

State Policies and Programs Related to Marine Managed Areas:

Issues and Recommendations for a National System



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EXECUTIVE SUMMARY

Overview

Executive Order 13158 on marine protected areas (MPAs) was issued in May of 2000. The Executive Order calls for the development of an improved national system of marine protected areas. From July 2002 to March 2003, the Coastal States Organization, in cooperation with the National Marine Protected Areas Center, conducted research and interviews related to state-level marine managed areas (MMAs) and the potential for future federal/state coordination within a national MPA system. Section One of this report characterizes existing MMA policies and programs at the state level. Section Two presents the potential implications of the proposed national system of MPAs for coastal states. Section Three proposes recommendations toward an effective national MPA system for consideration by both state and federal officials.

Methodology

Data concerning state-level marine managed areas was compiled from existing regional studies, legal and administrative codes, state coastal program documents, and personal interviews. A survey was also distributed to relevant state program managers in all 35 coastal and Great Lakes states, territories, and commonwealths. Additional input was gained through meetings with a Marine Protected Areas State Advisory Group, and representatives of the National Marine Protected Areas Center.

Section One: Characterization of State-Level Marine Managed Areas

Nearshore waters under state jurisdiction are of critical importance to an effective national system of marine protected areas. However, state-level marine managed area systems exhibit a high level of complexity and diversity when compared with federal MMA policies and programs. In general, state MMAs were classified into four newly defined categories, which were created for this study to facilitate cross-state and nationwide comparisons. marine resource areas, marine overlay zones, marine planning areas, and coastal planning areas are discussed in the context of the proposed national system of marine protected areas. Several ongoing state-level initiatives aimed at enhancing MMA systems are also presented.

Section Two: Implications of a National MPA System

Executive Order 13158 calls for the establishment of a comprehensive national marine protected areas system, to be comprised of complementary ecological MPA networks. Several possible scenarios for a national MPA framework are presented for consideration. First, a regional framework could be developed for comprehensive MPA planning and coordination among federal, state, local, and tribal authorities. Next, a national approach could be developed, wherein states could nominate sites for inclusion into one of several possible federal MPA categories. This framework would expand upon the model of national estuarine research reserves, which create new, site-specific federal/state partnerships within a national system. Improved national or regional MPA systems could provide a number of benefits to coastal states; however, current financial, technical, and staffing constraints pose significant challenges to increased state involvement.

Section Three: Proposed Recommendations for an Effective National MPA System

STATE-LEVEL RECOMMENDATIONS

- 1) Consider adopting legislative authorities for Marine Managed Areas
- 2) Utilize existing coastal policies and programs to enhance state MPA systems

FEDERAL-LEVEL RECOMMENDATIONS

- 3) Develop a consistent national terminology and classification system
- 4) Provide federal financial, technical, administrative, and scientific support
- 5) Establish a clear process for federal MPA designations
- 6) Utilize a regional framework for the national MPA system

State-Level Recommendations

Recommendation #1: Two laws were recently passed in California to: 1) establish clear processes and authorities for MPA establishment; and 2) improve, organize, and standardize the diverse types of marine managed areas in state waters. Other coastal states, territories and commonwealths lack clear legal authorities and standardized classifications for MPAs, and should consider California's example. Coordination among states, or between state and federal MPA programs, will otherwise be limited by the current complexity of state-level MMA systems.

Recommendation #2: Coastal programs could play an important role in any future efforts to integrate state marine managed area systems because they 1) already network and coordinate the diverse agencies and programs having jurisdiction over or interest in MMAs; 2) could incorporate MMAs as enforceable program policies in order to trigger the federal consistency provision of the Coastal Zone Management Act (CZMA); 3) could compete for CZMA grants available for enhancing ocean governance to plan for and improve existing MMA systems; 4) could improve partnerships with national estuarine research reserves to provide an information clearinghouse for environmental, policy, monitoring, research, and spatial

data related to state MPAs; and 5) could expand the concept of coastal zone management by integrating MMA programs, research, and monitoring into other coastal program activities.

Federal Recommendations

Recommendation #3: The need remains for a consistent national terminology and classification system for marine protected areas. A consistent national terminology will clarify discussions surrounding state and national MPA systems, and improve collaborations with state and local stakeholders. A national classification system should take into account the diverse area-based approaches found at the state and local levels.

Recommendation #4: Many state programs face significant obstacles to improving their own MMA systems, much less participation in a national MPA initiative. Currently, too many state-level MPAs suffer from a lack of resources needed for research, monitoring, evaluation, enforcement, outreach, and other long-term commitments. In the absence of these onsite management activities, MPAs can quickly become 'paper parks,' and can be falsely perceived as providing sufficient resource protections. A formal mechanism for federal financial, technical, administrative, and scientific support is needed to help states overcome these constraints.

Recommendation #5: Ecosystem-level patterns and processes do not conform to political jurisdictions, but should be considered in establishing networks of marine protected areas. Future ecological assessments may determine a need for MPA designations in federal waters, or across federal/state boundaries, to complement MPAs established in nearshore, state waters. However, federal authorities and processes for the establishment of MPAs that comprehensively address marine resources and human uses are currently unclear. Improved guidelines and/or new statutory provisions are therefore needed for federal MPA designations, and should build upon a national MPA classification system. For example, if a coastal state seeks to establish a network of 'no-take' marine reserves in both state and federal waters, it should be clearly directed toward a federal program with the authority for such designations. In addition, a clear process should be developed to facilitate MPA designations or expansions across federal/state boundaries.

Recommendation #6: Federal officials should consider a regional approach for the proposed national MPA system. Such an approach is necessary to take

into account the differing issues, environments, and objectives of coastal states, territories, and commonwealths within regional settings. Regional boundaries chosen for this approach should be aligned with anticipated recommendations forthcoming from the U.S. Commission on Ocean Policy with respect to regional ocean governance.

Integrated national, regional, and state marine managed area systems and networks can improve the

management of ocean and coastal resources. However, state officials are now considering whether the potential benefits warrant their participation in new MPA-related initiatives, especially given current institutional and political challenges to their involvement. Their decision will likely hinge on the establishment of clear avenues of federal support for state participation in a national MPA system.

INTRODUCTION



Box 1. GOALS OF THE REPORT

To foster an understanding of existing state, commonwealth, and territory marine managed area systems (**Section 1**).

To clarify the implications of a national system of marine protected areas for coastal states, territories, and commonwealths (**Section 2**).

To provide recommendations to state and federal officials for developing, coordinating, and improving state, regional, and national systems of marine protected areas (**Section 3**).

Marine Protected Areas (MPAs) have been the subjects of innumerable academic studies, Internet listservs, focus groups, workshops, conferences, and management initiatives. As a result, understanding of their potential value in conserving cultural and environmental resources has expanded, and experiences with successful management practices at individual sites have begun to translate into success stories in other locales. However, less is known about the implementation, design, and coordination of MPA networks and systems, particularly in the United States (refer to Appendix 1 for definitions of terms).

Studies of marine protected area systems are hindered by the complex governance framework that applies to coastal and marine areas of the United States, a framework currently comprised of numerous, overlapping, and often conflicting resource laws, regulatory programs, and political jurisdictions (Cicin-Sain and Knecht, 2000). Such complexities pose significant challenges to the development of new or improved MPA systems, which would necessarily rely on standardized regulatory approaches, coordinated manage-

ment activities, and integrated information systems. While federal programs might lend themselves more readily to an enhanced MPA system due to a relatively narrow range of area designations and political jurisdictions, state and local programs, policies, and jurisdictions create an altogether more challenging setting.

Yet any meaningful system of marine protected areas should include the nearshore waters under state and local control. State waters contain critical spawning and nursery habitats for the larval, juvenile, adult, and migratory stages of many commercially and recreationally vital species. At the same time, these waters experience the greatest number of use conflicts and direct threats from an ever-increasing array of human activities.

This report presents an analysis of existing state-level marine managed area policies and programs, followed by a discussion of current efforts to address the complex MMA systems found within the waters of many coastal states (Section One). Next, the report examines current federal proposals for a national system of marine protected areas, and potential implications of this initiative for coastal states (Section Two). Finally, a number of recommendations are proposed that could benefit both federal and state officials seeking to establish integrated systems of marine protected areas at the state, regional, and national levels (Section Three).

Timing and Relevance

Executive Order 13158 on marine protected areas was promulgated on May 26, 2000 (Appendix 2). The Executive Order called for the Departments of Commerce and the Interior to develop a national system of MPAs (described in greater detail beginning page 30). In February of 2002, the Coastal States Organization received a contract from the National Oceanic and Atmospheric Administration's (NOAA) newly established National Marine Protected Areas Center to document state MPA policies and programs, and to compile state and federal policy recommendations toward an improved national MPA system.

To date, a number of studies have documented the diversity of state-level MPAs within various U.S. coastal regions. This study provides a comprehensive inventory of marine managed area systems in all 35 U.S. coastal and Great Lakes states, commonwealths, and territories; a classification system to make possible comparisons and analyses across state and regional boundaries; and a discussion of the potential for coordinating state-level systems with a national system of marine protected areas.

Key Terms

In preparation of this report, state program managers voiced concerns over the use of inconsistent terminology with respect to marine protected areas. According to the Executive Order, the term “marine protected area” is defined as “Any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” However, many different definitions of “marine protected areas” can be found throughout MPA-related literature (see National Research Council, 2001); and widely varying titles given to individual sites do not correspond well with underlying goals, regulatory elements, or durations of protection (e.g. reserves, preserves, sanctuaries, parks, etc; see Jones, 1995).

For this reason, the term “marine managed area” has been adopted and more broadly defined by the National Marine Protected Areas Center to include managed areas which might indirectly, partially, or for a limited duration provide some degree of resource or cultural protection (Wahle, in draft; see Appendix 3 for NOAA’s proposed MMA criteria). This approach is meant to avoid misperceptions of the term “marine protected areas” based on preexisting and inconsistent definitions, and to provide flexibility in the eventual design of a national system.

For this report, it was important to gather information related to all state-level marine managed area systems. By including a wide range of MMA systems, this report can contribute to the deliberations surrounding MPA terminology and classifications. It is hoped that the inclusive approach taken in this report will also facilitate evaluations of protections afforded through various state mechanisms, and considerations of areas that may be suitable for coordination with a national system of MPAs.

Methodology

Input from coastal state representatives remains of chief importance to this analysis of coastal states’ experiences, issues, and recommendations related to marine protected areas. To obtain state involvement and input, a three-tiered approach was taken.

First, information concerning state MMA systems was compiled from existing studies (Appendix 4), legal and administrative codes, a NOAA Office of Ocean and Coastal Resource Management (OCRM) Coastal Programs Division database, and agency websites. This data was then organized into one-page “MMA Summaries” for each coastal state and territory.

Next, a survey instrument (Appendix 5) was developed for distribution to managers of state programs and agencies having influence over or interest in marine managed areas in all 35 coastal states, territories, and commonwealths (for examples, see ‘Relevant Agencies/Programs’ in selected states in Appendix 6). The survey was intended to solicit responses to a variety of potential issues related to state MMA systems. The survey was distributed to state managers of ocean and coastal resources, usually those appointed by their Governor as delegates (or alternate delegates) to the Coastal States Organization (CSO), or to managers referred by a CSO delegate. Personal interviews with these representatives were also conducted over a five-month period (September 2002 – January 2003). During the interviews, which averaged one and one-half hours in duration, each state representative was asked to discuss his/her state’s MMA Systems Summary (Appendix 6) and to review the MMA survey. These representatives then agreed to distribute the survey and/or MMA Summary to potential respondents within other relevant state agencies. In total, 21 survey responses were received nationwide; most of these respondents represented states actively involved with state MPA initiatives.

Finally, a number of discussions regarding policy recommendations were held with members of a Marine Protected Areas State Advisory Group (Appendix 7), which was established to provide guidance and recommendations for this report and NOAA’s MPA inventory initiative. Personal interviews were also held with representatives of the National Marine Protected Areas Center headquarters and the National MPA Science Institute to accurately portray the federal perspective concerning a national system of, and consistent terminology for, U.S. marine protected areas.



SECTION ONE

Characterization of State-Level Marine Managed Areas

Findings of State, Regional, and National MPA Studies

Marine managed areas can offer advantages over sectoral, single-purpose marine laws and regulations by providing heightened protections for unique areas of cultural and environmental significance, addressing multiple objectives simultaneously, enhancing stakeholder involvement, and integrating management authorities within ecosystem-based boundaries. However, these potential benefits cannot be attained when MMAs are established under equally sectoral and single-purpose policies and programs. A number of state, regional, and national studies of marine protected areas in the U.S. have found that few individual sites are designed to comprehensively manage a full range of natural resources and human activities (for example, McArdle, 1997; Atkinson and Hart, 2001; Recchia and others, 2001). Rather, it appears that a wide variety of marine areas are now managed for varying objectives, under disparate legal authorities, using different approaches (National Research Council, 2001).

The diversity of marine managed areas is greatest at the state level, where habitat diversity, cultural sites, use conflicts, and human activities increase within the relatively narrow band of state waters (generally three nautical miles offshore; nine nautical miles offshore of Puerto Rico and the Gulf coasts of Florida and Texas) of the U.S. Exclusive Economic Zone. To address growing concerns over the management of nearshore and intertidal waters, state legislatures have often enacted generic resource laws (e.g. concerning wetlands, beaches, certain wildlife and plant species, etc.) to provide protections for specific natural and cultural marine resources, on a case-by-case basis. However, multiple single-purpose laws and regulations can become overly complex, and can have unanticipated interactions or differing impacts due to varying local circumstances. In some cases, states supplement generic resource laws with special area designations in order to tailor regulations and policies to local or regional circumstances. States also use special area

designations to address ongoing use conflicts over resource, transportation, property, and access rights.

State MMA Establishment Mechanisms

Marine managed areas are established through a variety of legal and regulatory mechanisms at the state level. In some cases, states simply institute policies or goals for a specially designated area to be used in future decisionmaking. This is the case with some area designations used by state coastal management programs to meet requirements of the Coastal Zone Management Act (e.g. Areas of Particular Concern, 16 U.S.C. §1455; Davis, 2003). In other instances, legislation establishes specific protections for areas with poorly defined boundaries, such as particular harbors or bays, within disparate state statutes. These sites are difficult to integrate with other area designations and/or systems. In most states, one or more formal area-based systems (with the potential to include marine areas) have been established. Such systems usually involve clearly standardized features, such as criteria for site selection, public involvement/notification procedures, and required planning or regulatory elements. Area systems are rarely described in detail in state statutes due to their complexity and the associated need for periodic amendments. Rather, these area systems are usually enabled through general statutes that delegate specific implementation details to a regulatory agency. The chosen agency's guidelines and regulations are then published within the state's administrative code.

Special areas may also be established through direct acquisition, which may be authorized and governed through both statutes and agency regulations. Proprietary actions are most often used to protect coastal wetlands, and usually involve deed restrictions, leases, or conservation easements on private properties. In addition, officials in two coastal states mentioned the potential for leasing submerged lands to adjacent landholders for resource protection. Submerged lands are generally held in trust by states for public

use; and while fee simple title to those lands cannot be conveyed permanently by the state, areas can be leased to riparian property owners (for a review of the Public Trust Doctrine, see Coastal States Organization, 1997). In New Jersey, the State Parks Service leased a buffer zone of 300 feet around Sedge Island State Park as a new marine conservation zone, primarily to limit disturbances from personal watercraft. Another coastal program representative suggested that critical marine habitat areas might be leased to nongovernmental organizations (NGOs).

Finally, several states take a more decentralized approach toward marine conservation, and work with local jurisdictions to establish protections over nearshore areas. Existing city and county jurisdictions over these areas can be exceedingly difficult to ascertain; however, some states have specifically delegated authority to local and regional entities to oversee the planning and management of critical coastal areas. In most of these cases, state legislatures define the limits of local authority, establish designation criteria, and set forth required planning and regulatory elements. For example, in Maryland, Virginia, and Washington, local jurisdictions must designate special shoreline areas, including tidal wetlands, for protection from harmful shoreline uses (see Appendix 6).

Four Categories of Marine Area-Based Management Approaches

The wide range of marine managed area goals, legal authorities, management approaches, and establishment mechanisms at the state and local levels makes cross-state comparisons difficult. However, several trends among state-level approaches have begun to emerge. In particular, it was useful to distinguish among four types of marine area-based approaches: marine resource areas, marine overlay zones, marine planning areas, and coastal planning areas (Box 2 and Appendix 8; adapted from Davis, 2003). These categories facilitated discussions with state respondents, and constitute workable distinctions for cross-state analyses of MMA/MPA systems.

Marine Resource Areas

State laws enacted to protect specific marine resources (e.g. submerged aquatic vegetation, tidal wetlands, etc; Table 1) are sometimes included in discussions surrounding marine managed or protected areas when the

Box 2. FOUR CATEGORIES OF STATE-LEVEL AREA-BASED APPROACHES

(See also Appendix 8)

MARINE RESOURCE AREAS:

Marine resources subject to generic state laws, regulations, or policies that can be or have been mapped.

MARINE OVERLAY ZONES:

Broad or multiple geographic areas subject to uniform state laws, regulations or policies within legally defined, fixed marine boundaries. Legal definitions of boundaries are usually based on geographic data such as latitude/longitude, contours, stationary features such as roads or bridges, and/or specified distances, for example, from the mean high water mark.

MARINE PLANNING AREAS:

Distinct marine locations subject to site-specific, ongoing management or regulatory planning within fixed boundaries. A Marine Planning Area is the subject of a site-specific, comprehensive management plan; and often involves ongoing collaborations between relevant agencies and stakeholders at all levels; and subprograms involving education/outreach, enforcement, research, monitoring and evaluation.

COASTAL PLANNING AREAS:

Distinct geographic locations subject to site-specific, ongoing management and/or regulatory planning within legally defined, fixed boundaries that include upland and marine/intertidal components. Coastal planning areas are similar to marine planning areas, but also involve plans for land management or land use recommendations, policies, and/or guidelines aimed at protecting coastal and marine resources from development impacts and impaired water quality.

protected resources are mapped - especially since the advent of aerial photography, remote sensing, and geographic information systems (GIS). Regulations affecting these “marine resource areas,” however, are based on a legal definition of the marine resource itself, rather than a legal definition of boundaries. Because the densities and distributions of marine resources shift over time, any resource maps must be “ground-truthed” for site-specific application of regulations, and must be updated on a continual basis for accuracy.

While most states have enacted laws affording protection to mapped or mappable marine resources, only tidal wetlands, cultural resources, and beaches and dunes were the subjects of general resource laws in ten or more coastal states. And although some of the resources listed in Table 1 are not found in all coastal states and territories, it is apparent that many marine resources may only gain state-level protections through special area designations. Conversely,

where marine resources are only afforded protection by a generic state resource law, it may be mistakenly assumed that protection of the resource is considered equally important regardless of location, size, density, distribution, biological functions, and ecosystem services. According to survey responses, however, a lack of enabling legislation, enforcement mechanisms, and scientific data to support boundary delineations are major constraints to special area designations for these resources.

Several state resource laws are of particular interest. Cultural, historic, and archaeological resources are protected through general resource laws in most states; however, specific attention to submerged cultural resources or shipwrecks was found only in the statutory codes of Virginia, Georgia, and New Jersey. Submerged aquatic vegetation (SAV) laws are found in at least six states that do not use permanent SAV boundary designations. In several states, general statutes concerning wildlife habitats or natural areas were identified. These legal authorities appear to be limited by ambiguous definitions, and likely do little more than clarify intent to conserve natural resources. Statutes or administrative codes regarding estuaries, bays, and coastal islands are similarly vague, but establish state policies to guide future decisionmaking toward limiting human disturbances. In addition, while several states afford protection to shellfish in general, protection of shellfish resources is usually accomplished through overlay zones, as discussed in the following section.

TABLE 1
Marine Resource Areas in State Marine/Intertidal Waters
<i>(in descending order of occurrences)</i>
Tidal Wetlands
Cultural, Historic, and Archaeological Resources
Beaches/Dunes
Submerged Aquatic Vegetation
Natural Areas/Habitats
Coastal Islands
Estuaries/Embayments
Shellfish
Intertidal Flats
Reefs
Channels/Inlets
Rocky Shores
Tidal Streams
Kelp Beds

Marine Overlay Zones

As a corollary to land use approaches, states have established a wide variety of “marine overlay zones.” These are here defined as broad or multiple sites subject to uniform policies or regulations within legally defined, fixed marine boundaries. Areas classified as marine overlay zones represent the greatest diversity of state-level marine managed areas, and range from fishery management zones to ‘no-take’ marine reserves (Table 2). The distinction of having legally defined boundaries is important, as in the case of submerged aquatic vegetation overlay zones in New Jersey, Maryland, Virginia, and Texas. The legal authorities protecting SAVs in these states include clearly defined, fixed boundaries - rather than relying solely on a legal definition of the resource. Therefore, even if no SAVs are present at a given location within the defined boundaries, that location receives heightened protection because it holds the potential for SAVs.

Several states have established general marine conservation zones in response to varying threats, and with varying levels of resource protection. Examples include marine conservation areas in Maine, ocean sanctuaries in Massachusetts, bottomlands preserves in Michigan, aquatic management areas in Minne-

sota, coastal complex natural areas in North Carolina, marine conservation areas in the Commonwealth of the Northern Mariana Islands, and marine preserves in Washington. Few states have established comprehensive “no-take” zones; however, several states have established reserves expressly dedicated to scientific research and monitoring, including scientific and natural areas (SNAs) in Minnesota, scientific reserves in Washington, and scientific areas in Wisconsin.

Fishery management overlay zones vary considerably at the state level. Most states have established shellfish closure areas, but the proportion of closures due to impaired water quality rather than for resource conservation is unknown. Similarly, gear restricted areas may result from use conflicts and yield no resource conservation benefits, or may be intended to prevent overharvesting.

Shorelines are commonly protected through the use of special overlay zones. At least 12 states have some form of general shoreline zone; several have zones specific to beaches, tidal wetlands, rocky shores and intertidal flats. Regulations for these zones usually concern shoreline development impacts rather than resource extractions.

Special coastal and marine habitat areas are also afforded protection through overlay zones. Habitats for endangered species are most commonly protected. Aside from “critical habitats” designated in accordance with the Endangered Species Act (16 U.S.C. §§1531 et seq.), coastal states often designate critical habitat areas for species included on state lists of endangered or threatened species, or augment federal regulations through additional state authorities for critical habitat areas.

A number of coastal states have designated special water quality zones to protect vital marine habitats. For example, California has established 34 state water quality protection areas called “areas of special biological significance” (ASBS) that prohibit most point source discharges of pollutants. Most states have established antidegradation policies for designated “outstanding national resource waters” in accordance with the Clean Water Act (33 U.S.C. §§ 1251 et seq.), and several have begun to use the Clean Water Act authority to designate “no-discharge areas,” which prevent the discharge of treated and untreated boat sewage (33 U.S.C. §1322).

Finally, there is growing interest in the use of marine zoning as a tool for comprehensive ocean governance (e.g. Courtney and Wiggin, 2002). Comprehensive

TABLE 2

Marine Overlay Zones in State Marine/Intertidal Waters

(in descending order of occurrences)

General Conservation Overlay Zones
General No-Take Overlay Zones
Scientific/Research Overlay Zones
Fishery Management Overlay Zones
Shellfish Overlay Zones
Gear Restriction Overlay Zones
Seasonal Closure Overlay Zones
Bottomfish Overlay Zones
Nursery/Spawning Area Overlay Zones
Artificial Reef Overlay Zones
Shoreline Overlay Zones
Beach Overlay Zones
Wetland Overlay Zones
Intertidal Overlay Zones
Habitat Overlay Zones
Endangered Species Overlay Zones
Submerged Aquatic Vegetation Overlay Zones
Special Water Quality Overlay Zones
Coastal Policy Overlay Zones
Areas for Preservation/Restoration Overlay Zones
Areas of Particular Concern Overlay Zones
Recreation Overlay Zones

zoning differs from the described overlay zones in that all marine areas would be included within some uniform classification. An oft-overlooked example of comprehensive marine zoning has been developed in the state of Rhode Island. There, all coastal waters are zoned according to six use categories (Box 3). Regulations vary by zone, and range from the required mitigation of impacts to scenic qualities, to the prohibition of alterations or impacts to marine habitats and water quality.

Marine Planning Areas

The final two categories of state-level MMAs involve site-specific, comprehensive, and ongoing management or regulatory planning. First, “marine planning areas” are here defined as distinct marine locations subject to site-specific, ongoing management or regulatory planning within fixed boundaries. More specifically, a marine planning area is the subject of a site-specific, comprehensive management plan; and usually involves ongoing collaborations between relevant agencies and stakeholders at all levels. In addition, a marine planning area often initiates subprograms involving education, outreach, enforcement, research, monitoring and evaluation; and may use subzones to resolve use conflicts or provide enhanced resource protections.

A limited number of unique marine planning area systems are found nationwide (Table 3). In Oregon, pursuant to Statewide Planning Goal 16 (OAR 660-015-0000(16)), local jurisdictions are responsible for adopting estuary management plans, using four subzones of estuarine areas (natural, conservation, deep-draft, and shallow-draft estuary management units). Uses permitted in each unit are specified in each approved estuary management plan (Oregon DLCDC, 2003). Special management plans are also created for each of Florida’s aquatic preserves, Alaska’s marine parks, Washington’s aquatic preserves and underwater parks, and Texas’ coastal preserves, among others. However, the required elements, regulatory tools, stakeholder processes, subprograms, and impacts of these management plans have yet to be compared.

Approximately nine coastal states, primarily in New England, have authorized specific planning processes for harbor management. These planning areas often focus on use-conflict resolution, but also include resource conservation elements, and should therefore be included as state marine

Box 3. RHODE ISLAND COMPREHENSIVE MARINE ZONING SYSTEM FOR TIDAL AND COASTAL POND WATERS

(Chapter 23 General Laws of Rhode Island: R.I.G.L. 46-23-1 et seq.)

TYPE 1: CONSERVATION AREAS

Water areas that are within the boundaries of designated wildlife refuges and conservation areas, have retained undisturbed natural habitat or maintain scenic values of unique or unusual significance, and are particularly unsuitable for structures.

TYPE 2: LOW INTENSITY USE AREAS

Waters in areas with high scenic value that support low-intensity recreational and residential uses, including seasonal mooring areas where good water quality and fish and wildlife habitat are maintained.

TYPE 3: HIGH INTENSITY BOATING AREAS

Intensely utilized water areas where recreational boating activities dominate and where the adjacent shorelines are developed as marinas, boatyards, and associated water-enhanced and water-dependent businesses.

TYPE 4: MULTIPURPOSE WATERS

Expanses of open water in Narragansett Bay and the Sounds which support commercial and recreational activities while maintaining good value as a fish and wildlife habitat, and coastal waters that could support a variety of water-dependent uses.

TYPE 5: COMMERCIAL AND RECREATIONAL HARBORS

Waters adjacent to waterfront areas that support a variety of tourist, recreational, and commercial activities.

TYPE 6: INDUSTRIAL WATERFRONTS AND COMMERCIAL

Water areas that are extensively altered in order to accommodate commercial and industrial water-dependent and water-enhanced activities.

planning areas. Finally, of particular significance are North Carolina's coastal habitat protection plans, which address all essential fish habitats in North Carolina waters, including "wetlands, fish spawning grounds, estuarine or aquatic endangered or threatened species, primary or secondary nursery areas, shellfish beds, submerged aquatic vegetation (SAV) beds, and habitats in outstanding resource waters" (N.C.G.S. §143B-279.8). This is the only example found of a marine planning area system that specifically addresses all critical marine habitat areas on a statewide scale, and requires input from and consensus among all relevant state agencies and programs.

Coastal Planning Areas

Less attention has been paid to a fourth category of marine managed areas, here termed "coastal planning areas," and their importance as a management approach for coastal states. Coastal planning areas involve planning elements similar to marine planning areas, but integrate water and land use planning. Coastal planning areas that include only state-owned or state-held upland properties usually focus on land management, while areas that include private properties usually establish state-level recommendations, policies, and/or guidelines to protect coastal and marine resources from development impacts and impaired water quality (Table 4). In some cases, special subzones have also been established within coastal planning areas.

State-owned or state-held sites may be classified as coastal planning areas when a site's management plan involves both water and land management. Of these, only natural heritage program areas, state parks, and wildlife management areas are based on similar legal or program authorities across coastal states. The Natural Heritage Program was initiated by The Nature Conservancy in 1974 in South Carolina, and now involves partnerships with all U.S. states and Caribbean territories to identify, inventory, and acquire critical natural areas through purchase or conservation easements (NatureServe, 2003). Coastal states have passed legislation authorizing these area systems, which are referred to as natural heritage program areas, natural areas, or natural area preserves. The total number of heritage program areas that include marine or intertidal components is currently unknown, but they appear to constitute a small portion of U.S. coastal areas and to be limited to intertidal property acquisitions. State parks sometimes include marine components within the purview of their site-specific management plans; however, these plans appear to rarely focus on marine or intertidal areas (notable exceptions include coastal reserves in North Carolina, John Pennekamp Coral Reef State Park in Florida, and Washington's marine parks). Wildlife management areas sometimes contain vast areas of coastal wetlands, but the level of protection afforded marine and cultural resources in their recreationally oriented management plans has yet to be evaluated.

Several coastal planning areas that include private properties have been developed in response to the Coastal Zone Management Act's (CZMA) incentives for special area management planning (16 U.S.C. §§ 1451 et seq.). The CZMA provides incentives for coastal programs to utilize special area management plans (SAMPs) "for increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas...and improved predictability in governmental decisionmaking" (Section 303; 309). Accordingly, many coastal programs are now using SAMPs or similar planning initiatives to address multiple coastal objectives and/or historic use conflicts in special coastal regions. In fact, the use of SAMPs appears to be on the rise, as 21 of 30 coastal programs rated SAMPs as being of medium (7) or high (14) priority in a recent review (NOAA, 1999a). Relatively little is known about the goals, environs, socioeconomic characteristics, management approaches, land use planning tools, and keys to success of these local and regional management areas. NOAA's Office of Ocean and Coastal Resource Man-

TABLE 3

Marine Planning Areas in State Marine/Intertidal Waters

Marine Parks (Alaska)
Aquatic Preserves (Florida)
Marine Preserve System (Guam)
Marine Life Conservation Districts (Hawaii)
Estuary Management Plans (Oregon)
Coastal Preserves (Texas)
Marine Wildlife Sanctuaries (Virgin Islands)
Aquatic Reserves (Washington)

agement (OCRM) is currently supporting a nationwide study of special area management plans that will include a survey of the attributes of individual plans for intra and inter-state comparisons (Davis, 2003).

Some of these planning areas are similar in scope and function to National Estuary Program sites (33 U.S.C. §1330). Aside from initiating subprograms, integrating management agencies, and making policy recommendations to local shoreline jurisdictions, these plans often establish unique subzones, state policies and site review processes for marine activities. However, coastal planning areas involving private properties generally do not have a strong state regulatory component; instead, they generally provide recommendations to relevant local jurisdictions, and encourage the adoption of those recommendations through financial or technical support.

Considerations for a National System of MPAs

Generic state policies, laws, and regulations providing protection to specific marine resources should be distinguished from the true spatial approaches of marine managed areas. Although many of these regulated marine resources can be mapped with high resolution (marine resource areas), such maps do not translate into fixed boundaries because the resources fluctuate over time. Therefore, the longevity requirement found within NOAA's proposed MMA criteria is not met (Appendix 3). Distinguishing and separating marine resource areas from MMA/MPA discussions, inventories, and analyses would help to diminish a significant degree of the complexity described for state-level marine managed areas.

The three remaining categories (marine overlay zones, marine planning areas, and coastal planning areas) may be considered as marine managed areas. Among these, two major patterns emerge. First, resource protection at the state level most often

occurs through single purpose, marine overlay zones, rather than through comprehensive planning areas. This contrasts with federal MPA sites, such as national marine sanctuaries, national parks, and national estuarine research reserves, which are subjects of site-specific management plans. Second, the types of protections afforded marine resources at the state level are quite different from those found at the federal level. States often protect marine resources by regulating coastal development activities, such as dredging/filling, building of docks and marinas, or the construction of permanent structures. States also provide more "partial" protections for resources through the use of special "policy" areas,

TABLE 4

Coastal Planning Areas in State Marine/Intertidal Waters

** Indicates that the area is within a state system of Coastal Planning Areas*

Dog River Watershed Management Plan (Alabama)
Point Mackenzie Area Meriting Special Attention (Alaska)*
Pea Patch Island Heronry Special Area Management Plan (Delaware)
Areas of Critical State Concern (Florida)*
Kane'ohe Bay Master Plan (Hawaii)
Damariscotta River Estuary Management Plan (Maine)
Pleasant Bay Area of Critical Environmental Concern (Massachusetts)*
Meadowlands Green Plan (New Jersey)
Long Island South Shore Estuary Preserve (New York)
Managaha Island Special Planning Area (Northern Marianas)
Marsh Area Special Area Management Plan (Ohio)
Lake Erie Bluffs Special Area Management Plan (Pennsylvania)
Southwest Special Planning Area (Puerto Rico)*
Salt Ponds Region Special Area Management Plan (Rhode Island)*
Charleston Harbor Special Area Management Plan (South Carolina)*
Southern Watersheds Special Area Management Plan (Virginia)*
Grays Harbor Estuary Management Plan (Washington)

special water quality zones, and use-conflict resolution areas. Federal and state managers must decide which of these areas should be coordinated with any national, regional or state-level MPA systems.

Current State Marine Managed Area Initiatives

Several states have recently begun to address the complexity of their marine managed area policies and programs. Updates on state MMA activities are described below for California, Alaska, Oregon, and Washington.

California

California has passed two key pieces of legislation aimed at 1) creating clear authorities for future MPA designations and 2) establishing an improved classification system for state-level marine managed areas, to which all future designations would be assigned.

First, the California Marine Life Protection Act (MLPA; Assembly Bill 993) is intended to improve the management and coordination of marine protected areas existing in state waters through the adoption of a Marine Life Protection Program and a comprehensive master plan. The law establishes clear policy guidelines and planning processes for the design and siting of future MPAs, and authorizes the creation of a comprehensive network of MPAs in California's waters. In addition, the law promotes the concept of adaptive management by emphasizing the monitoring and evaluation of MPA programmatic outcomes.

The California Marine Managed Area Improvement Act (MMAIA; Assembly Bill 2800) represents a second important step toward a comprehensive MPA system in California's waters. The MMAIA's central achievement is the consolidation of eighteen preexisting forms of marine managed areas into six standardized classifications (Box 4). The Act also requires the Secretary of the California Resources Agency to establish and chair a state interagency coordinating committee made up of representatives from state entities with jurisdiction over or management interests in marine managed areas, which will review proposals for new or amended MMAs. Final-

Box 4. NEW CLASSIFICATION SCHEME FOR CALIFORNIA'S MARINE MANAGED AREAS

STATE MARINE RESERVES

Protects all living and non-living marine resources from commercial and recreational exploitation, and may limit non-consumptive recreational uses that would compromise such protection.

STATE MARINE PARK

Protects all living and non-living marine resources and cultural or recreational features from commercial exploitation, while allowing public use, enjoyment and education in a manner consistent with protecting resources values. Some human uses may be restricted to protect resource values.

STATE MARINE CONSERVATION AREA

Protects some living or geological marine resources (does not include cultural or recreational values) from certain commercial, recreational or a combination of commercial and recreational exploitation.

STATE MARINE CULTURAL PRESERVATION AREA

Protects all cultural resources from commercial or recreational exploitation.

STATE MARINE RECREATIONAL MANAGEMENT AREA

Protects, enhances or restricts recreational opportunities while preserving basic resources values.

STATE WATER QUALITY PROTECTION AREA

Protects water quality by prohibiting or limiting point sources waste and thermal discharges by special conditions. Controls nonpoint source pollution to the extent practicable.

ly, the law establishes a scientific review panel, with statewide representation, to evaluate MMA proposals for technical and scientific validity.

Alaska

National and local conservation groups, as well as coastal Alaska residents, are beginning to consider and develop proposals for marine protected areas as a means of sustaining Alaska's fisheries and protecting marine biological and cultural resources. Sensitive marine habitats would receive substantial protection from

disturbance by fishing gear to ensure their continued contribution to marine ecosystems. Actions to achieve the goals of marine protection are based in part on recommendations by the National Research Council (2001) and the Alaska Department of Fish and Game.

Marine reserves, or 'no-take' areas, are the type of marine protected area of greatest concern to the Alaskan public and for which the Alaska Board of Fisheries has only limited precedent and policies to address. The Board has extensive experience with proposals and regulations for less restrictive closures involving single species and various gear types. Marine reserves may be created to reduce the risk of stock collapse, rebuild overfished populations or stocks, provide research controls, sustain biodiversity, and enhance fishery yields.

In July 2002, the Department issued a report entitled "Marine Protected Areas in Alaska - Recommendations for a Public Process." (Alaska Department of Fish and Game, 2002).

Staff from the Department of Fish and Game, in conjunction with a statewide task force, have begun inventorying waters closed to commercial harvest. The inventory will include descriptive attributes for each area as well as spatial referencing and topological information necessary to perform spatial queries and display mapped information. To date, 218 potential MPA sites have been catalogued.

Oregon

After nearly two years of studies concerning marine reserves and protected areas, the Oregon Ocean Policy Advisory Council (OPAC) recommended that state officials establish a limited system of marine reserves in order to test and evaluate their effectiveness in meeting marine resource conservation objectives. The purpose of such a system and process is to help program managers meet the conservation objectives of a state-wide ocean plan which includes maintaining the long-term benefits of renewable marine resources and protecting marine biodiversity, critical marine habitats, and areas important to marine fisheries.

The 1991 state legislature passed the Oregon Ocean Resources Management Act (ORS 196.405-515), which created the Ocean Resources Program as it now

exists. The legislation designated the Department of Land Conservation as the lead agency for ocean planning. State legislators realized that Oregon's existing federally-approved Coastal Management Program (OCMP) provided a strong policy and legal foundation for ocean management by involving state agencies, local governments, and federal agencies. The law references "applicable elements" of the OCMP, such as statutes, programs, and policies of state agencies, local government plans, and statewide planning goals that relate to the conservation and development of ocean and coastal resources such as the statewide ocean planning goal.

Washington

In recent years, a strong interest in marine protected areas has emerged in Washington State and the bordering British Columbia. In 1994, the British Columbia/Washington Marine Science Panel recommended, with high priority, that MPAs be established in Puget Sound. The Washington marine protected areas Work Group, formed in 1995, developed a strategy for identifying and establishing a network of MPA sites.

Under the guidance of the Puget Sound/George Basin International Task Force, work groups from the U.S. and Canada assembled to address the British Columbia/Washington Marine Science Panel's recommendation of establishing a network of marine protected areas. One work group, the Washington marine protected areas Work Group, developed a common strategy for identifying and forming a network of MPAs (Murray, 1998).

In addition to recommendations and action from the British Columbia/Washington Marine Science Panel and associated work groups, other calls for establishing marine protected areas in the Washington have emerged. The Washington Fish and Wildlife Commission adopted new policy calling for the development of a marine protected areas strategy. The Washington State Parks and Recreation Commission has received funding, convened a task force, and taken initial steps toward more complete development of an underwater parks program, a development which may hold potential for the establishment of additional MPAs.

SECTION TWO

Implications of a National MPA System

Executive Order 13158 on Marine Protected Areas

In 1998, President Clinton announced the creation of a U.S. Coral Reef Task Force (Executive Order 13089), to strengthen and expand protections for special coral reef areas in U.S. waters, at the National Ocean Conference in Monterey, California. Amid announcements of other ocean-related initiatives, the President also directed his Cabinet, with the support of independent agencies, to provide additional recommendations for a coordinated, comprehensive, and long-term federal ocean policy. A year later, the National Ocean Conference Report was published, and included recommendations for an integrated, comprehensive network of U.S. marine protected areas (Danzig and Daley, 1999). The recommendations were primarily based on the finding that MPA programs and authorities at the federal level were fragmented. In particular, federal sites created over the past several decades, such as fishery management zones established by regional fishery councils in accordance with the Magnuson-Stevens Act (16 U.S.C. §§1801 et seq.), National Marine Sanctuaries (16 U.S.C. §§1431 et seq.), National Parks and Seashores (16 U.S.C. §§1 et seq.), National Wildlife Refuges (16 U.S.C. §668dd), National Monuments established under the Antiquities Act (16 USC §§431-433), and National Estuary Programs (33 U.S.C. §§1330 et seq.), present a disjointed approach to special area designations for marine resource protections. In addition, each of these federal authorities has jurisdiction over relatively small portions of the U.S. Exclusive Economic Zone, and range from sites exclusively within federal waters, to sites encompassing waters under local, state, and federal jurisdictions.

Executive Order 13158 (Appendix 2) was promulgated in May of 2000, and retained by the present administration in June of 2001, to address the longstanding complexity of current MPA systems at the federal, regional, state, and local levels. The objectives of the Executive Order are to:

a) strengthen the management, protection, and conservation of existing marine protected areas and establish new or expanded MPAs; (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; and (c) avoid causing harm to MPAs through federally conducted, approved, or funded activities.

The Executive Order calls on the Departments of Commerce and the Interior to lead the initiative, and to work with other relevant agencies in carrying out the Order's requirements. NOAA's National Ocean Service has been selected as the lead agency within the Department of Commerce, while the Minerals Management Service will serve as the lead agency from the Department of the Interior. These agencies are required to consult with coastal states, commonwealths, and territories, on a voluntary basis, to promote the establishment of a national system of MPAs.

To coordinate this initiative, the Executive Order called for the establishment of a National MPA Center, which was formally established in 2002. The MPA Center, located in Silver Spring, Maryland, is directed to partner with federal, state, territorial, and commonwealth governments and non-governmental organizations to develop a framework for a national system of MPAs, and to provide these entities with information, technologies, and strategies to support the system (Box 5). The National MPA Center also supports the Institute for MPA Science, located in Santa Cruz, California, and the Institute for MPA Training and Technical Assistance, located within NOAA's Coastal Services Center in Charleston, South Carolina.

The Executive Order presents a clear definition of the term "marine protected areas," calls for improving MPA-related sciences, a science-based, ecological approach to managing marine resources, measuring the effectiveness of existing MPAs, public participation throughout all stages of MPA establishment and

Box 5. MISSION STATEMENT/GOALS OF THE NATIONAL MARINE PROTECTED AREAS CENTER

VISION

An effective, science-based, and collaborative national system of Marine Protected Areas conserving marine ecosystems and cultural resources throughout the U.S.

MISSION

To facilitate the effective use of science, technology, training, and information in the planning, management and evaluation of the nation's system of marine protected areas.

GOALS

1. To enhance MPA stewardship by strengthening capacity for planning, management, and evaluation.

In support, the MPA Center works to assess the needs of existing MPAs, develop the natural and social science foundations and support tools for decision-making, provide training and technical support for MPA managers on relevant issues and processes and increase public awareness and understanding of MPAs.

2. To facilitate national and regional coordination of MPA activities.

In support, the Center works to facilitate the integration of local MPA sites and fosters meaningful stakeholder participation in regional activities and to improve national and international linkages across MPA programs.

3. To facilitate the design of an effective, science-based national system of MPAs.

In support, the Center works with partners and stakeholders to develop a conceptual framework and blueprint for a national system, to develop a comprehensive national inventory, and to assess the effectiveness and gaps of existing suite of MPAs in meeting the goal of the national system.

management, and improved coordination among relevant federal, state, tribal, and local MPA authorities and programs. It is equally important to clarify what the Executive Order is not meant to accomplish. The Order does not designate new sites, create new or alter existing MPA authorities, focus solely on 'no-take' marine reserves, set specific conservation targets (e.g. a specific percentage of the total ocean surface to be protected), automatically restructure existing programs, supercede or ignore best available science, or "federalize" state or local coastal programs (Hogarth, 2002).

What a National MPA System Might Mean

In response to Executive Order 13158, NOAA's National Marine Protected Areas Center is in the early

stages of contemplating a comprehensive national system of marine protected areas. A comprehensive system of MPAs, as is currently and unofficially defined by the MPA Center, is made up of the collection of MPA sites of all types, purposes, and jurisdictions that collectively contribute to the conservation of the marine biodiversity, fisheries, protected species, and/or cultural resources through the protection of habitats, resources, and ecologically important processes (Wahle, in draft). Under this definition, a comprehensive national MPA system already exists. The core intent of the Executive Order, however, is to integrate, improve, and possibly expand the current system of federal, regional, state, and local MPAs.

To this end, a logical first step is the collection of information on existing MMA systems to identify: 1) boundary and jurisdictional overlaps; 2) conflicting,

ineffective, or inefficient management strategies; and 3) marine areas that are in need of heightened protection in order to contribute to ecologically-based MPA networks. The next step is less clear, but would likely involve some degree of enhanced coordination between federal and state-level MPAs. The framework necessary for this new federal/state coordination has not yet been proposed, but will likely be designed to improve coordination between existing state and federal programs, and to create new channels for establishing and expanding marine protected areas.

The establishment of new marine protected areas within the context of a national system is expected to involve improved collaborations between coastal states and the federal government on ecological, social, and economic considerations. Such collaborations can focus on ecosystem-level processes that cross jurisdictional boundaries, rather than strictly adhering to analyses of areas within either state or federal control. However, confusion exists among coastal state representatives concerning the roles of federal programs in future MPA collaborations. Considering the unique circumstances surrounding each candidate MPA, states are often uncertain as to which federal authority to consult, and how to proceed. For example, when considering the establishment of a ‘no-take’ marine reserve encompassing both state and federal waters, state representatives are unclear on how and whether to proceed with regional fishery councils, National Marine Sanctuaries, National Parks, or other federal programs and agencies.

In fact, few federal programs have the necessary authority to establish marine protected areas that comprehensively address marine species and uses. National Marine Sanctuaries and National Monuments are uncommon because of the significant investments required for new site designations (i.e. specific acts of Congress or Presidential Executive Orders). The authority of National Parks and National Wildlife Refuges to establish offshore MPAs is uncertain, and the various multi-species fishery management zones designated by regional fishery councils and the National Marine Fisheries Service appear fragmented, generally target only commercially important species, and address only fishing activities. Furthermore, the willingness of these federal programs to pursue new and expanded MPAs is unclear to state officials.

Given the current complexity of marine managed area systems at both the state and federal levels, the National Marine Protected Areas Center seeks broad

representation and input for the development of a federal/state framework for the national MPA system. Part of this input will be gained from a newly appointed Federal Advisory Committee on marine protected areas that was established in accordance with the Executive Order and represents a wide variety of interests, including resource managers, academics, and marine-related industry professionals. Additional state-level input would be beneficial in developing a framework for federal/state coordination. For this reason, the following potential ‘national MPA system’ scenarios are presented for consideration.

Scenario One: The national system could end up largely based on existing MMAs and MPAs. Gap analyses based on data collection efforts would be used to suggest and encourage additional areas for special designations. Any federal support of state-level MPA activities might take the form of published guidelines or Best Management Practices, limited technical support, and partial financial support of statewide MPA planning, education, or programmatic initiatives.

Scenario Two: The second scenario involves a new regional approach for MPA collaborations among relevant federal, state, local, and tribal authorities and stakeholders. Under this framework, planning initiatives would be launched within marine regions such as the Gulf of Maine, Great Lakes, or Gulf of Mexico. Existing regional entities, such as the Gulf of Maine Council or Great Lakes Commission, might gain federal support to lead efforts to establish some degree of standardization among existing MPA systems, to coordinate management activities, and to plan for additional or expanded MPAs.

Scenario Three: The third scenario involves the adoption of specific, state MPA sites into a national system. Under this framework, a state might voluntarily nominate an area for adoption into one of several clearly defined federal MPA categories to gain federal financial, technical, outreach, and/or enforcement support. Adopted sites would then be jointly managed by state and federal authorities. This is the model currently used for National Estuarine Research Reserves under the Coastal Zone Management Act (16 U.S.C. §§1461 et seq.), but could be expanded beyond these “scientific reserves” to include key state-level marine reserves (no-take areas), cultural protection areas, recreational management areas, water quality protection areas, and/or marine and coastal planning areas within a comprehensive national MPA system.

What a National MPA System Might Achieve

Undoubtedly, there are additional ‘national MPA system’ scenarios, and derivatives of the three listed above. In any case, efforts to enhance existing MPA systems and improve federal/state coordination will likely yield a number of important benefits to coastal states. First, it seems unlikely that effective MPA networks can be established in the absence of clear, integrated MPA systems. MPA networks are unofficially defined by the National MPA Center as sets of MPA sites within a region that are connected through larval dispersal, adult migration, or other ecologically significant processes. A network should, therefore, enhance the stability and persistence of its component MPAs, and potentially of the surrounding ecosystem and its associated uses (Wahle, in draft). To establish effective MPA networks, however, standardized management approaches would likely be needed within improved MPA systems.

Next, states that are interested in or actively working on marine area conservation could receive federal technical, financial, and outreach assistance to support programs to plan for, implement, and manage MPAs. Regardless of the future form of a national MPA system, a number of federal agencies are especially positioned and programmed to assist states with MPA initiatives, such as NOAA’s Office of Ocean and Coastal Resources Management, Coastal Services Center, marine protected areas Center, and National Marine Sanctuary Program; as well as the National Centers for Sponsored Coastal Ocean Research, National Marine Fisheries Service, and Sea Grant.

An improved national MPA system could also benefit states by 1) reducing current administrative, enforcement, and user-level confusion surrounding MPA regulations and boundaries, 2) improving ocean governance by engaging multiple objectives simultaneously, and 3) coordinating management entities both vertically (local/state/federal) and horizontally (across and within agencies). In addition, a national system would facilitate the transfer of area-specific environmental and policy information, especially through linkages with Geographic Information Systems (GIS). By improving the organization of policy and environmental data, the integration of MPA policies and programs could facilitate future planning, decisionmaking, evaluations of program effectiveness, and comparisons/analyses across political boundaries. It is currently difficult to evaluate the conserva-

tion benefits of the wide variety of marine managed areas described in the preceding sections. Data concerning ecosystem processes, species migrations, and larval sources and sinks need to be integrated with a clear management framework for MPAs to test the effectiveness of various management approaches, and to establish effective, comprehensive MPA networks.

In fact, an important step toward the organization of policy and environmental data related to state-level marine managed and protected areas has already been initiated. The National MPA Center is currently conducting a site-specific inventory and characterization of state-level MMAs that will provide baseline information for assessing the effectiveness of existing state MPA systems, allow state and regional gap analyses for policy and management decisionmaking, and establish a foundation for improved state and national MPA systems. The Center is providing technical assistance to the states, as well as sponsoring state-based interns to assist with site-specific data collection. The final inventory will be made available to all prospective users through the MPA Center’s website (<http://www.mpa.gov>).

Constraints on State Participation in a National System

Despite these potential benefits, coastal states face significant constraints on participation in the planning and implementation of a national system of marine protected areas. These constraints include a lack of research and monitoring capacity, reduced program capacities due to low funding levels and durations, and political vulnerabilities; and largely result from the significant asymmetry between the capacity of federal agencies and coastal states with regard to ocean governance.

State coastal management programs and other state agency programs generally have limited scientific and technical capacity in marine research and monitoring, which are necessary to support planning for and implementing MPAs (Recksiek and Hinchcliff, 2002). In contrast, federal agencies, such as those within NOAA, the Environmental Protection Agency, and the Department of the Interior, have vast scientific research and monitoring capabilities. States often partner with universities and other institutions that have scientific and technical capability, but such partnerships usually rely on difficult-to-obtain outside federal or foundation funding and professional oversight.

In addition, many state agencies and programs do not presently have the resources needed to effectively implement a comprehensive system of MPAs. Even programs that are actively addressing MPA issues within their states have limited staff available to expand beyond existing activities to participate with federal agencies in the development of a national system. The ability of coastal states to fund such initiatives varies widely, but generally, all coastal states are currently experiencing severe budget problems. Furthermore, many states have historically regarded marine area management as a federal activity, and consequently their state budgets rarely include funding to support state management, monitoring, and research of marine resources and areas.

Finally, by any name, the issue of marine protected areas is controversial worldwide. Such controversy pres-

ents a special challenge for coastal states because of the high potential for political action to prevent or direct state-level efforts regarding MMAs. In addition, survey responses revealed a number of political conflicts between state agencies with conflicting missions regarding the management of coastal and ocean resources.

These and other constraints pose serious challenges for states interested in improving their current marine protected area systems. However, nearly all of the state representatives interviewed for this study expressed a desire to overcome these hurdles in order to participate in an effective national, or at least regional, system of MPAs. Therefore, the following sections provide recommendations for both state and federal officials that might help achieve the ambitious goals of Executive Order 13158.



SECTION THREE

Proposed Recommendations for a National MPA System

State Recommendations

Recommendation #1:

Coastal states should assess legislative authority and administrative capabilities for marine managed areas; and, where appropriate, develop a systematic approach to areas under state jurisdiction.

Discussion: Coastal states should consider undertaking a comprehensive planning initiative, similar to that conducted by the state of California, to simplify and standardize marine managed area classifications statewide (see pp. 26-27; California Resources Agency, 2001). In the absence of a clear and uniform classification system at the state level, it will be difficult to effectively coordinate existing state MMAs with any future regional or national MPA systems. In addition, states could achieve a number of internal benefits by integrating existing MMA systems (see pp. 35-36), and can take advantage of the National MPA Center's MMA data collection efforts to promote such legislative or programmatic initiatives.

Recommendation #2:

Coastal states should utilize the National Coastal Zone Management Program to enhance MPA Systems.

Discussion: The National Coastal Zone Management Program, established by the Coastal Zone Management Act and administered by NOAA's Office of Ocean and Coastal Resource Management, could play an important role in the future integration of MPA systems and networks if states elect to coordinate their MPA policies and programs through their coastal management programs. While the administrative and political circumstances of each state are unique, it appears that state coastal programs have a number of attributes that could support the integration of MMA systems:

- Coastal programs already network and coordinate the diverse agencies and programs that have jurisdiction over or interest in MMAs.

- Even though most coastal programs do not have direct regulatory authority over specific MMAs, area-specific policies and management plans could be, and have been, incorporated into their NOAA-approved enforceable policies, which trigger the federal consistency provision of the CZMA (16 U.S.C. §1456(c)). [Survey responses to this question varied considerably, from absolute support to skepticism that OCRM would approve MPA additions to state enforceable policies. It should be noted that one of the explicit objectives of Executive Order 13158 is to "avoid causing harm to MPAs through federally conducted, approved, or funded activities," language that mirrors the CZMA's federal consistency provision.]
- State coastal programs could compete for CZMA Section 309 Ocean Governance Enhancement Grants to support statewide MMA planning (NOAA, 1999b).
- Coastal programs could also serve as information clearinghouses for state MMA systems, in many cases through improved partnerships with national estuarine research reserves (NERRs). In the 21 coastal states that currently host a NERR, coastal program managers could partner with NERR managers to develop environmental, policy, monitoring, research, and spatial data related to state MPAs.
- Coastal programs could expand the "boundaries" of coastal zone management by integrating MMA programs, research, and monitoring into other coastal program activities.

Federal Recommendations

Since the Executive Order on Marine Protected Areas was promulgated, a number of coastal state recommendations (Baird, 2002; CSO, 2002) have been submitted to the U.S. Commission on Ocean Policy, which is currently undertaking a comprehensive review of ocean and coastal governance in accordance with the Oceans Act of 2000 (P.L. 106-256). The fol-

lowing sections echo a number of the earlier recommendations that concerned federal/state interactions within a national MPA system, and introduce more specific proposals related to state coordination for federal officials to consider.

Recommendation #3:

Develop a consistent national terminology and MPA classification system.

Discussion: The most consistent concern voiced by state respondents was the need for uniform terminology and a nationwide classification system that would accommodate the diversity of MMAs already used by coastal states. MPA-related terminology is already under development at the National MPA Center to accommodate a wide variety of terms such as marine managed areas, marine protected areas, marine reserves, etc. (Wahle, in draft). A consistent national terminology will clarify discussions and collaborations among federal agencies, coastal states and local stakeholders. Next, with the establishment of a national MPA classification system, specific sites would be assigned within a category based on common management elements. Based on input from coastal state representatives, the categories discussed in this report (see Box 2; Appendix 8) may provide a useful tier for a national MPA classification system because the distinctions between marine overlay zones, marine planning areas and coastal planning areas take into account the diverse MMAs found at the state and local levels.

Executive Order 13158 envisions an integrated national system of MPAs. Within this system, certain areas of the marine environment may warrant special, multi-objective planning programs, which themselves are capable of integrating the diverse types of MMAs found in any given region. However, differences between the management approaches within federal coastal and marine planning areas (e.g. national parks, national estuarine research reserves, national marine sanctuaries), and state-level coastal/marine planning areas (e.g. estuary management plans, aquatic preserves, and marine parks), are not well documented. Furthermore, states rely to varying degrees on marine planning areas, coastal planning areas, and marine overlay zones, and this contributes to the complex MMA seascape that the Executive Order was meant to address. Clarifying the relationships between and among the four categories of marine area-based management approaches presented in this report, as well as relationships between these state-level categories

and federal MPA policies and programs, may be important in clarifying, improving, and strengthening a comprehensive national MPA system.

Recommendation #4:

Provide financial, technical, and scientific support to enable states to participate in a national system of marine protected areas.

Discussion: State representatives consistently responded that their participation in a national system is contingent upon additional financial, technical, administrative, and scientific support. Many state-level MPAs already suffer from insufficient resources needed for research, monitoring, evaluation, enforcement, outreach and other long-term needs. In the absence of such long-term commitments, MPAs can quickly become ‘paper parks,’ and can be misconstrued as providing sufficient resource protections while lacking necessary on-site management. While some federal programs currently offer support for state-level MPAs (see pp. 35-36), a number of state respondents recommended that the federal government adopt a formal mechanism to provide financial assistance in support of improved MPA management.

Recommendation #5:

Establish a clear process for future MPA designations in federal waters and across federal/state jurisdictions.

Discussion: Ecosystem-level patterns and processes do not conform to political jurisdictions, but should be considered in establishing networks of marine protected areas. Future ecological assessments may determine a need for MPA designations in federal waters, or across federal/state boundaries, to complement MPAs established in nearshore, state waters. However, federal authorities and processes for the establishment of MPAs that comprehensively address marine resources and human uses are currently unclear. Improved guidelines and/or new statutory provisions are therefore needed for federal MPA designations, and should build upon a national MPA classification system. For example, if a coastal state seeks to establish a network of ‘no-take’ marine reserves in both state and federal waters, it should be clearly directed toward a federal program with the authority for such designations. In addition, a clear process should be developed to facilitate MPA designations or expansions across federal/state boundaries.

Recommendation #6:

Utilize a regional framework for the national MPA system.

Discussion: Many state representatives were skeptical about the benefits of a national system of MPAs, unless that system utilizes a regional approach. Several officials recommended that the proposed national system should support existing regional entities, such as the Gulf of Maine Council and Great Lakes Commission, in carrying out MPA planning initiatives. It

was further suggested that regions could be based on the extent of large marine ecosystems (LMEs), political or management jurisdictions at the state and federal level, or other factors; but should be aligned with anticipated recommendations forthcoming from the U.S. Commission on Ocean Policy with respect to regional ocean governance. Finally, it was recommended that regions provide the basis for ecological and management gap assessments to support designations of new marine protected areas.



CONCLUSIONS

The complexities of state marine managed area programs and policies, as documented in this report, present a convincing case for the enhancement of current area-based management regimes for the conservation of marine resources. Efforts to streamline and coordinate MPA policies and programs would also be beneficial to states interested in participating in a regional governance framework. For these reasons, some states have already begun to address the need to simplify and better coordinate their MPA systems through programmatic and policy initiatives.

In other states, coastal programs may be best suited for future initiatives aimed at improving state MPA

systems and integrating state sites into regional or national networks. This, however, presents a major undertaking - officials from relevant state agencies will need to commit to major efforts that center on both legislative and programmatic changes. Coastal states appear to be at varying levels of readiness and interest in assuming such an undertaking in the face of significant political and institutional constraints. Therefore, state participation in national or regional MPA systems appears to hinge upon federal support in the form of financial, technical, administrative, and scientific assistance.

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APPENDIX I

Glossary of Terms



Coastal Planning Areas: Distinct geographic locations subject to site-specific, ongoing management and/or regulatory planning within legally defined, fixed boundaries that include upland and marine/intertidal components. Coastal planning areas are similar to marine planning areas, but also involve plans for land management or land use recommendations, policies, and/or guidelines aimed at protecting coastal and marine resources from development impacts and impaired water quality. (see Appendix 8).

Marine: Waters under tidal influence, extending to the mean high water mark on land, and into river mouths to a salinity gradient of 5 parts/thousand, and the fresh waters of the Great Lakes to the ordinary high water mark on land.

Marine Managed Areas: Managed areas in the marine environment that might indirectly, partially, or for a limited duration provide some degree of resource or cultural protection (see also Appendix 3). As used in this report, marine planning areas, coastal planning areas, and marine overlay zones should be considered as three primary categories of state-level marine managed areas.

Marine Overlay Zones: Broad or multiple geographic areas subject to uniform state laws, regulations or policies within legally defined, fixed marine boundaries. Legal definitions of boundaries are usually based on geographic data such as latitude/longitude, contours, stationary features such as roads or bridges, and/or specified distances, for example, from the mean high water mark. Special overlay zones do not include so-called “floating zones,” or zones that “come to rest” over activities once sited, such as aquaculture sites (see also Appendix 8).

Marine Planning Areas: Distinct marine locations subject to site-specific, ongoing management or regu-

latory planning within fixed boundaries. A marine planning area is the subject of a site-specific, comprehensive management plan; and often involves ongoing collaborations between relevant agencies and stakeholders at all levels; and subprograms involving education/outreach, enforcement, research, monitoring and evaluation (see also Appendix 8).

Marine Protected Areas: Areas of the marine environment that have been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.

Marine Reserves (or No-take Areas): Areas in which all extractive activities are prohibited.

Marine Resource Areas: Marine resources subject to generic state laws, regulations, or policies that can be or have been mapped. (see also Appendix 8).

Network (of MPAs): Sets of MPA sites within a region that are connected through larval dispersal, adult migration, or other ecologically significant processes. A comprehensive network would address all conservation objectives through biological and ecological linkages among MPA sites of all types, purposes, and jurisdictions.

State: All coastal and Great Lakes states, territories and commonwealths of the United States.

System (MMAs/MPAs): The collection of sites of all types, purposes, and jurisdictions that collectively contribute to the conservation of the marine biodiversity, fisheries, protected species, and/or cultural resources through the protection of habitats, resources, and ecologically important processes.

APPENDIX 2

Executive Order 13158 of May 26, 2000



Marine Protected Areas

By the authority vested in me as President by the Constitution and the laws of the United States of America and in furtherance of the purposes of the National Marine Sanctuaries Act (16 U.S.C. 1431 et seq.), National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-ee), National Park Service Organic Act (16 U.S.C. 1 et seq.), National Historic Preservation Act (16 U.S.C. 470 et seq.), Wilderness Act (16 U.S.C. 1131 et seq.), Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), Coastal Zone Management Act (16 U.S.C. 1451 et seq.), Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), Marine Mammal Protection Act (16 U.S.C. 1362 et seq.), Clean Water Act of 1977 (33 U.S.C. 1251 et seq.), National Environmental Policy Act, as amended (42 U.S.C. 4321 et seq.), Outer Continental Shelf Lands Act (42 U.S.C. 1331 et seq.), and other pertinent statutes, it is ordered as follows:

Section 1. Purpose. This Executive Order will help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). An expanded and strengthened comprehensive system of marine protected areas throughout the marine environment would enhance the conservation of our Nation's natural and cultural marine heritage and the ecologically and economically sustainable use of the marine environment for future generations. To this end, the purpose of this order is to, consistent with domestic and international law: (a) strengthen the management, protection, and conservation of existing marine protected areas and establish new or expanded MPAs; (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; and (c) avoid causing harm to MPAs through federally conducted, approved, or funded activities.

Sec. 2. Definitions. For the purposes of this order:

- a. "Marine protected area" means any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.
- b. "Marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands thereunder, over which the United States exercises jurisdiction, consistent with international law.
- c. The term "United States" includes the several states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

Sec. 3. MPA Establishment, Protection, and Management. Each federal agency whose authorities provide for the establishment or management of MPAs shall take appropriate actions to enhance or expand protection of existing MPAs and establish or recommend, as appropriate, new MPAs. Agencies implementing this section shall consult with the agencies identified in subsection 4(a) of this order, consistent with existing requirements.

Sec. 4. National System of MPAs. (a) To the extent permitted by law and subject to the availability of appropriations, the Department of Commerce and the Department of the Interior, in consultation with the Department of Defense, the Department of State, the United States Agency for International Development, the Department of Transportation, the Environmental Protection Agency, the National Science Foundation, and other pertinent federal agencies shall develop a national system of MPAs. They shall coordinate and share information, tools, and strategies, and provide guidance to enable and encourage the use of the following in the exercise of each agency's respective authorities to further enhance and expand protection of existing MPAs and to establish or recommend new MPAs, as appropriate:

1. science-based identification and prioritization of natural and cultural resources for additional protection;
 2. integrated assessments of ecological linkages among MPAs, including ecological reserves in which consumptive uses of resources are prohibited, to provide synergistic benefits;
 3. a biological assessment of the minimum area where consumptive uses would be prohibited that is necessary to preserve representative habitats in different geographic areas of the marine environment;
 4. an assessment of threats and gaps in levels of protection currently afforded to natural and cultural resources, as appropriate;
 5. practical, science-based criteria and protocols for monitoring and evaluating the effectiveness of MPAs;
 6. identification of emerging threats and user conflicts affecting MPAs and appropriate, practical, and equitable management solutions, including effective enforcement strategies, to eliminate or reduce such threats and conflicts;
 7. assessment of the economic effects of the preferred management solutions; and
 8. identification of opportunities to improve linkages with, and technical assistance to, international marine protected area programs.
- b. In carrying out the requirements of section 4 of this order, the Department of Commerce and the Department of the Interior shall consult with those states that contain portions of the marine environment, the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands, tribes, Regional Fishery Management Councils, and other entities, as appropriate, to promote coordination of federal, state, territorial, and tribal actions to establish and manage MPAs.
 - c. In carrying out the requirements of this section, the Department of Commerce and the Department of the Interior shall seek the expert advice and recommendations of non-federal scientists, resource managers, and other interested persons and organizations through a Marine Protected Area Federal Advisory Committee. The Committee shall be established by the Department of Commerce.
 - d. The Secretary of Commerce and the Secretary of the Interior shall establish and jointly manage a website for information on MPAs and federal agency reports required by this order. They shall also publish and maintain a list of MPAs that meet the definition of MPA for the purposes of this order.
 - e. The Department of Commerce's National Oceanic and Atmospheric Administration shall establish a Marine Protected Area Center to carry out, in cooperation with the Department of the Interior, the requirements of subsection 4(a) of this order, coordinate the website established pursuant to subsection 4(d) of this order, and partner with governmental and nongovernmental entities to conduct necessary research, analysis, and exploration. The goal of the MPA Center shall be, in cooperation with the Department of the Interior, to develop a framework for a national system of MPAs, and to provide federal, state, territorial, tribal, and local governments with the information, technologies, and strategies to support the system. This national system framework and the work of the MPA Center is intended to support, not interfere with, agencies' independent exercise of their own existing authorities.
 - f. To better protect beaches, coasts, and the marine environment from pollution, the Environmental Protection Agency (EPA), relying upon existing Clean Water Act authorities, shall expeditiously propose new science-based regulations, as necessary, to ensure appropriate levels of protection for the marine environment. Such regulations may include the identification of areas that warrant additional pollution protections and the enhancement of marine water quality standards. The EPA shall consult with the federal agencies identified in subsection 4(a) of this order, states, territories, tribes, and the public in the development of such new regulations.
- Sec. 5. Agency Responsibilities.** Each federal agency whose actions affect the natural or cultural resources that are protected by an MPA shall identify such actions. To the extent permitted by law and to the maximum extent practicable, each federal agency, in taking such actions, shall avoid harm to the natural and cultural resources that are protected by an MPA. In implementing this section, each federal agency shall refer to the MPAs identified under subsection 4(d) of this order.
- Sec. 6. Accountability.** Each federal agency that is required to take actions under this order shall prepare and make public annually a concise description of ac-

tions taken by it in the previous year to implement the order, including a description of written comments by any person or organization stating that the agency has not complied with this order and a response to such comments by the agency.

Sec. 7. International Law. Federal agencies taking actions pursuant to this Executive Order must act in accordance with international law and with Presidential Proclamation 5928 of December 27, 1988, on the Territorial Sea of the United States of America, Presidential Proclamation 5030 of March 10, 1983, on the Exclusive Economic Zone of the United States of America, and Presidential Proclamation 7219 of September 2, 1999, on the Contiguous Zone of the United States.

Sec. 8. General.

- a. Nothing in this order shall be construed as altering existing authorities regarding the establishment of

federal MPAs in areas of the marine environment subject to the jurisdiction and control of states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and Indian tribes.

- b. This order does not diminish, affect, or abrogate Indian treaty rights or United States trust responsibilities to Indian tribes.
- c. This order does not create any right or benefit, substantive or procedural, enforceable in law or equity by a party against the United States, its agencies, its officers, or any person.

William J. Clinton

THE WHITE HOUSE,

May 26, 2000.

APPENDIX 3.

NOAA Proposed MMA Criteria

Criteria	Draft Existing MPA Criteria	Draft Proposed MMA Criteria
Area	must have boundaries	must have boundaries upland areas are not included, though GIS will include boundary of upland area
Reserved	established through legislation/regulations	established through legislation/regulations
Duration (Lasting)	minimum of 4 years, year-round	protections enacted for a minimum of 2 years duration; within each year, a minimum of 3 months continuous protection at the same location (as of December 2003)
Protections	greater within boundaries exclude single species if measures do not provide demonstrable benefits to a broader array of species or habitats	greater within boundaries can be single species
Marine	include intertidal a) an area of the Great Lakes or their connecting waters	a) an area of the ocean or coastal waters (including intertidal areas, bays, or estuaries) or b) an area of the Great Lakes or their connecting waters
Cultural	submerged cultural resources	submerged cultural resources

APPENDIX 4.

Listing of State, Regional, and National MMA Inventories



West Coast Region

Bailey, R. 2001. Oregon Ocean Policy Advisory Council: Inventory of Oregon marine protected areas. Department of Land Conservation and Development. <http://www.oregonocean.org/resource/pdf/Inventory%20of%20Oregon%20Mar.pdf>.

California Department of Fish and Game. 2002. Descriptions and Evaluations of Existing California marine protected areas. <http://www.dfg.ca.gov/mrd/mlpa/analysis.pdf>.

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Murray, M.R. 1998. The Status of marine protected areas in Puget Sound. Puget Sound/Georgia Basin Environmental Report Series #8. Puget Water Quality Action Team: Olympia, Washington

The Oregon Estuary Plan Book: http://www.inforain.org/mapsatwork/oregonestuary/oregonestuary_page6.htm.

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Robinson, M. January 1999. The Status of Washington's Coastal marine protected areas. Washington Department of Fish and Wildlife.

Smukler, K. 2002. Achieving a scientifically-based regional system of marine protected areas in the northwest straits: A nearshore perspective. Northwest Straits Commission.

Woodby, D., S. Meyer, K. Mabry, V. O'Connell, C. Trowbridge, J.H. Schempf, E. Krygier, and D. Lloyd. 2002. marine protected areas in Alaska: Recommendations for a Public Process. Regional Information Report #5J02-08 to the Alaska Board of Fisheries. AK Dept. of Fish and Game, Juneau, AK.

Northeast Region

Brody, S. and B. Nicholson 1998. GIS Database of Coastal and marine protected areas, Conservation Zones, and Restricted Areas in the Gulf of Maine. Concord, NH: Gulf of Maine Council on the Marine Environment. http://www.gulfofmaine.org/library/mpas/gisdb_0898.htm

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Virginia Department of Conservation and Recreation. 1993. Natural Area Source Book: A guide for land managers, scientists, educators and conservation planners within the Virginia Coastal Resources Management Area. Richmond, VA: Department of Conservation and Recreation.

Western Pacific

Jamieson, G.S. and J. Lessard. 2000. marine protected areas and Fishery Closures in British Columbia. Canadian Special Publications of Fisheries Aquatic Sciences No. 131. NRC Research Press, National Research Council: Ottawa, Canada. <http://www.pac.dfo-mpo.gc.ca/oceans/closure/default.htm>

Kelleher, G., C. Bleakley, and S. Wells (eds.). 1995. A Global Representative System of Marine Protected Areas, Vol. 1 – 4. The Great Barrier Reef Marine

Park Authority, The World Bank, and the World Conservation Union: Washington, DC

World Conservation Monitoring Centre's Website with Statistics for marine protected areas of the United States. <http://www.wcmc.org.uk>

Nationwide

Atkinson, J.A. and T. Hart. 2001. Conservation coast to coast: Comparing state actions on marine protected areas in California, Washington, and the U.S. Gulf of Maine. Boston, MA: Conservation Law Foundation.

Davis, B., C. Rilling and E. Kruse. 2002. Special Planning Areas Coastal Information System (SPACIS). OCRM/Coastal Programs Division.

NOAA/DOI MMA Inventory:

NOAA and the Department of the Interior are currently developing an inventory of U.S. marine managed areas (MMAs), as the first step leading to the list of MPAs called for in Executive Order 13158; and to support state, regional and national analyses of federal, state and tribal MMAs (see www.mpa.gov for details).

APPENDIX 5.

State MMA Systems Survey Instrument

- 1) Which state agencies/divisions are you representing as you answer the following questions?
- 2) What types of marine managed areas (or systems of managed areas) do you consider most important in protecting cultural and/or natural resources? Why?
- 3) Which of the following types of marine managed areas are you involved with? Research/Science Natural Resource Protection and/or Cultural/Historic
- 4) How do you view the utility of special areas/zones as a management tool, vs. statewide regs?
- 5) Are you primarily involved with developing special management plans for specific sites, or using a set of generic policies that apply to multiple sites/zones? (%)
- 6) What kind of stakeholder involvement processes do you have for a) new site designations; b) plan development; and c) ongoing site management?
- 7) What are the most important obstacles to your use of special management areas in marine and intertidal waters?
- 8) How would you describe the political climate surrounding MMAs/MPAs in your state?
- 9) How would you rate the clarity of marine managed area systems/networks in your state's waters, with regard to: a) boundaries; b) jurisdictions, and c) regulations/policies? Please explain.
- 10) How could your state or agency improve its overall situation related to MMAs? Please consider each of the following: inter-agency initiatives, new legislation, new executive authorities, commissions, memoranda of understanding, multi-agency advisory/planning committees, other.
- 11) How do the following influence your involvement with MMAs: a) Nongovernmental Organizations (NGOs); b) federal programs/management areas; c) Tribal areas/interests? Are there opportunities for improved partnerships between your agency and NGO, federal and/or tribal groups?
- 12) Have any MMAs in your area been the subjects of formal evaluations to assess effectiveness/outcomes? If so, how useful were the studies? Were the evaluations able to utilize existing monitoring programs in the area?
- 13) Do you have any MMAs that would make good case studies, or are considered a success, that could be learned from by other states? (e.g. successful stakeholder process, fisheries improvements, etc.) Do you have any examples of approaches that haven't worked well?
- 14) Would a multi-state or regional advisory committee on MMAs be beneficial to your agency?
- 15) How do you think your agency/state might benefit from a national network of MMAs? What are your main concerns about a national network or system?
- 16) Do you see the CZMA's federal consistency provision as a potential means of ensuring a degree of state sovereignty over MMAs in your area?

APPENDIX 6

Selected State/Territory Marine Managed Area Summaries

(See Table 3 for definitions of Marine Planning Areas, Coastal Planning Areas, Marine Overlay Zones, and Marine Resource Areas)

State: CALIFORNIA

Relevant Agencies/Programs:

California Coastal Commission
California Coastal Conservancy
San Francisco Bay Conservation and Development Commission (BCDC)
California Department of Parks and Recreation
California Department of Conservation
California Department of Fish and Game
California Environmental Protection Agency
California Resources Agency
State Water Resources Control Board
University of California

Existing MMA/MPA Inventories:

Coastal Planning Areas

McArdle, D.A. 1997. California marine protected areas. California Sea Grant College System Publication No. T-093. ISBN 1-888-691-03-4. University of California: LaJolla, CA.

Resources Agency of California. 2000. Improving California's System of marine managed areas: Final Report of the State Interagency marine managed areas Workgroup. The Resources Agency of California: Sacramento, CA.

California Department of Fish and Game. 2002. Descriptions and Evaluations of Existing California marine protected areas.

Parks Department of Parks and Recreation

State Historical Units (Public Resources Code 5019.59)

State Beaches (Public Resources Code 5019.56 (c))

State Parks (Public Resources Code 5019.53)

State Recreation Units (Public Resources Code 5019.56)

State Reserves (Public Resources Code 5019.65).

San Francisco Bay Plan (BCDC)

Marine Overlay Zones

Areas of Special Biological Significance

California Ocean Plan - State Water Resources Control Board, 2001.

Channel Islands Marine Protected Areas (pending)

Coastal Sanctuary

California Coastal Sanctuary Act of 1994, Public Resources Code 6240-6244)

Ecological Reserves

Ecological Reserve Act of 1968, 14 California Code of Regs. 630.0

Marine Resources Protection Act Ecological Reserves

Marine Resources Protection Act of 1990, California Constitution, Article 10B, Section 14.

Refuges (Established individually by legislature)

Clam Refuges

Fish Refuges

Game Refuges

Marine Life Refuges

Reserves

Kelp, Title 14 Sec.30; Commercial Fishing Title 14 Sec.123; Recreational Fishing Title 14 Sec.27.25.

U.C. Natural Reserve

[Online] www.nrs.ucop.edu/reserves/Scripps.html

Cowcod Closure Areas,

CA Code of Regs, Title 14 §27.82

Ocean Fishing Reserves,

CA Code of Regs, Title 14 §26.20-26.51

Rockfish and Lingcod Management Areas,

CA Code of Regs, Title 14 §27.82

Marine Resource Areas

Archaeological or Paleontological Resources,
California Coastal Act (California Code Section 30244)

Scenic and Visual Resources, California Coastal Act (California Code Section 30251, 30254)

State: MARYLAND

Relevant Agencies/Programs:

Maryland Department of Natural Resources

- Coastal Zone Management
- Parks and Recreation
- Fisheries
- Critical Areas

Maryland Department of the Environment

Maryland Historic Trust

Existing MMA/MPA Inventories:

Nearshore Parks/Access Inventory; Greenways/Blueways Inventory

Coastal Planning Areas

State Parks

(MD Code: Natural Resources: Title 5 - 207 and 1003)

Wildlife Management Areas

(MD Code: Natural Resources: Title 10 801-808)

Marine Overlay Zones

Chesapeake Bay Critical Area/Atlantic Coastal-Bays Critical Area Protection Prgm.

Critical Areas Law (MD Code: Natural Resources: Title 8 Subtitle 18)

Fishery Management Plans

(MD Code: Natural Resources: Title 4 - 213)

Habitat Protection Areas (Chesapeake Bay Critical Area)

Critical Areas Law (MD Code: Natural Resources: Title 8 Subtitle 18)

Natural Parks (Chesapeake Bay Critical Area)

Critical Areas Law (MD Code: Natural Resources: Title 8 Subtitle 18)

Oyster Sanctuaries

MD Code: Natural Resources: Title 4 - 1014

Resource Conservation Areas (Chesapeake Bay Critical Area)

Critical Areas Law (MD Code: Natural Resources: Title 8 Subtitle 18)

State Fish Refuges and Hatcheries in Tidal and Non-tidal Water

MD Code: Natural Resources: Title 4- 401-411

Submerged Aquatic Vegetation Protection Zones

MD Code: Natural Resources: Title 4 - 1006

Marine Resource Areas

Chesapeake Bay and its Tributaries

MD Code: Environment: Title 5 § 5-1101 et seq.

Coastal Historical, Cultural, and Archaeological Resources

MD Code: Natural Resources: Titles 1, 2, 5, and Article 66B Sec. 8.01 et seq.

Private Wetlands

State Wetlands Act (Maryland Code: Environment: Title 16)

Natural Areas

MD Code: Natural Resources: Titles 3, 5 (§5-901 et seq.), 8 and 10

State Wetlands

State Wetlands Act (Maryland Code: Environment: Title 16)

Submerged Aquatic Vegetation Areas

MD Code: Natural Resources Title 4 §213

Tidal Wetlands

State Wetlands Act (MD Code: Environment: Title 16 §16-101 et seq)

State: NEW JERSEY

New Jersey Department of Environmental Protection

Coastal Management Program

Delaware River Basin Commission

Division of Fish and Wildlife

Division of Parks and Forestry

- New Jersey Historic Preservation Office
- New Jersey Historical Commission
- Green Acres Program

Coastal Planning Areas

Natural Areas (~10)

Natural Areas System Act (N.J.S.A. 13:1B-15.12a et seq.)

New Jersey Meadowlands Green Plan

Hackensack Meadowlands Reclamation & Development Act (NJSA 13:17-1 et seq.)

Wild and Scenic Rivers

New Jersey Wild and Scenic Rivers Act (N.J.S.A. 13:8-45 et seq.)

Pinelands Preservation Area Plan

Pinelands Protection Act (N.J.S.A. 13:13A-1 et seq.)

State Parks

State Parks Acquisition (N.J.S.A. 13:8A; 13:1L)

Wildlife Management Areas

Wildlife Management Areas (N.J.S.A. 13:8-64)

Marine Overlay Zones**Barrier Island Corridors**

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

CAFRA Areas (Coastal Area Facility Review Act)

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Endangered/Threatened Vegetation/Wildlife Habitat

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Existing Lagoon Edges

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Finfish Migration Pathways

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Geographic Areas of Particular Concern (12)

Coastal Program Plan

Higbee Beach - Pond Creek Meadow Area

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Intertidal and Subtidal Shallows

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Marina Moorings Areas

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Prime Fishing Areas

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Special Hazards Areas

Shore Protection Act (N.J.S.A. 12:6A-1 et seq.)

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Submerged Vegetation Habitat

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Marine Resource Areas**Bay Islands**

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Beaches

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Dunes

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Historic and Archaeological Resources

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Inlets

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Public Open Space

Green Acres Program (N.J.S.A. 13:8A-55)

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Scenic Resource Areas

Coastal Area Facility Review Act (CAFRA;
N.J.S.A. 13:19-1 et seq.)

Waterfront Development Law (N.J.S.A. 12:5-3)

Shellfish Habitat

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Shipwrecks and Artificial Reefs

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Surf Clam Areas

Waterfront Development Law (N.J.S.A. 12:5-3)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

Tidal Streams

Stream Encroachment Act (N.J.S.A. 58:1-26)

Tidal Wetlands (Coastal Wetlands)

Tidal Wetlands (N.J.S.A. 13:9A-1 et seq.)

Tidelands (Riparian Lands; Wet Sand Beaches;
Public Trust Lands)

Tidelands Act (N.J.S.A. 12:3-1 et seq.)

State: VIRGINIA

Relevant Agencies/Programs:

Virginia Department of Game and Inland Fisheries
Virginia Department of Conservation and Recreation
Virginia Department of Environmental Quality
- Coastal Management Program
Virginia Marine Resource Commission

Existing MMA/MPA Inventories:

Natural Area Source Book: A guide for land managers, scientists, educators and conservation planners within the Virginia Coastal Resources Management Area. 1993. Richmond, VA: Department of Conservation and Recreation.

Virginia Outdoors Plan, [<http://www.dcr.state.va.us/prr/vopfiles.htm>]

Coastal Planning Areas

Natural Area Preserves

Department of Conservation and Recreation (VA Code Title 10.1-209)

Seaside Heritage Program [<http://www.deq.state.va.us/coastal/documents/vshpfact.pdf>]

State Parks (10)

(4 VAC Agency 5, Dept. of Conservation and Recreation, Ch. 30)

Southern Watersheds of Virginia Beach and Chesapeake SAMP

Wildlife Management Areas

(4 VAC Agency 15, Department of Game and Inland Fisheries, Ch. 40)

Marine Overlay Zones

Artificial Reef Gear Restriction Areas

(4VAC20-755-30)

Clean Cull Areas

(4VAC20-260)

Hampton Flats Hard Clam Harvest Area

(4VAC20-561)

Oyster Management Areas

(4VAC20-650)

Oyster Seed Beds

Oysters and Clams (VA Code Title 28.2 Sec. 500 et seq.)

SAV Sanctuaries
(4VAC20-1000)

Shellfish Management Areas
(4VAC20-560)

Striped Bass Spawning Sanctuary

Virginia Blue Crab Sanctuary
(4VAC20-752)

Virginia Public and Unassigned Grounds

Piankatank River Management Area (4VAC20-770)
Great Wilcomico River Management Area
Pocomoke Sound Management Areas:
Beasley Bay Rock (4VAC20-810-30)
Deep Creek Channel, Buoy No. 7 (4VAC20-810-30)
Unopened public and unassigned areas

Marine Resource Areas

Barrier Islands

Coastal Primary Sand Dunes/Beaches (VA Code Title 28.2 Ch. 14)

Underwater Historic Properties

Underwater Historic Property (VA Code Title 10.1 Chapter 22 Section 2214)

Wetlands

Wetlands Act (VA Code Title 28.2 Chapter 13)

State: WASHINGTON

Relevant Agencies/Programs:

Washington Department of Ecology
- SEA Program
- Coastal Zone Management Program
Washington Department of Fish and Wildlife
Washington Department of Natural Resources
Office of Archaeology and Historic Preservation
Northwest Indian Fisheries Commission
Puget Sound Action Team
Washington State Parks and Recreation Commission

Existing MMA/MPA Inventories:

Didier, A.J. Jr. 1998. Marine Protected Areas of Washington, Oregon and California. http://www.psmfc.org/publications/marine_prot_areas.pdf.

Murray, M.R. 1998. The Status of Marine Protected Areas in Puget Sound. Puget Sound/Georgia Basin Environmental Report Series #8. Olympia, Washington: Puget Water Quality Action Team.

Robinson, M. January 1999. The Status of Washington's Coastal Marine Protected Areas. Washington Department of Fish and Wildlife.

Smukler, K. June 2002. Achieving a scientifically based regional system of marine protected areas in the northwest straits: A nearshore perspective. Northwest Straits Commission.

Marine Planning Areas

Aquatic Reserves (RCW 79.68.060)

Educational Reserves

Environmental Reserves

Scientific Reserves

Northwest Straits Program (Marine Resource Committees)

Voluntary No Take Bottomfish Recovery Areas (9)

Marine Parks

State Parks (RCW 79A.05.010)

Underwater Parks

Underwater Parks (RCW 79A.05.355 et seq)

Coastal Planning Areas

Grays Harbor Estuary Management Plan

Natural Area Preserves

Natural Area Preserves Act (RCW Chapter 79.70)

Padilla Bay Wetlands Management Plan

Snohomish Delta Wetlands Management Plan

State Parks (31)

(RCW 79A.05.010)

Marine Overlay Zones

Columbia River Mouth Sanctuaries

(WAC 220-33-005)

Conservation Areas

(RCW 77.04.012; WAC 220-20-100)

Marine Preserves

(RCW 77.04.012; WAC 220-20-100)

Natural Shorelines

Washington Shoreline Management Act (RCW 90.58.010 et seq)

Residential Shorelines

Washington Shoreline Management Act (RCW 90.58.010 et seq)

Rural Conservancy Shorelines

Washington Shoreline Management Act (RCW 90.58.010 et seq)

Seashore Conservation Area

Seashore Conservation Area (RCW 79A.05.600 et seq)

Shorelines of Statewide Significance

Washington Shoreline Management Act (RCW 90.58.010 et seq)

Special Management Fishery Areas

(RCW 77.04.012; WAC 220-20-100)

Marine Resource Areas

Aquatic Lands

Aquatic Lands (RCW Chapter 79.90)

Historic Sites

RCW Chapter 27.34

Ocean Beaches

RCW 79A.05.635

Wetlands

Washington Shoreline Management Act (RCW 90.58.010 et seq)

State Water Pollution Control Act (RWC Chapter 90.48)

Growth Management Act

State Environmental Policy Act

Executive Orders 89-10 and 90-04



APPENDIX 7.

Marine Protected Areas State Advisory Group Mission Statement and Membership

Mission Statement:

The Marine Protected Areas (MPA) State Advisory Group (SAG) was established to provide guidance and recommendations to staff from the National Ocean Service's (NOS) National Marine Protected Areas Center and the NOS Special Projects Office in conducting an inventory of marine protected areas pursuant to Executive Order 13158 on marine protected areas. The SAG will also provide guidance and recommendations in connection with the development of a digital state marine protected area inventory. The MPA State Advisory Group will work directly with NOS to coordinate efficient data collection, and conduct needed follow-up and Quality Assurance / Quality Control activities.

In addition, the MPA State Advisory Group shall provide guidance and recommendations in an analysis of state programs and policies to manage marine protected areas. The MPA State Advisory Group will assist the MPA State Liaison(s) from the National Marine Protected Areas Center to analyze and document state concerns, issues, policies, programs and recommended policies and best practices from states as they relate to a national system of marine protected areas.

Membership:

Bob Bailey, Chair (Oregon Department of Land Conservation and Development)

Athline Clark, Vice Chair (Hawaii State Department of Land and Natural Resources)

Brian Baird (California Resources Agency)

Gerald Davis, Ph.D. (Guam Department of Agriculture, Div. of Aquatic & Wildlife Resources)

Kathleen Leyden (Maine Coastal Program)

Susan Snow-Cotter (Massachusetts Coastal Zone Management Program)

Catherine Cunningham (Michigan Coastal Management Program)

Jeb Boyt (Texas Coastal Management Program)

APPENDIX 8.

Categories and Criteria for State Area-Based Management Approaches

General Categories of State, Regional and Local Management Areas in the Marine Environment
(Areas enabled through statutory and/or regulatory provisions; adapted from Davis, 2003)

Marine Resource Areas	Marine Overlay Zones	Marine Planning Areas	Coastal Planning Areas
e.g. Shellfish beds, seagrass beds, wetlands	e.g. No-take zones, water quality zones	e.g. Marine Parks, Underwater Parks	e.g. Special Area Management Plans
Mappable based on legal definition of marine resource	Mapped or mappable, with legally defined, fixed boundaries	Mapped, with fixed boundaries	Mapped, with fixed boundaries
Uniform regulations/policies	Uniform regulations/policies	Special management or regulatory plan for each site	Special management or regulatory plan for each site
Boundaries based on fluctuating distributions of marine resource	Boundaries usually based on underlying objectives	Boundaries usually based on underlying objectives	Boundaries based on underlying objectives or political jurisdictions
Located between Mean High Water line and extent of state waters	Located between Mean High Water line and extent of state waters	Located between Mean High Water line and extent of state waters	Include upland and marine components



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