paper

The Department of Commerce (DOC) and the Department of the Interior (DOI) recently charged the Marine Protected Areas Federal Advisory Committee (MPA FAC) with providing advice on integrating the National System of Marine Protected Areas (national system) with the Coastal and Marine Spatial Planning (CMSP) initiative. Specifically, they asked:

1. What role should the national system play within the broader CMSP initiative?
2. What steps are needed to ensure that conservation is sufficiently addressed within regional coastal and marine spatial plans?
3. How can NOAA and DOI build on the spatial data decision support tools and conservation planning processes used to develop the national system of MPAs to inform CMSP?

The purpose of this paper is to address these questions by tapping into the lessons learned from developing MPAs and the national system, and the extensive expertise and experience of MPA FAC members themselves. The MPA FAC represents a broad range of interests, including renewable energy developers, fishers, recreational interests, oil companies, conservation groups, scientists, and tribal and indigenous peoples. These individuals have experience with CMSP in Massachusetts, Rhode Island, California, Oregon, Alaska and the Northwest Hawaiian Islands, as well as in spatial planning for land conservation initiatives. The experience of establishing MPAs, though often on a small scale, has shown that building community support can help attain conservation objectives when combined with clear conservation goals and science-based guidelines, and that what happens outside protected areas influences overall conservation success. The MPA FAC includes in the scope of this paper both protection of natural and cultural resources, and sustainable human use of ocean and Great Lakes resources.

Thus Section II below addresses question #1, the role of the national system. Section III addresses question #2, related to ensuring that conservation is addressed, first with a focus on ecological protection (Section A), then with a focus on community needs, sustainable use and relevant lessons learned from MPA processes (Sections B and C). Section IV addresses question #3, related to building on national system decision support tools (DSTs).

II. What role should the national system of MPAs play within the broader CMSP initiative?

A comprehensive network of MPAs is integral to meeting the ecological and cultural conservation goals and principles set forth by the Final Recommendations of the Interagency Ocean Policy Task Force (Final Recommendations) and Framework for Effective Coastal and Marine Spatial Planning. The national system currently includes nearly 300 designated special places. CMSP provides an opportunity to energize and advance the national system. The national system does not design or implement MPAs; rather it sets standards MPAs must meet to become a member of the system. At the same time, the national system serves as a starting point for Regional Planning Bodies (RPBs) to conserve and protect ecologically and culturally important areas within regional coastal and marine spatial (CMS) plans. We recommend that CMSP and the national system of MPAs—two overlapping, place-based planning processes—proceed in the closest possible collaboration to maximize efficiency and effectiveness.

The MPA Executive Order (E.O. 13158) that created the MPA FAC specified that the national system be scientifically based and comprehensive, and represent the nation’s diverse marine ecosystems and natural and cultural resources.⁴ To help guide the transition from an array to a more comprehensive network of MPAs, the MPA FAC recommends moving forward with an analysis of ecological and cultural gaps in the current national system—a growing but not yet comprehensive portfolio of MPAs established to meet a variety of objectives. To that end, the MPA FAC recommends a set of [guiding principles](#) for analyzing ecological, representation and management gaps in the national system. Identifying gaps in the national system—and planning to close them over time—is directly relevant to any national CMSP effort.⁵ (See Section A.5 for specific recommendations.)

III. What steps are needed to ensure that conservation is sufficiently addressed within regional coastal and marine spatial plans?

A. Laying a foundation for conservation through best available information, a robust public planning process, and identification and protection of important ecological and cultural areas

In its Final Recommendations, the Interagency Ocean Policy Task Force (OPTF) established the following as one goal of CMSP: “to 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.”⁶ The MPA FAC proposes a series of steps that, based on our experience, will help implement that goal and ensure that conservation is sufficiently addressed in regional CMSP processes. Those steps include: (1) establishing conservation as a core objective of CMSP by requiring the identification of explicit and measurable *conservation goals and principles* for regional CMSP processes, consistent with the national goals and principles; (2) providing guidance, tools and support for RPBs to establish a transparent and robust stakeholder process and meaningful consultation with tribes and indigenous peoples;⁷ (3) assembling and mapping the best available spatially-explicit scientific, cultural, and economic data on the planning area and associated human uses and cultural values; (4) developing a nationwide standardized biogeographic classification system that can be used by each planning region to delineate bioregions within the entire planning area; (5) identifying ecologically and/or culturally important areas; (6) assessing the vulnerability of these areas to human activities; (7) protecting areas of ecological and cultural importance through a combination of MPA designations and/or performance standards for siting ocean activities, taking into account the national system and any identified gaps therein; and (8) devising robust monitoring programs to assess whether conservation goals and objectives are being met. These steps are described in more detail below.

- ***The MPA FAC recommends that the CMSP Strategic Action Plan (SAP) should include the identification and protection of ecologically and culturally important areas as a national objective. To that end, the MPA FAC recommends that the CMSP SAP include the following steps:***

⁴ Executive Order 13158 of May 26, 2000. Marine Protected Areas. Federal Register Vol. 65, No. 105.

⁵ See letter to Under Secretary Dr. Jane Lubchenco and Deputy Assistant Secretary Eileen Sobeck from the MPA FAC regarding the role of the National System of MPAs in CMSP, November 15, 2010. http://www.mpa.gov/pdf/helpful-resources/fac_letter_cmosp_111510.pdf

⁶ The White House Council on Environmental Quality. “Final Recommendations of the Interagency Ocean Policy Task Force.” July 19, 2010 p. 7.

⁷ Executive Order 13175 of November 6, 2000. Consultation and Coordination with Indian Tribal Governments. Federal Register Vol.65, No.218. <http://ceq.hss.doe.gov/nepa/regs/eos/eo13175.html>

1. Establish conservation as a core objective of CMSP and identify conservation goals and principles that provide guidance for regional CMSP processes

On July 19, 2010, President Obama issued an Executive Order on the Stewardship of the Ocean, Our Coasts and the Great Lakes thereby implementing the Final Recommendations of the Interagency Ocean Policy Task Force and establishing the policy of the United States to “protect, maintain and restore the health and biological diversity of ocean, coastal and Great Lakes resources” and to “achieve an America whose stewardship ensures that the ocean, our coasts, and the Great Lakes are healthy and resilient, safe and productive, and understood and treasured to promote the well-being, prosperity, and security of present and future generations.”⁸ The Final Recommendations also established a goal of CMSP to “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.”⁹ Including that goal prominently in the CMSP SAP will be essential to ensuring that conservation is sufficiently addressed in the planning process.

The Final Recommendations identify several principles that help ensure that conservation is addressed in CMSP, including ecosystem-based management (EBM) that addresses cumulative effects to ensure the protection, integrity, resilience and restoration of ecosystems and their services. To expand on that principle and translate it into useful guidance for identifying areas of ecological importance, we refer to four ecological principles for CMSP identified by scientists throughout the country.¹⁰ These principles include maintaining or restoring: native species diversity, habitat diversity (including key spawning and nursery areas), key species and connectivity. These principles are fully consistent with the criteria identified in the MPA FAC’s white paper for identifying gaps in the national system.¹¹

- ***The MPA FAC recommends that the CMSP SAP include the following ecological objectives as key long-term goals of regional CMS Plans: maintain or restore native species diversity, habitat diversity (including key spawning and nursery areas), key species and connectivity with the intent of enhancing structural diversity, functional diversity, and overall ecosystem resilience.***

2. Establish a robust, open, transparent, science-based stakeholder process for CMSP

Much has been written about the importance of an inclusive and transparent public CMSP process that provides access to data and decision documents; includes all relevant stakeholders, government representatives and members of the public; and provides a clear framework spelling out the goals, guidelines, procedures and timelines for decision making. “Open” indicates wide participation at multiple places in the decision-making process with details being discussed. “Transparent” indicates details on who, what, when and where input is provided and how decisions are made. “Science-based” indicates that empirical facts characterizing the environment and human use are utilized in the scientific method. Preference should be given to validated, verified and peer-reviewed information consistent with existing federal requirements.

⁸ Executive Order 13547 of July 22, 2010. Stewardship of the Ocean, Our Coasts and the Great Lakes. Federal Register Vol.75, No.140. <http://www.whitehouse.gov/files/documents/2010stewardship-eo.pdf>

⁹ The White House Council on Environmental Quality. “Final Recommendations of the Interagency Ocean Policy Task Force.” July 19, 2010 p. 7.

¹⁰ Foley, Melissa M. et al, *Guiding Ecological Principles for Marine Spatial Planning*, Marine Policy 34 (2010) p. 955-966.

¹¹ MPA FAC (2009). *Guiding Principles for Ecological Gap Analysis of the National System of MPAs*.

The public process will be a necessary part of CMSP. Many MPA designations have developed from local approaches that engage the widest possible range of stakeholders and owners in detailed discussions. Decisions on MPA designations have taken years to accomplish and that time was needed to gather the best information and come to the best possible decisions. MPA site selection committees have often felt they were at a loss as to how to make a good decision that achieved the objectives of the MPA while addressing the concerns of various competing interests. Scientific studies (from both the natural and social sciences) may contribute substantially by informing the public and MPA site selection committees, which reduces conflict when selecting sites.

There are a number of good models of transparent public processes in CMSP. Massachusetts, for example, formed both an Ocean Advisory Commission, made up of about 25 representatives of government, industry and conservation groups, and a smaller Science Advisory Council, as well as various work groups, to involve a variety of interests in oversight of its planning process. Rhode Island formed a Stakeholder Group made up of representatives from government, industry, conservation groups, and Indian tribes. Massachusetts and Rhode Island also created extensive public outreach and engagement processes that provided opportunities to comment on every significant step in the planning process. Tribal and indigenous peoples should be represented at all levels of CMSP, and federal guidelines for meaningful consultation should be respected to ensure appropriate collaboration.

3. Assemble best available spatial information on existing conditions

Fundamental to the success of a CMSP process is the assembly of spatially-explicit information on the planning area, including its physical, biological, geological and oceanographic features, as well as human uses (past and current), and cultural and historic resources. DOI and NOAA have been and continue to compile rich databases on the marine environment. A wealth of information can be found at the federal agency level, through state agencies, academic and other research institutions, Indian tribes, and various user groups. The MPA FAC underscores the value of local marine user and coastal community knowledge for CMSP and encourages DOC and DOI to work with the NOC to establish guidance on the collection and use of local and traditional knowledge. The MPA FAC also acknowledges the findings of the NOAA Science Advisory Board (SAB)¹² that without a clear timeline for this effort some previous CMSP processes have spent so much time and effort on the data gathering stage that later decision stages suffered. The FAC therefore concurs with the SAB recommendation that RPBs be required to develop a clear timeline and work plan for all phases of the CMSP process, including initial data gathering. This should not in any way preclude filling socio-economic and ecosystem data gaps that will better adapt plans over time to address functionality and success (See Section III.B. 2-5).

- ***The MPA FAC recommends that DOI and NOAA support federal and regional efforts to create databases that will support the CMSP process; and, in particular, that DOI and NOAA should:***
 - ***Continue to foster the development of publicly accessible data portals (i.e. through the National Information Management System [NIMS]) containing all the data available on the environmental characteristics, human uses, and cultural and historic attributes of the planning areas and that are capable of incorporating new data as they become available;***

¹² Report to the NOAA Science Advisory Board from the Ecosystem Science and Management Working Group. Strategic Advice on Designing and Implementing CMS Plans. May 2011 p. 31.
http://www.sab.noaa.gov/Meetings/2011/may/ESMWG_CMSP_Report_Text_2May11.pdf

- **Identify a minimum set of spatial data that should be prioritized for collecting as funds become available, and establish the necessary data quality standards;**
- **Support regional data gap analyses and activities to identify and fill high priority data gaps in both environmental and human use/economic data; and**
- **Require RPBs as a condition of receiving federal funds for CMSP, to develop clear timelines, benchmarks and work plans for all phases of the CMSP effort, including initial data gathering.**

4. Develop a standardized biogeographic classification system

An important early step in a spatial planning process is the development of a biogeographic classification system that can encompass nested spatial scales relevant to management. Such a system provides guidance on selecting representative areas (from habitat types to ecosystems) within a region, helps evaluate how much activity can occur within different areas, and gives the different managing authorities a common ecological lens and focus for planning, analogous to watersheds on land. Recent advances in remote sensing and other data collection methodologies provide significantly more information for developing relevant classification schemes. Coupling these with new models (e.g., Atlantis used on Australia's Great Barrier Reef), that incorporate physical, geologic, biological, and biogeochemical components with economic and management objectives provide powerful tools for forecasting risks and possible outcomes of particular management decisions.

5. Identify areas of ecological and cultural importance

The MPA FAC supports the OPTF's recommendation to "identify areas of particular ecological importance."¹³ We view this recommendation as providing critical steps toward both ensuring that conservation is sufficiently addressed in CMSP and meeting the National Ocean Policy (National Policy) goal to maintain and restore the ocean's ecological health. Identifying and protecting priority conservation areas can also help ensure consistency with the National Guiding Principles for CMSP, including using an ecosystem-based approach.¹⁴ The MPA FAC suggests that identification and protection of ecologically and culturally important areas should be a specific requirement in CMS Plans and should be included in the CMSP SAP. The emerging Cultural Landscape Approach can integrate cultural and historical components within the context of the ecosystem, (see Section IV.D).

We also support the inclusion of Action 7 in the Regional Ecosystem and Restoration SAP, particularly the call to characterize and prioritize marine areas of national significance and develop a process for identifying ecologically important areas.¹⁵ In addition to identification, however, we believe it is critically important to protect these areas, (see Section A.7). A discussion of tools that could be useful to the identification process can be found below.

The MPA FAC appreciates the inclusion of places with particular *cultural* significance, such as traditional marine hunting, fishing and gathering areas of Indian tribes, among the nationally significant areas referred to in Action 7. The federal government has a trust obligation to uphold treaty rights and further the viability of tribal culture and recent federal support of the *United Nations Declaration on the Rights of Indigenous Peoples* notes the obligation of respecting and upholding inherent and other reserved

¹³ Final Recommendations p. 57.

¹⁴ Final Recommendations p. 48.

¹⁵ NOC (June 2, 2011). Regional Ecosystem Protection and Restoration Strategic Action Plan Full Content Outline p. 12-13.

rights of indigenous populations. Thus, identifying and ultimately protecting areas of cultural significance is consistent with the National Guiding Principle calling for compatibility of CMS Plans with national interests and strategies, while serving to strengthen community bonds with the sea and foster stewardship. From the tribal and indigenous perspective, there is no separation between natural and cultural resources. The Cultural Landscape Approach (see Section IV.D), identifies the relationship between culture and nature.

Planners and interested parties, ranging from Regional Fishery Management Councils (RFMCs) to NGOs (e. g., The Nature Conservancy, Oceana), and the states of Massachusetts and Rhode Island have used a variety of approaches to identify ecologically and culturally important areas within specific regions. The tools and data available for accomplishing this task have improved significantly over the past decade.

At one end of the spectrum of approaches to site selection is the provision of expert opinion. This usually involves convening working groups of scientists and other experts, particularly in the area of traditional knowledge, providing them with the best available spatially-explicit information on geomorphologic and oceanographic features of a particular region, and asking them to map key ecological and/or cultural areas.¹⁶ Guidance may be used to help experts translate ecological principles such as maintaining native species diversity and connectivity into a range of sizes for the areas and spaces between them. A system called MarineMap,¹⁷ developed for California's Marine Life Protection Act (MLPA) Initiative, layers spatial data and allows participants to design areas, get immediate feedback on how well they meet standardized decision rules, and post them for discussion. This approach, like most other approaches, may be constrained by incomplete knowledge that produces data gaps or by participant biases. Identifying data gaps and methods to bridge them can be an explicit part of the process.

At the other end of the spectrum is the more prescriptive approach of using an optimization model such as MARXAN. This approach involves assembling the best available spatial habitat data, weighting habitats and features based on their value for maintaining native species and habitat diversity, and the associated costs of establishing protection (expressed in terms of the area or economic value of these planning areas), and using computer simulations to identify areas that incorporate ecological values most effectively.¹⁸ Data gaps may affect the accuracy of the results. To avoid concerns about possible bias, model assumptions must be specifically stated at the outset, and peer review can help incorporate expert opinion.

- ***The MPA FAC recommends that NOAA and DOI provide technical and policy assistance to RPBs for identifying ecologically important areas and economically or culturally important resources and uses. Specifically, the MPA FAC recommends that the DOC and DOI:***
 - ***Charge appropriate experts with reviewing DSTs and methodologies for identifying ecologically and culturally important areas and best practices for employing those tools and methodologies. This review can be done in parallel with data assembly, and should start as soon as possible to avoid unnecessary delays in the implementation of the CMSP process;***
 - ***Recommend appropriate protocols and guidelines for identifying important ecological and cultural areas for the RPBs to use in the development of regional CMS Plans based on the***

¹⁶ Marine Conservation Biology Institute and Commission for Environmental Cooperation (2005). [Marine Priority Conservation Areas: Baja California to the Bering Sea.](#)

¹⁷ See <http://marinemap.org/>

¹⁸ See, for example: Ayers, Jim et al., *Important Ecological Areas in the Ocean: A Comprehensive Ecosystem Protection Approach to the Spatial Management of Marine Resources* (2010).

review discussed above. While different approaches may be appropriate in different regions of the United States, “best practices” for use of these tools and methodologies should be adhered to in all regions, especially since a growing body of “lessons learned” about such practices is now available.¹⁹; and

- ***Assemble a team of national and regional experts who can be deployed, if requested, to assist RPBs with the assembly of geospatial data and development or adaptation of DSTs.***

6. Assess the vulnerability of those areas

The Regional Ecosystem Protection and Restoration and the CMSP SAPs should make clear that once ecologically and culturally important areas have been identified, the specific threats they face must be identified and prioritized, and their impacts assessed. This key element of CMSP focuses on the cumulative effect of all relevant activities under different planning scenarios. A variety of approaches could be used for this purpose. Massachusetts developed a compatibility determination matrix to help assess the relative impacts and compatibility of human uses occurring in the same area.²⁰ Such a tool can determine compatibility among uses (e.g. fisheries, aquaculture, offshore wind energy, oil and gas exploitation) or between a use and specific resources (e.g. fish or invertebrate populations, seagrass beds, oyster, or coral reefs). These analyses can help to inform spatial and temporal siting decisions and development of performance standards associated with particular uses. While this approach relies primarily on expert opinion, it can provide criteria and metrics for the evaluation of siting decisions, aimed at quantifying the occurrence and magnitude of potential impacts on the physical, chemical, biological and cultural characteristics of the planning areas.

Halpern et al (2007) devised a systematic approach to collecting expert opinion on the ways in which marine ecosystems respond to threats that is at once more transparent, consistent, and adaptive than the more traditional ad hoc expert-based processes.²¹ Halpern’s team enlisted experts to assess the functional impact, scale, and frequency of a threat to ecosystem features; the resistance and recovery time of an ecosystem to a threat; and the certainty of these estimates.

- ***The MPA FAC recommends that the team of experts described above also provide advice on approaches to assessing an area’s vulnerability to human impacts.***

7. Protect areas of ecological and cultural importance

RPBs need to consider how to ensure the ecological and cultural integrity of proposed areas over the long run. This can be accomplished by recommending appropriate measures to protect them and also adding them to the national system. It can also be accomplished by establishing decision criteria or performance standards that ensure that all activities allowed within their boundaries are compatible

¹⁹ For example, all approaches should include a process for incorporating public input; a process for clarifying the sources and limitations of data; a strategy for addressing data gaps; a means of incorporating ecological principles; a commitment to providing transparency; and clear timelines for completing this task

²⁰Compatibility Determination: Considerations for Siting Coastal and Ocean Uses. UMass Boston Planning Frameworks Team and The Massachusetts Ocean Partnership. June 2009.

http://www.env.state.ma.us/eea/mop/tech_reports/compatibility_determination.pdf

²¹ [Ben Halpern et al., Evaluating and Ranking the Vulnerability of Global Marine Ecosystems to Anthropogenic Threats, Conservation Biology 21 \(2007\) p. 1301-1315.](#)

with protecting their key ecosystem functions and cultural values.²² A previous MPA FAC white paper²³ indicates that ecological networks of MPAs can foster resilience in ocean systems. It also identifies criteria for identifying gaps in the national system. Dozens of other studies have demonstrated that well designed protected areas achieve ecological protection goals. Protected areas that include ecologically important features help maintain and restore biological diversity, restore the abundance and natural size range of depleted species, protect rare species and habitats, and restore productivity and resilience. Similarly, protected areas featuring historic or cultural significance help maintain past and enduring human connections to the sea. Many of these resources have multiple values as statements to history and cultural continuity, and as habitat.

The use of scenario development and analysis can help make tradeoffs explicit in the plan development process and is thus an invaluable tool, as well as a legal requirement under the National Environmental Policy Act (NEPA). It has been used successfully to identify proposals that met scientific standards while balancing uses in state and federal MPA design processes and should be part of the CMSP process.

Decision makers can choose from a variety of levels of protection consistent with planning goals. For example, some portions of National Marine Sanctuaries prohibit oil drilling only, while others prohibit all extractive uses. To help ensure a sound scientific basis for decisions about protection, a gap analysis should clearly identify the degree and type of protection currently provided by the current suite of MPAs, including national system sites.

The de-activation of the Office of National Marine Sanctuaries' Site Evaluation List, however, has prevented citizens and elected officials from proposing sites for new sanctuaries since 1995. NOAA itself has proposed no new sites in over a decade due to inclusion of a budget-dependent, *de-facto* moratorium on new sanctuaries in the National Marine Sanctuaries Act. Removing these barriers could help close gaps in the national system and encourage regionally based efforts to develop funding partnerships;

- ***The CMSP SAP (and Regional Ecosystem Protection and Restoration SAP) should, consistent with the MPA Executive Order that established the MPA FAC (E.O. 13158), encourage use of existing authorities to strengthen and expand the national system to protect ecologically and culturally important areas, to achieve the ecosystem protection and restoration goals outlined in the Final Recommendations;***
- ***The MPA FAC supports Action 7 on MPAs in the Regional Ecosystem Protection and Restoration SAP Full Content Outline, including the step that calls for the reactivation of the National Marine Sanctuaries' Site Evaluation List (SEL) and adding to it sites of national ecological or cultural significance;***²⁴

8. Monitoring and evaluation

An effective monitoring plan for each protected area should include: (1) the objectives of the monitoring plan (i.e. what issue or question is being addressed); (2) the metrics used to determine success; (3) a

²²For example, the MPA FAC addressed the issue of performance standards in its tool for evaluating the National System of Marine Protected Areas. See MPA Federal Advisory Committee (2009). [Evaluating the National System of Marine Protected Areas: Considerations and Planning Tool](#).

²³ MPA FAC, Ecological resilience and gap analysis of the national system of marine protected areas (2009)

²⁴ National Ocean Council (2011). Regional Ecosystem Protection and Restoration Strategic Action Plan Full Content Outline p. 13.

realistic time frame in which progress is expected to occur; and (4) means for modifying the plan to enhance the probability of a positive outcome (i.e. provide an adaptive monitoring plan). These plans should take into account contextual factors that can be used to consider adaptive modifications in the areas or their management if objectives are not met within the proposed time frame. Additionally, protected areas can serve as reference sites for scientific purposes, including as sentinel sites to monitor the impacts of climate change.

B. Supporting Sustainable Human Use: Measures and Considerations from the MPA Process

Lessons learned and processes developed during the formation of the national system can assist the broader CMSP initiative. The first of the *National Goals of Coastal and Marine Spatial Planning* set forth in the Final Recommendations is to “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.”²⁵ This section of the white paper identifies considerations and tools employed in the designation and evaluation of MPAs that can be scaled for regional CMSP to help support vibrant coastal economies and sustainable human use of marine systems while protecting important ecological and cultural areas and maintaining ecosystem health.

1. Goals and principles for healthy communities

Healthy coastal communities are built on the foundations of people, environments, diversified employment, cultural identity and infrastructure to support access to and sustainable use of marine resources. This section discusses experiences gained from past MPA processes that could aid the broader CMSP process.

a. People, Communities, and their Environment

The placement of coastal communities is no accident. Humans settled in areas with abundant available resources and access to trade routes. Communities have practiced forms of CMSP since time immemorial and history has shown that unwise use of resources occurs at the risk of a community’s existence. MPAs, similar to CMSP, are tools meant to balance human use with resource protections when and where warranted. The preservation of coastal communities and the resources that support them will depend upon an organic process of planning, implementation and evaluation that anticipates and mitigates for changing human and environmental conditions. The consideration of conservation actions in all cases should address community needs with respect to human use of the marine environment. The NOAA SAB recommended²⁶ in May 2011 that CMSP and MPAs be evaluated in an ongoing manner for effectiveness with adjustments made accordingly to fulfill goals and objectives determined by RPBs and CMSP SAP. The evaluation process is a cornerstone that maintains public trust while developing local and regional planning that ensures healthy ecosystems and sustainable use. Many effective MPA designations have instilled and maintained trust among stakeholders and the public by incorporating local knowledge, decision making and the needs of coastal communities while being

²⁵ The White House Council on Environmental Quality. “Final Recommendations of the Interagency Ocean Policy Task Force.” July 19, 2010 p. 7.

²⁶ Report to the NOAA Science Advisory Board from the Ecosystem Science and Management Working Group. Strategic Advice on Designing and Implementing CMS Plans. May 2011 p. 31.

http://www.sab.noaa.gov/Meetings/2011/may/ESMWG_CMSP_Report_Text_2May11.pdf

guided by the best available science. When CMSP decisions are made, human use of coastal areas must be considered as part of ecosystem processes. Indeed, CMSP decision makers must recognize that planning for human uses has a wider scope than just the local area. Thus, scaling local planning priorities to regional and national objectives will be important because the needs and activities of one community are often dependent upon the needs and activities of neighboring communities.

Given that the array of these relationships defining individual cultural landscapes are products of human behavior and expressions of cultural meaning, there can be many different cultural landscapes in any given MPA. Many of an MPA's cultural landscapes will share some cultural and environmental components. However, individual cultural landscapes capture a unique array of nature and culture. These are expressed in the condition of the natural environment, the composition, condition, and patterns of intangible and material culture, and the cultural meaning or significance attached to them by different groups.

- **The MPA FAC recommends that CMS planners respect the history, knowledge and needs of local communities, carefully consider their cultural heritage and identity, and use CMSP as one tool to protect regional stability for the future.**
- **The CMSP SAP should include the following long-term human use objectives for regional CMS Plans: maintain and protect cultural diversity and communities, community economic vitality and access to strategic national resources and critical infrastructure.**
- **The MPA FAC recommends that the CMSP SAP incorporate an evaluation process into regional plans that retains citizen involvement in the process and maintains public trust.**

b. Jobs

Vibrant coastal communities only exist if employment meets the economic needs of individuals, families, and communities. The employment base reflects not only those directly related to marine activities, but also the myriad suppliers of both goods and services based inside and outside of a community.

The value of natural and cultural landscapes is an essential part of the economic base for many communities. Some businesses and the occupations they support depend upon biological or other natural and cultural resources. Often these businesses have evolved over many generations alongside the evolving communities. It is common for many jobs to be based upon resource use privileges and leasing of marine areas. Examples would include: tidelands in Washington State, fishing permits or leases, and non-extractive recreational SCUBA diving and heritage tourism. Rapid changes in employment are not easily accommodated and may require extensive time and training.

The ability to generate a "living wage" is a key factor in the health of a community and an issue marine spatial planners must consider if they propose changing human use patterns. For example, pay scales for fishermen, mariners and offshore oil rig workers are significantly higher than those for less skilled service positions in the tourism industry. Planners must also recognize that in some cases (e.g. where current management is inadequate) changes in use patterns may be needed to reverse resource and employment declines occurring under the status quo.

- **The MPA FAC recommends that regional CMS Plans consider local employment bases when proposing changes in ocean use patterns.**

c. Culture

The cultural legacy of coastal communities is rooted in the deep-seated attachment of residents to their locations, resources, families and ways of life. Communities identify with these areas and are identified by them. The CMSP process, similar to MPA designation processes, can benefit from local knowledge, stewardship and connections that coastal cultures have developed with their marine and Great Lakes areas over generations. Cultures can also be defined by occupation in addition to family and heritage. Many cities, towns, and villages identify themselves as fishing, oil, shipping, recreation, or tourism based communities.

- ***The MPA FAC recommends that the cultural heritage and identity of local communities should be a key consideration of all CMSP discussions.***

d. Tribal and Indigenous Cultures

Tribes and indigenous cultures in coastal areas are exceptional cases where attachment to historically occupied areas extends beyond recorded history. Their rights to these lands, waters and resources are codified in federal policy and often in treaties. A federally sanctioned CMSP process must engage tribes and indigenous peoples by observing the policies and procedures called for in Presidential Executive Order 13175 and the United Nations Declaration on the Rights of Indigenous Peoples.²⁷ The Order, recently reaffirmed by President Obama, directs U.S. agencies to conduct meaningful consultation with tribes in a government-to-government forum. In the case of treaty tribes, rights often include natural resources ownership and management. Treaties recognize that tribes owned the lands, waters and resources they ceded to the United States government. In many treaties, tribes reserved the right to continue harvesting from and accessing those ceded lands and waters. These rights were not granted to the tribes, they were reserved by them.

The U.S. recently reversed its historic course and now supports the U.N. Declaration on the Rights of Indigenous Peoples, which recognizes inherent rights of all indigenous groups in matters that may affect their homelands and culture. Recent events in the northern California MPA planning process illustrate the need to consult with tribes early and often when MPA designations are being considered. In this case, the state and the tribes are continuing to work together to develop a preferred project that integrates protection and continued tribal use at traditional gathering spots.²⁸

- ***The MPA FAC recommends that RPBs take advantage of this opportunity to properly engage tribal and indigenous peoples, recognize and respect their historic rights and cultural values and integrate their knowledge and local expertise into present-day planning.***

e. Community Infrastructure

Coastal and ocean infrastructure has developed over generations to support the activities, jobs, access to resources, recreation, and other uses of coastal communities. Examples include jetties, marinas, ports, shipping lanes, pipelines, cables, MPAs and more. When new plans – including those for MPAs and CMSP – are developed, existing and future infrastructure needs must be considered.

²⁷ Executive Order 13175 of November 6, 2000. Consultation and Coordination with Indian Tribal Governments. Federal Register Vol. 65, No. 218. Also see [U.N. Declaration on the Rights of Indigenous Peoples](#), Article 19 (signed by President Obama, December 16, 2010)

²⁸ Final decisions have not yet been made; California's North Coast MPA planning process is expected to be completed in 2012.

- ***The MPA FAC recommends that CMSP managers and planners consider coastal and ocean infrastructure needs and prepare for potential future environmental impacts that may threaten local communities and economies.***

2. Methods to assemble scalable baseline information, including current community needs and consumptive and non-consumptive ocean use patterns

a. *Tools*

Accumulating baseline data on activities within planning areas is a crucial early step in the CMSP process. The quality of the data, including its precision and accuracy, is important. Public access to data will be critical for public acceptance of decisions. Some tools such as MarineMap²⁹, the California Ocean Uses Atlas³⁰ and the Multipurpose Marine Cadastre³¹ have been used in recent state-level marine planning processes. Of these, MarineMap has been the most accessible for public input and use. Recent ocean planning processes in Massachusetts and Rhode Island enabled web-based access to the plans' databases by the public and stakeholders, and extensive public and stakeholder consultations enabled broad input during all phases of the planning processes. Ideally, baseline data can be accessed by the public online or in planning forums, and can be used to create plan proposals. Broadly available platforms should be favored for public involvement purposes, although proprietary systems may serve as a supplemental source of ideas and alternatives. Platforms should be readily available, independent and fulfill existing statutory and regulatory requirements for data quality.

- ***The MPA FAC recommends that CMSP include user-friendly and readily accessible spatial planning tools to facilitate public participation in the process.***

b. *Data*

Information needed for planning includes local data as well as data that are readily scalable to the regional level such as fishing areas, diving and surfing areas, and locations of cables and oil and gas production. In some cases information will only be pertinent at the local level such as port and marine infrastructure. Other information such as shipping routes, energy and communication infrastructure may be more regional in its extent. Similarly, individual resources such as shipwrecks are assessed at the local level, while broader cultural landscapes provide insight into regional patterns.

The availability of spatially explicit data to describe both human uses and ecological values is widely viewed as critical, but also as one of the greatest challenges in the MPA planning experience. In many cases, the availability of locational information on certain cultural resources is highly variable. The shortage of accurate information on human uses in the marine environment and related community socio-economic factors – and on nature's intrinsic value and benefits to people – could lead to undervaluing these considerations when CMSP decisions are made.

Reviews of MPA and state spatial planning experiences highlight the difficulty of making critical tradeoff decisions without adequate data and tools. Experienced managers have often noted that decisions cannot wait for perfect data. However, they have also often indicated that many planning decisions – including those related to the extent of change from the baseline – have to be based on sound data. These same principles should apply to human use data.

²⁹ <http://marinemap.org/>

³⁰ http://www.mpa.gov/dataanalysis/atlas_ca/

³¹ <http://www.marinecadastre.gov/default.aspx>

- ***The MPA FAC recommends that the best available ocean use data include socio-economic information that will aid decision makers when creating CMS Plans.***

3. Identify methods to determine future community needs

The complexity of forecasting future needs of coastal communities is compounded by their great variety and unique attributes of those communities. It is impossible to precisely determine future supply and demand in any community, but enduring communities will be those best suited to adapt to change. Flexibility and a diverse and ecologically healthy natural resource base can aid adaptation to changing conditions. For instance, the availability and mix of natural resources and the demand for products derived from these resources may change over time. Sustainable and viable economic communities are those that adjust to these shifts in supply and demand through labor upgrades (education) and flexible capital movements. Regional CMS Plans should include a review of the present economic base of coastal communities within a particular planning area with a focus on coastal and ocean resource-dependent industries and an analysis of future opportunities given expected changes in natural resource availability, market demand and improved technical abilities.

This information is vital for developing realistic forecasts of community needs and spatial plans over time. Though future economic changes are impossible to predict, some information may be gathered on near-term challenges and opportunities that may affect economies including changes in the cost and type of energy used for transportation, anticipated climate change effects such as rising sea-levels and resultant coastal impacts, and technological advances that improve abilities to access resources and better manage ecosystems.

- ***The MPA FAC recommends that the CMSP process be an adaptive one that anticipates and reacts to changing national and community needs over time.***

4. Integrating economic analysis in the CMSP process

Economic analysis can be used to provide three different measures of MPAs that can be applied to CMSP: Cost-Effectiveness Analysis (CEA), Economic Impact Analysis (EIA), and Cost-Benefit Analysis (CBA).³²

- CEA provides information to choose the least costly approach among alternative ways of achieving a particular objective. CEA is quite useful when it has been decided to accomplish a well-defined objective, and when the criterion for choosing among possible approaches is to reach the target at the lowest possible cost.
- EIA estimates effects on the financial economy using measurements such as jobs and total personal income. Regarding the operation of MPAs for management/enforcement or monitoring/evaluation, the funding may be from a national source and the operation spending would occur in a local economy.
- CBA strives to measure the benefits derived from the use of a resource minus the costs of the resulting product. In terms of commercial use, this is usually defined as net profit (or net economic value). There may also be other values that are not easily quantifiable, such as existence values.

³² A good reference on CMSP-relevant economic analysis can be found in: Holland DS, JN Sanchirico, RJ Johnston and D Joglekar. 2010. [*Economic Analysis for Ecosystem-Based Management: Applications to Marine and Coastal Environments*](#). RFF Press p. 236.

- Non-market valuation techniques, including hedonic, travel cost and stated preference modeling, among others, are often used in combination with CBA to value ecosystem services and human values that are not subject to a typical marketplace.

When considered within the CMSP process, reserving ocean areas to preclude specific human uses comes with both costs and benefits. Not only might there be foregone commercial and/or recreational benefits (in some cases none is foregone because the activities are just displaced elsewhere), but there are also management and enforcement costs as well as monitoring and evaluation costs. Likewise, MPAs can enhance the natural and cultural resource base both inside and outside of a protected area, resulting in positive and quantifiable commercial and recreational benefits.

The harvests of many living marine resources are controlled by a variety of different regulations that can affect communities differently depending on their proximity to a regulated harvest area and their dependency on a particular resource. While harvesters in one community may incur greater costs in boat fuel or electronic equipment due to a particular regulation, other communities may benefit from the same regulation which could result in less competition in a particular area. Shifts of opportunities need to be analyzed on a net cost-benefit basis at regional and national levels, rather than describing total cost to any one community.

Similar scenarios to those of living resources, cultural heritage also plays an important role in community economic values. Limits on or the elimination of extractive behaviors benefit the overall preservation of these resources. There can be resulting shifts in recreational diving, heritage tourism, and traditional cultural practices.

- ***The MPA FAC recommends that RPBs conduct appropriate economic analyses in each area to better understand the benefits and costs of CMS Plans.***

5. Effectiveness measures of MPAs and their applicability to CMSP

Many people are surprised by the extent of the socio-economic use of U.S. coastal and marine resources and community dependency on these resource to maintain the social and cultural fabric of communities. Yet, the 30 coastal and Great Lakes states: contain 245.5 million people, employ 107.5 million people, contribute \$11.4 trillion to the national GDP and account for 83% of the U.S. economy. One of every six jobs in the U.S. is marine related.³³ As a practical matter, both the process of creating MPAs and implementing regional CMS Plans will affect human use patterns. Thus, both local and regional political support will be essential to the planning and implementation process. There will be difficult tradeoffs to make. As recommended in the NOAA SAB's report,³⁴ successful implementation will first require an assessment of current and future human uses and needs. Following implementation, there needs to be an assessment of the CMS Plan's impact and efficacy overtime across a variety of metrics. Baseline data on human uses and related research are uncovering new sources of data for CMSP. While decisions cannot wait for perfect knowledge, socio-economic decisions should be considered very carefully, including consideration of the potential adverse future impacts on families, and therefore community and cultural resources. More work is needed on the economics and provision of ecosystem services and the development of appropriate cost-benefit tools in making tradeoff decisions. Both qualitative "satisfaction" assessment and quantitative socio-economic evaluation will be

³³Kildow, Colgan, Scorse, State of The U.S. Ocean & Coastal Economies, 2009; National Ocean Economics Program p. 6. <http://www.oceaneconomics.org/Download/>

³⁴NOAA SAB Report from the ESMWG. May 2011.

important to avoid unintended regional impacts to coastal communities and coastal and ocean resources.

More precise and accurate mapping of human use patterns will assure that CMSP avoids economic discrimination of both under-represented communities and human activities upon which these communities depend directly and indirectly. Economic evaluation tools will enable better decisions regarding alternative use scenarios.

In September 2009, the MPA FAC issued its National System of Marine Protected Areas Evaluation Planning Tool (Evaluation Tool)³⁵ to provide more detailed evaluation guidance for the national system. The Evaluation Tool recognized the importance of evaluating both environmental health for conservation, and cultural and socio-economic health, needs, and uses and identified the need for evaluation to be an iterative process. The tool explicitly acknowledged the “planning for ocean uses” under a possible future CMSP effort that was being drafted at the time. The Evaluation Planning Tool is thus structured around the goals and benefits described in the *Framework for the National System of Marine Protected Areas of the United States of America*. Expansion of the tool to more fully incorporate the expanded needs and benefits of human use under the National Policy is needed.

The Evaluation Tool noted that it is “key to develop an understanding not only of which actions work and which do not, but also to understand why, and what they cost” in terms of program administration and socio-economic effects. The tool is organized according to the three elements related to the benefits of an effective National System: 1) biophysical; 2) social, cultural and economic; and 3) governance.

- ***The MPA FAC recommends that the CMSP process include use of evaluation tools that incorporate biophysical, socio-economic, cultural, and governance benefits, along the lines of the MPA FAC’s National System Evaluation Planning Tool.***

C. Lessons Learned: Perspectives of MPA designation processes; outcomes and pertinence to CMSP

The process of site selection of MPAs more often than not is characterized by conflict among a variety of groups, each with its own strongly held view making clear decisions difficult. In some cases, the perception has been that planning committees “settle” for the least contentious sites or exempt some activities or user groups in order to move forward with the creation of spatial plans. In practice, the seemingly contentious MPA site selection process yields results that prove far more effective at achieving multiple objectives and satisfying many of the diverse views about site selection. The key to achieving a favorable outcome is: clear goals; guidelines and timelines; local community, ocean user and other interested party involvement; unbiased information and transparent DSTs; the ability of site selection bodies to listen to the diversity of input and encourage compromise; and accountability by decision makers.

A few specific cases can help illustrate this outcome. The process for setting up the Tortugas Sanctuary, off the Florida coast suffered a false start that took nearly 10 years to overcome. It was not until stakeholders from every imaginable corner of resource use and interest came together and initiated a process to first identify their common interests in resource protection that the process finally moved forward. A pivotal component leading to buy-in of all user groups was the development of GIS maps of

³⁵ http://www.mpa.gov/pdf/fac/mpa_fac_recommendations_91109.pdf

the Dry Tortugas area that included oceanographic features, species distribution, and socio economic information (e.g., where people fish or dove, the distribution of fishing or diving intensity over time and space). The outcome was a unanimous agreement to establish a 151 square nautical mile ecological (no-take) reserve, demonstrating that even those with diverse interests experiencing high levels of conflict can come together in a collaborative consensus-building process to develop viable management options.

Several long-standing MPAs in California have shown the value of using care in site selection to achieve a positive outcome. In the Monterey-Pacific Grove area a small set of MPAs sited around a point of land have been in place for many years. These MPAs are highly valued for non-consumptive uses such as diving, kayaking, long-term marine research and similar activities. The local fishing community has recognized the importance and positive value of moving fishing activities outside of these MPAs. As a result, the fishing community benefits by moving fishing activities to nearby locations outside of the MPAs where they continue to fish. The net result is a partitioning of the coastal ocean environment in and around Monterey and Pacific Grove that provides for the successful use of coastal waters by a wide variety of user groups.

At the Farallon Islands in California, fishers and conservation groups came to an agreement on the design of no-take protected areas that would safeguard forage for diverse and internationally-significant assemblages of seabird colonies and for endangered fur seals and other marine mammals, while leaving prime sport and commercial fishing areas open. Similarly, a full range of stakeholders agreed to protect the highly popular Fitzgerald Marine Reserve tide pools and reefs in Half Moon Bay, CA while leaving favorite fishing spots open nearby. In the Dry Tortugas off the coast of Florida, protected areas have become favorite dive sites. But they also produce benefits for fishermen by providing refuge to lobsters whose larvae travel beyond the reserve boundaries, increasing the abundance of lobster populations outside of the MPA.

In recent years, with growing recognition of the need to address multi-sector use, some states have developed frameworks for MPAs and CMS Plans. Insights into these experiences can help develop the CMSP process and decisions.

1. MPA and National Marine Sanctuary (NMS) Experiences

a. *Flower Garden Banks NMS*

The Flower Garden Banks are unique geologic features representing the northernmost and arguably one of the healthiest coral reefs in the northern hemisphere. They are also located in one of the most active oil and gas areas in the world. As such, they may represent one of the better examples of multiple-use spatial designations. This development reflects not only very high quality environmental assessment but also careful management and mitigation measures arising from extensive user consultations that effectively balance a specific human use, in this case oil and gas drilling, and conservation. Leasing stipulations for the banks were first proposed in 1973 with “no activity zones” implemented in 1974. The only two lease blocks completely excluded from leasing are those centered on the East and West Flower Garden Banks. In following years, additional protective measures were established including shunting zones and required monitoring studies for early drilling activity in the vicinity. The sanctuary has practiced – not simply advocated – adaptive management with respect to oil and gas drilling. With the demonstration of the effectiveness of the stipulations, individual monitoring requirements were replaced with regular monitoring in the sanctuary.

b. *Olympic Coast NMS*

The Olympic Coast National Marine Sanctuary (OCNMS), located on the coast of Washington state, is encompassed within the marine treaty fishing area of the Quinault Indian Nation and the Hoh, Quileute and Makah tribes. Designation of the OCNMS in 1994 was with the express support of the treaty tribes to prevent oil exploration off of the northern Washington coast. In 2000, the OCNMS developed a proposal for discrete coastal areas that would be no-take intertidal reserves. Tribes were surprised when an early presentation of the proposal included large sections of tribal reservation coastlines. Tribal representation in OCNMS management was not facilitated per the treaty trust responsibility of federal agencies and actions had been proposed without meaningful consultation with the four tribes. The Office of National Marine Sanctuaries (ONMS) led a process that resulted in a new entity of policy level representation for the tribes and Washington State when working with OCNMS management. The Intergovernmental Policy Council (IPC) now meets regularly with OCNMS management and annually with ONMS leadership to discuss OCNMS operations and planning. Intertidal reserves on reservation lands, should they be considered in the future, will only be discussed in this forum or with each tribe independently, not by the OCNMS alone. This example represents not only a lesson learned but also a success story for developing proper forums to engage tribes at appropriate levels when treaty cultural resources have the potential of being affected.

2. State CMSP Experience

By mid-year 2010, several states had initiated or completed marine spatial plans including Rhode Island, Massachusetts, Oregon and Washington. These initiatives have had two primary drivers: identifying and protecting important ecological areas and and/or identifying appropriate locations for new activities such as alternative energy development. In some cases such as Massachusetts, the ocean plan presumed that certain activities would be allowed throughout the planning areas – in particular commercial and recreational fishing – and would be governed under separate fishery management plans that would then be integrated with the CMS Plan. The planning area encompassed by these plans varies across states with some starting at the coastline while others focus on waters further offshore. Massachusetts, for example, drew its planning area to begin approximately 1500 feet offshore to accommodate various harbor management plans that were already in place, while Rhode Island drew its planning area to begin at the shoreline and extend into adjacent federal waters. Several states have effectively utilized mechanisms to foster public-private-partnerships (Massachusetts Ocean Partnership and the MLPA Initiative), based on both public and private financing of the management plan development process. Such partnerships can be very effective providing that such arrangements are fully transparent and set up to ensure there is no unfair influence in decision-making. Most state CMSP processes have adopted and expanded the use of scientific advisory panels. In Massachusetts, for example, the enabling legislation specified the number and source of these experts. These models often lack representation and active participation of historic preservation, tribal and indigenous voices. Additional input on human use and economic factors is recommended, as broad public engagement is not a substitute for, but complements quantitative information on human use.

3. Authorities and Consultation; Lessons Learned

Finding ways to coordinate multiple management authorities without ceding the authorities of implementing regulations has been a challenge in the creation of small scale MPAs. As the scale of marine planning increases to a regional level this will be even more difficult as most governance entities are focused on the local/state, tribal or national scale. Most users are organized primarily locally or nationally further complicating this need. The National Ocean Council (NOC) has recognized the need for

dispute resolution in establishing priorities and resolving differences within and across user groups. The MPA experience has been that even among localities featuring familiarity among participants, dialog and trust can be difficult to attain particularly when human uses are constrained leading to winners and losers.

- ***The MPA FAC recommends that the NOC include guidance on dispute resolution in the final CMSP SAP.***

V. How can NOAA and DOI build on the spatial data decision support tools and conservation planning processes used to develop the national system of MPAs to inform CMSP?

A number of DSTs and processes, whether used to build the national system or in other spatial planning processes, offer promise for CMSP. The RPBs will need a range of tools to serve various purposes, and the best blend for one region may not work as well for another. In addition to providing a team of tool experts, DOI and NOAA can facilitate sound choices by providing a DST inventory to the RPBs that describes the purpose, benefits, data requirements and limitations of the most promising tools now available for CMSP. The tools discussed in this paper are intended as examples, not as a comprehensive list or an endorsement of one tool over another. Section D below describes a more conceptual DST, the Cultural Landscape Approach^{36 37} (CLA), which views areas through a cultural lens that may also aid RPBs in developing CMS plans.

A. Spatial Assessment and Resource Characterization (SPARC): a spatial analysis tool

The National Marine Protected Areas Center (MPA Center) has collaborated with NOAA's National Centers for Coastal and Ocean Science (NCCOS) Biogeography Branch to develop a spatial analysis toolkit that facilitates comprehensive analysis of resources present within and outside of MPA boundaries. SPARC is an ArcGIS toolkit built to assimilate spatial data, including newly compiled management and resource information from the MPA inventory, and analyze the spatial distribution and representation of coastal and marine resources in and outside of MPAs. Designed for regional scale analysis, this tool can be used to help identify ecologically important areas and improve MPA management effectiveness. MPA Center staff members are testing the SPARC tool now using MPA boundary and spatial data for California.

B. MarineMap and MARXAN: site planning tools

California's MLPA Initiative commissioned the development of MarineMap, which allows its users to layer spatial data, draw shapes around sensitive habitats or areas proposed to be open to specific uses, get feedback on the amount of habitat or uses the area encompasses, and share and discuss shapes with other users of the system. It requires customized programming at the start, but is then user-friendly, accessible and transparent, and can provide immediate analysis of site characteristics. Another tool,

³⁶ Mather, I.R. and John O. Jensen, *Investigations into Block Island's Submerged Cultural Sites and Landscape for the Rhode Island Ocean Ocean Special Area Management Plan 2010*. Technical Report #5 in *Rhode Island OceanSAMP Volume 2*. Adopted by the Rhode Island Coastal Resources Council October 19, 2010. <http://seagrant.gso.uri.edu/oceansamp/documents.html>

³⁷ Birnbaum, Charles A. *Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes*. Washington, DC: Preservation Assistance Division, National Park Service, U.S. Department of the Interior, 1994. <http://www.cr.nps.gov/hps/tps/briefs/brief36.htm>

MARXAN, is a site planning tool widely used around the world that can help its users identify sites that optimize conservation while minimizing potential impacts on existing users.

C. Coastal and Marine Ecological Classification Standard (CMECS): a classification tool

Recent developments in coastal/ocean use and increased interest in spatial planning underscore the need for a national standard for classifying coastal and marine ecosystems. Planning and siting proposals could be addressed more efficiently if there was a standard way of describing and classifying “what’s out there.” NOAA and its partners NatureServe, U.S. EPA and USGS worked with scientists, managers at various levels of government, industry and NGOs to develop and test CMECS³⁸. The CMECS framework incorporates the physical, biological, and chemical information required to determine a marine habitat type. It is intended to create a national standard for comprehensive ecological classification that provides flexibility to meet specific needs.

D. Cultural Landscape Approach as a Decision Support Tool

The Cultural Landscape Approach (CLA) has a distinct role to play in the CMSP process, for cultural heritage resources, in their varied forms, cannot be disassociated from place. Given our past and present interactions with the marine environment, CMSP must recognize multiple landscapes, important individual resources, and socio-economic values and human use areas. These are all taken into consideration by the CLA. Furthermore, with its emphasis on cultural relationships to the environment, CLA highlights connections between human behavior and the condition of marine ecosystems over time. For marine resource managers, incorporating constituent voices and resource sustainability into the decision-making process are central aspects of CMSP. The CLA has a particular benefit for the integration of cultural heritage resources into the existing natural resource management paradigm. The approach highlights critical environmental connections with more familiar maritime heritage resources such as historic shipwrecks.

- ***The MPA FAC recommends NOAA and DOI develop an inventory of DSTs to facilitate sound scientific and management decisions by the RPBs.***³⁹
- ***The MPA FAC recommends NOAA and DOI, where feasible, propose CLA to the RPBs to integrate the human and natural aspects of marine areas into CMSP with the objective of more holistic management.***

V. Conclusion

This white paper reviews many of the salient concepts used in creating the national system and from those develops a set of recommendations for the CMSP initiative. The MPA FAC believes these recommendations will help guide the CMSP process to a more successful outcome. A strong thread runs through this white paper, namely that both conservation and sustainable human use objectives must be met for CMSP to be widely adopted and successful. Both elements were deeply embedded in the creation of the national system and, as such, both are presented in this white paper and its recommendations. The MPA FAC chose to address ecological and socio-economic/cultural issues in this paper to make sure there is systematic consideration of both sets of issues. Given these issues are

³⁸ <http://www.csc.noaa.gov/benthic/cmecs/>

³⁹ See <http://www.ebmttools.org/msptools.html> for an example of such an inventory and the Decision Guide: Selecting Decision Support Tools for Marine Spatial Planning from the Center for Ocean Solutions at http://www.centerforoceansolutions.org/sites/default/files/cos_msp_guide_6.pdf.

inextricably linked, the MPA FAC advises including consideration of both at each step. The MPA FAC appreciates the opportunity to comment on the CMSP process, and stands ready to assist in any way possible as the process progresses.

List of Abbreviations

CLA – Cultural Landscape Approach

CMECS – Coastal and Marine Ecological
Classification Standard

CMS – Coastal Marine Spatial

CMSP – Coastal Marine Spatial Planning

DOC – Department of Commerce

DOI – Department of Interior

DST – Decision Support Tool

EBM – Ecosystem-Based Management

FAC – Federal Advisory Committee

Final Recommendations – Final
Recommendations of the Interagency Ocean
Policy Task Force

IPC – Intergovernmental Policy Council

MLPA – Marine Life Protection Act

MPA – Marine Protected Area

MPA Center – National Marine Protected Areas
Center

National Policy – National Ocean Policy

national system – National System of MPAs

NCCOS – National Centers for Coastal Ocean
Science

NEPA – National Environmental Policy Act

NIMS – National Information Management
System

NMS – National Marine Sanctuary

NOAA – National Oceanic and Atmospheric
Administration

NOC – National Ocean Council

OCNMS – Olympic Coast National Marine
Sanctuary

OPTF – Interagency Ocean Policy Task Force

RFMC – Regional Fishery Management Council

RPB – Regional Planning Body

SAB – Science Advisory Board

SAP – Strategic Action Plan

SEL – Site Evaluation List