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Ocean Planning in New England



Ocean planning in New England has its genesis in numerous efforts and activities that took place in the decade prior to the formation of the Regional Planning Body (RPB). During this time, a growing awareness of significant changes in the ocean environment, combined with incoming proposals for new ocean activities, made it clear that a renewed focus on coordinated ocean management was warranted.

In response, New England’s governors formed the Northeast Regional Ocean Council (NROC) in 2005 to coordinate state and federal agencies involved in ocean management issues in the region. At the state level, Rhode Island and Massachusetts completed their initial ocean plans by 2010. In 2011 and 2012, NROC held regional workshops to learn from state-level efforts and to discuss potential approaches to developing a regional ocean plan. Additionally, the Northeast Ocean Data Portal (Portal) was first launched in 2010 to begin integrating data with the goal of providing a regional perspective on ocean management issues. Nationally, the Interagency Ocean Policy Task Force convened in 2009, eventually leading to the development of the National Ocean Policy, which President Obama adopted in Executive Order 13547 in 2010. Collectively, these coordination, information development, and policy efforts helped set the stage for the development of this Northeast Ocean Plan.

In 2011, preparation continued for the formal ocean planning process. Representatives from each of the RPB entities were identified, stakeholder engagement was planned, and work continued on the development of the Portal. The first formal meeting of the RPB occurred in 2012. As the RPB began its work, it engaged multiple audiences and stakeholders in an effort to inform the development of ocean planning goals and to establish reference information on human activities and the ecosystem. The RPB held public meetings and initiated several projects to gather this information, collaborating with scientists, the fishing industry, boaters, the recreation community, and environmental groups, as well as leaders in the shipping, aquaculture, and energy industries.

In 2014, this engagement led to the formation and adoption of the ocean planning goals, objectives, and an associated work plan (*Framework for Ocean Planning in the Northeast United States*¹). The work plan detailed the tasks the RPB would undertake to develop the Plan—including the continued development of peer- and expert-reviewed data through stakeholder engagement and expert work groups.



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MARINE LIFE & HABITAT
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CULTURAL RESOURCES
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MARINE TRANSPORTATION
- 
NATIONAL SECURITY
- 
COMMERCIAL & RECREATIONAL FISHING
- 
RECREATION
- 
ENERGY & INFRASTRUCTURE
- 
AQUACULTURE
- 
OFFSHORE SAND RESOURCES
- 
RESTORATION

The intent of this data development was to provide a foundation for the Plan by characterizing 10 aspects of ocean management and policy, which spanned human activities, cultural resources, and the ecosystem. These 10 ocean resources and activities became the focus of the Plan because of their individual importance to the region and the role they play in existing ocean management and policy. Additionally, many of the stakeholders in the region are associated with, or experts in, one of the 10 aspects. Working with these experts was an important organizing component of the RPB's stakeholder engagement activities.

Maps and data characterizing the ocean resources and activities are included in the Portal, which is an online source of spatial data developed by the RPB in collaboration with the Northeast Ocean Data Portal Working Group (the Portal Working Group). Throughout the ocean planning process, the Portal was an important vehicle for engaging stakeholders and for informing options for the development of the Plan (e.g., by reviewing draft data products). It will also be an important tool for implementing the Plan by providing publicly accessible, expert-reviewed data on human uses and activities for agency and public use.

PLAN DEVELOPMENT PROCESS

The RPB directed the Plan development process and developed the substance of the Plan. From the outset, it did so along multiple simultaneous tracks, each of which informed and built on the others. **Formal RPB meetings** were convened roughly every six months, and each of these meetings included time for public comment. Prior to each meeting, the RPB convened public workshops and gatherings focused on upcoming topics and decisions. RPB decisions always followed a consensus-based approach that welcomed and incorporated public and stakeholder input. Seven multiday public meetings of the RPB occurred, beginning in November 2012 and culminating in the issuance of the draft Plan in spring 2016.

Between RPB meetings, there was **ongoing outreach** to obtain public feedback, identify and discuss issues, review data, and procure scientific input. As described below, this outreach included meetings of expert work groups, large public forums and workshops designed to inform RPB decision-making, dozens of state-level meetings and workshops, information-gathering meetings with specific stakeholder groups, and conversations with smaller groups of stakeholders. Additionally, RPB members were responsible for internal communication and coordination (e.g., within

agencies, tribes, states, and the New England Fishery Management Council). Only the combined energy and effort of all these entities, working together, made the development of this Northeast Ocean Plan possible.

OUTREACH AND ENGAGEMENT

The outreach, engagement, and collaboration-focused activities initiated and conducted between formal RPB meetings included the following:

Stakeholder forums and workshops: The RPB periodically convened public workshops and stakeholder forums throughout the planning process. These events were designed according to the particular topic at hand (i.e., using presentations from expert speakers or facilitated sessions to obtain detailed feedback or brainstorm ideas), and overall, they were more interactive and less formal than RPB meetings. Starting in fall 2014, stakeholder forums were generally held three to six weeks before each RPB meeting and focused on pending topics and decisions. Workshops focusing on specific topics were held periodically throughout the process; for example, in June 2014 the RPB conducted a natural resources workshop, and in April 2015 it initiated a workshop to explore ecosystem-based management.

State-based public meetings and advisory groups: The RPB periodically convened a series of local events throughout the planning process. For example, over an approximately five-week span in May and June 2013, the RPB hosted 10 public meetings throughout New England to obtain public input on a set of draft goals and objectives. Similar to the workshops and forums mentioned, these events were designed to be more interactive and less formal, allowing the public to engage RPB members and staff. These events were often coordinated with state-based advisory group² meetings.

Subject-specific projects, targeted outreach, and work groups: Much of the RPB's data and information, public input, and scientific expertise was obtained through topic-specific projects primarily organized around the 10 ocean resources and activities. One additional project explored regulatory efficiencies and best practices across ocean resources and activities. Each project included an extensive outreach component. A work group or sub-committee composed of members from RPB organizations and experts in the subject matter guided the project to enable scientific and peer review of project approaches and results. For example, approximately 80 scientists from academia, RPB agencies, and other entities



participated in the marine life work groups that reviewed and informed the methodology and draft products characterizing marine life distribution and abundance. A separate work group discussed potential approaches to meeting the effective decision-making goal by focusing on federal regulatory programs and their implementation. Projects were designed to engage stakeholders in the development of maps and other data and information products; thus, they were also opportunities to discuss with stakeholders the ocean planning effort more generally. Cumulatively, thousands of stakeholders representing various activities related to the ocean were engaged through these projects, which represented a large proportion of the overall engagement effort.



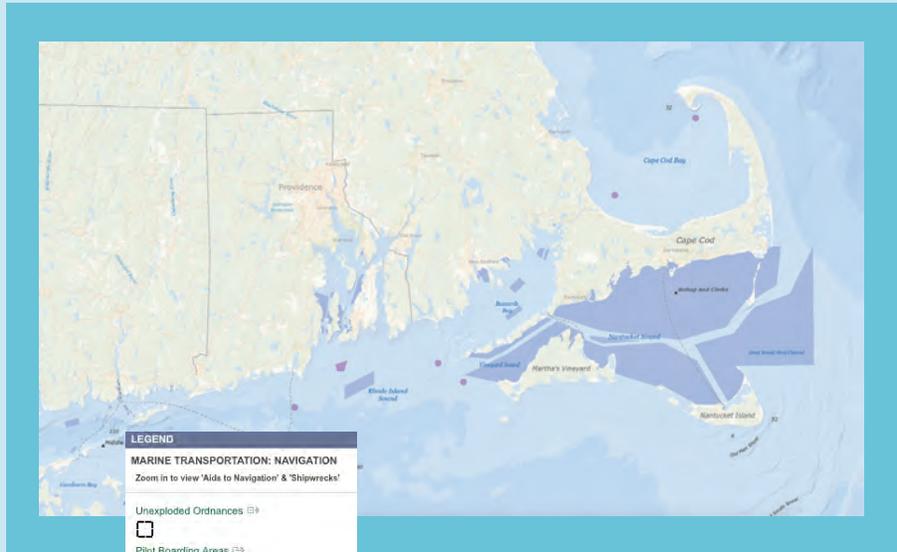
Throughout the planning process, stakeholders were continually encouraged to review spatial data on the Portal and to help interpret maps, provide additional information, or suggest appropriate uses of the information in the Plan. Their input was invaluable in creating and validating the data in this repository.

Opportunistic outreach: The PRB engaged stakeholders through existing meetings and conferences, including those of the New England Fishery Management Council, the Atlantic States Marine Fisheries Commission, the Maine Fishermen’s Forum, the American Wind Energy Association, the Environmental Business Council of New England, and the port-based Harbor Safety Committees (which convene members of the port and maritime community), as well as at the biennial Northeast Aquaculture Conference and Exposition. These events allowed the RPB to reach individuals within a particular economic sector or community of practice, often in an informal setting conducive to focused discussion.

Northeast Ocean Data Portal development: Science-based and stakeholder-informed data products form the foundation of the Plan. Throughout the planning process, stakeholders were continually encouraged to review spatial data on the Portal and to help interpret maps, provide additional information, or suggest appropriate uses of the information in the Plan. Their input was invaluable in creating and validating the data in this repository. Since June 2013, the Portal has averaged over 5,000 visits from 2,400 unique visitors per month. Several months counted over 10,000 visits from more than 5,000 unique visitors.

Electronic and social media: The RPB maintained a website and social media presence to provide updates on its activities and to document planning-related activities and outcomes, such as project reports, public comments, and meeting summaries. The website also included (and continues to offer) a tool for stakeholders to submit comments at any time, on any subject, and to sign up for the RPB’s email list. The email list was used by the RPB to provide pertinent information about upcoming events and to announce the availability of meeting materials and project reports.

NORTHEAST OCEAN DATA PORTAL



www.NortheastOceanData.org



MARINE TRANSPORTATION

The Northeast Ocean Data Portal is an online, publicly accessible repository that offers a wealth of current scientific data and maps describing key aspects of the 10 ocean resources and activities covered in the Plan. Additionally, it provides important contextual information on other aspects of the ocean environment and economy. The Portal was developed and is maintained as a foundational element of the Plan by the Portal

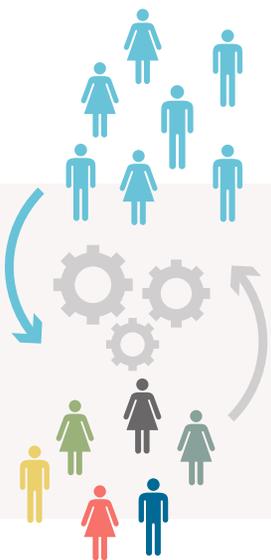
Working Group with oversight by the RPB and with extensive input from the stakeholders, government agencies, and scientists in the region. It is intended to be a shared source of peer-reviewed regional information that will inform and support decision-making and the activities of the many stakeholders who interact with the ocean.*

Clicking on each ocean resource or activity icon brings up a data-rich map or array of maps representing critical information for that resource. Each map and data layer includes descriptions of how the data were developed and reviewed by experts in the region, important considerations for using the data, and links to additional information, including comprehensive metadata and the ability to search BOEM's Environmental Studies Program Information System (ESPIS) for additional scientific information on a specific topic. In addition to the numerous informative maps, individuals or organizations can download many of the underlying data sets that support those maps or visualize multiple sets of information with an interactive data explorer. The Portal also provides animations showing changes over time, interactive story maps, and a centralized repository for bathymetric and eelgrass surveys in the region.

The maps present information that experts in the 10 ocean resources and activities, and those engaged in ocean policy and management, identified as extremely valuable. For example, the maps provided under Marine Transportation display such critical information as recommended routes, traffic lanes, shipping safety fairways, dangerous or restricted areas, and the current footprint of commercial shipping activity. Marine Life & Habitat maps provide a wealth of information about mammals, sea turtles, birds and fish and their respective habitats. The maps available for Energy & Infrastructure indicate coastal energy facilities for hydro, oil, gas, nuclear, coal and wind energy, as well as the locations of transmission lines, pipelines and cables, and offshore renewable energy planning areas.

The Portal allows users to view each map individually, or to select and view multiple layers of data on one map. Together, the maps on the Portal convey the great diversity of the ocean ecosystem and illustrate the many ways human and environmental resources interact. They also comprise a shared and validated knowledge base to inform the review of future proposals and actions that have the potential to impact ocean and coastal resources.

* The Portal Working Group is composed of representatives from the Northeast Regional Ocean Council, NOAA, SeaPlan, The Nature Conservancy, RPS ASA, Waterview Consulting, and the Northeastern Regional Association of Coastal Ocean Observing Systems. While the Portal includes an extensive library of peer-reviewed regional maps and data, there are likely to be other sources of information that are also applicable to regulatory and management decisions.



RPB MEETINGS

2012

2013

2014



1

**11/19–11/20
PORTLAND, ME**

Focus:
Determine
operation of RPB



2

**04/11–04/12
NARRAGANSETT, RI**

Focus:
Establish regional
planning goals



3

**01/22–01/23
CAMBRIDGE, MA**

Focus:
Approve goals,
objectives, and
framework for
the Plan

OUTREACH + ENGAGEMENT

IDENTIFY ISSUES // REVIEW DATA
INFORM DECISIONS // PROCURE SCIENTIFIC INPUT
UNDERSTAND CULTURAL RESOURCES

Stakeholder forums + workshops

3–6 weeks before
each RPB meeting

Focus on upcoming
RPB decisions

State public meetings + advisory groups

Interactive and informal
Throughout New England

PLAN GROUNDWORK

2005–2012

2005 First Northeast
Regional Ocean
Council convened

2009/2010 Rhode Island
and Massachusetts
completed initial
ocean plans

2010 Northeast Ocean
Data Portal: First version
launched

2011/2012 Regional workshops:
Learn from state-level efforts and
discuss potential approaches



4

**06/26
CAMBRIDGE, MA**

Focus:
Review outcomes of
Natural Resources
Workshop



5

**11/13–11/14
NEW CASTLE, NH**

Focus:
Decide on
options for Plan
development



6

**06/03–06/04
MYSTIC, CT**

Focus:
Review and
modify draft
Plan outline



7

**11/16–11/17
PORTLAND, ME**

Focus:
Decide on draft
Plan content and
future of RPB

2015

● **Subject specific projects + targeted outreach + work groups**

Cumulatively reached thousands of people across many issue areas

Expert/scientific review of methods, products

● **Existing meetings + events**

Leveraged existing opportunities to reach stakeholders

Various topics, throughout New England

● **Website + social media + eblasts**

Calendar and RPB updates
Project reports, meeting summaries, other products

● **Northeast Ocean Data Portal**

Online, publicly accessible data repository

Expert/scientific review of maps

FORMAL RPB MEETINGS

The following timeline summarizes the outcomes of each of the seven RPB meetings, recognizing the importance of these decisions in guiding the planning process and in the development of the draft Northeast Ocean Plan.

November 19–20, 2012

The inaugural RPB meeting, held in **Portland, Maine**, focused on the operation of the RPB. At this meeting the RPB agreed to:

- Make decisions by consensus.
- Continue developing a charter describing RPB members' commitment to working together.
- Implement diverse stakeholder engagement activities.



April 11–12, 2013

The second RPB meeting, held in **Narragansett, Rhode Island**, focused on the resolution of remaining RPB operational considerations and the establishment of regional planning goals. At this meeting, the RPB decided to:

- Approve the Northeast RPB Charter³, including inviting New York and Canada as ex-officio RPB members.
- Continually review its public engagement efforts to strive to be flexible, transparent, informal, and cost-effective.
- Adopt three overarching planning goals: healthy ocean and coastal ecosystems; effective decision-making; and compatibility among past, current, and future ocean uses.
- Implement various activities to engage the public in the development of objectives, actions, and a work plan to achieve the three Plan goals.

January 22–23, 2014

At the third RPB meeting, held in **Cambridge, Massachusetts**, the RPB reviewed, modified, and adopted the draft *Framework for Ocean Planning in the Northeastern United States*. The framework includes principles, goals, and objectives, and a work plan with specific actions and intended outcomes to advance these goals and objectives, and to generally guide development of the Plan.



June 26, 2014

The RPB held its fourth meeting in **Cambridge, Massachusetts**, focusing on outcomes from the previous day's natural resources workshop, identifying next steps for the effective decision-making goal, and deciding on technical and stakeholder advisory options. The RPB agreed to:

- Convene public stakeholder forums prior to RPB meetings to enhance opportunities for public input on RPB decisions.
- Utilize a flexible roster of technical experts to advise on specific issues, including forming expert work groups to inform the development of marine life distribution and abundance data products.
- Formulate next steps for engaging federal and state agencies and members of the regulated community to further develop options for meeting the effective decision-making goal.

November 13–14, 2014

At its fifth meeting in **New Castle, New Hampshire**, the RPB focused on reviewing an initial plan outline and decisions related to progress under each of the three goals. The RPB agreed to:

- Continue to advance work toward identifying important ecological areas by summarizing marine life and habitat management areas already identified through existing authorities; characterizing marine life species distribution and abundance; and considering additional approaches to define important ecological areas using marine life and habitat products.
- Explore options for the development and use of ocean health indicators.
- Continue developing data products characterizing marine life and habitat, cultural resources, and human activities, and to consider developing agency guidance for the use of those data products in existing regulatory processes.
- Continue exploring options for improving agency coordination and effective decision-making by developing best practices for tribal coordination, preapplication best practices for federal regulatory and environmental review programs, and opportunities to enhance the implementation of the Coastal Zone Management Act.

June 3-4, 2015

The RPB's sixth meeting, in **Mystic, Connecticut**, included reviewing and modifying an outline for the draft Plan by adding an introductory section to describe RPB and stakeholder aspirations for improving management of ocean activities and resources. The RPB also adopted a work plan for developing components of the draft Plan, including:

- Drafting agency guidance for the use of marine life and human use maps and related information in existing regulatory processes.
- Forming an Ecosystem-Based Management (EBM) Work Group to assist in several aspects of Plan development, beginning with development of a methodology to identify important ecological areas using data from across taxonomic groups.
- Developing best practices for agency coordination, stakeholder engagement, and coordination between federal agencies and tribes.
- Developing specific approaches to monitoring and evaluation, and to identifying science and research priorities.

November 16-17, 2015

The RPB held its seventh meeting (its final meeting before issuing a draft Plan) in **Portland, Maine**, focusing on final decisions and details related to draft Plan content. At this meeting the RPB:

- Reviewed and discussed a detailed outline of the Plan.
- Reviewed progress on marine life characterization, the EBM Work Group, and other components of Chapter 3.
- Discussed draft text of best practices for agency coordination to be included in Chapter 4.
- Received an update on a project to generally characterize climate change impacts on the ocean environment.
- Decided on a Chapter 4 framework to monitor plan performance and ecosystem health, including use of the Ocean Health Index and the Integrated Sentinel Monitoring Network.
- Decided on a framework for science and research priorities in Chapter 5.
- Decided the RPB should continue and generally provide oversight for Plan implementation beyond 2016.



Ocean Planning Goals

In January 2014, the RPB adopted the following goals and objectives:

Goal: Healthy ocean and coastal ecosystems

- Characterize the region's ecosystem, economy, and cultural resources.
- Identify and support existing nonregulatory opportunities to work toward conserving, restoring, and maintaining healthy ecosystems.
- Produce a regional ocean science plan that prioritizes ocean science and data needs for the region for the next five years.

Goal: Effective decision-making

- Coordinate existing federal and state decision-making processes.
- Implement specific actions to enhance public input in decision-making.
- Incorporate maps and other products into agency decision-making processes.
- Improve respect for the customs and traditions of indigenous peoples in decision-making processes.
- Improve coordination with local communities in decision-making processes.

Goal: Compatibility among past, current, and future ocean uses

- Increase understanding of past, current, and future interactions among ocean uses and the ocean and coastal ecosystem.
- Ensure that regional issues are incorporated in ongoing efforts to assess new and existing human activities.

All goals

- Periodically assess progress toward achieving regional ocean planning goals.

Developing Peer- and Expert-Reviewed Data to Make Better Decisions

A major outcome of the RPB's outreach and engagement are the maps and data included on the Northeast Ocean Data Portal. The RPB agencies will use these products to support ocean management decisions, as described in Chapter 3.



MARINE LIFE & HABITAT

- **Three expert marine life work groups:**
Marine mammals and sea turtles, birds, and fish
Work groups included more than 80 regional scientists and stakeholders
Together they reviewed methods and map products, beginning at an individual species level and then focusing on ecological, regulatory, and stressor-based groupings of species
 - **Two public workshops:**
Natural resources workshop June 2014
EBM workshop April 2015
Cumulatively over 200 participants
 - **Marine-life Data and Analysis Team (MDAT):** MDAT developed the map products under the direction of the RPB
Team composed of over a dozen agency and academic scientists
- **RESULT**
150 marine life species characterized
Physical and biological habitats characterized
Peer-reviewed database
Collectively, a powerful information base to inform initial assessments of impacts to species and habitats, identify issues needing further study, and continue to advance ecosystem-based management.



MARINE TRANSPORTATION

- **Two rounds of focused outreach,** with meetings in ports in each state attended by pilots, port operators, shipping companies, US Coast Guard (USCG), and state and local officials
 - **Regular updates** at harbor safety committee meetings in each port from Maine to New York
 - **Regular presentations** at North Atlantic Port Association meetings and briefings with national-level trade associations
 - **Presentations** at pilot association meetings, propeller clubs, and other local events
- **RESULT**
The appropriate use of ship tracking data to map the footprint of commercial vessel traffic and maps of other existing use areas (pilot boarding areas, safety and security zones).
Identification of ways the RPB can use this data in regulatory and management activities.



COMMERCIAL & RECREATIONAL FISHING

- **Two rounds of outreach**—each with meetings in fishing ports and with fishermen, managers, and scientists throughout New England
 - **Regular attendance** at New England Fishery Management Council meetings
 - **Periodic updates** at state advisory committee meetings, with fisheries organizations, and with agency staff
 - **Participation in large industry events:** New Bedford Working Waterfront Festival, Maine Fishermen's Forum, and Massachusetts Lobstermen Association Annual Weekend and Trade Show
- **RESULT**
Identification of the footprint of certain federally managed fisheries, including illustrations of fishing and transit areas. Maps can be used in an initial assessment of potential interactions between these fisheries and proposed activities.



AQUACULTURE

- **Two rounds of meetings** throughout New England, each focused on understanding the current state of the industry and on permitting and siting challenges for new offshore operations
- **Continued discussions** through regular participation in regional meetings such as the Northeast Aquaculture Conference and Exposition

RESULT

Maps depicting the regional footprint of aquaculture

Increased understanding of the regulatory challenges associated with siting new offshore operations

Ideas about how regional data products could inform planning and siting of aquaculture.

NORTHEAST OCEAN DATA
Maps and data for ocean planning in the northeastern United States

HOME MAPS DATA ABOUT

DATA EXPLORER Interact with any combination of data in the Data Explorer — Human Activities, Marine Life, and Environment

Human Activities		Marine Life		Environment
AQUACULTURE Interactive Map	COMMERCIAL FISHING Interactive Map	MAMMALS & TURTLES Interactive Map	FISH Interactive Map	BATHYMETRY Data Resources & Maps
CULTURE Interactive Map	ENERGY & INFRASTRUCTURE Interactive Map	BIRDS Interactive Map	EELGRASS Data Resources & Interactive Map	WATER QUALITY Interactive Map
MARINE TRANSPORTATION Interactive Map	RECREATION Interactive Map	HABITAT Interactive Map	HABITAT CLASSIFICATION Slow Map	RESTORATION Interactive Map
NATIONAL SECURITY Interactive Map				

FEATURED MAP

Chlorophyll a (Spring)

Redesigned Home Page Upcoming Draft Notice
March 17, 2016

New Map Shows Resilient England
March 17, 2016

Updated Maps of Ph...
March 17, 2016

Northeast Ocean Data Maps Now Link Directly to Related Studies in Bureau of Ocean Energy Management Database

ECOSYSTEM-BASED MANAGEMENT (EBM)

According to the Scientific Consensus Statement on Marine Ecosystem-Based Management, “Ecosystem-Based Management is an integrated approach to management that considers the entire ecosystem, including humans. The goal of Ecosystem-Based Management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need. Ecosystem-Based Management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors.”

In April 2015, the RPB held an ecosystem-based management workshop to understand the different definitions, frameworks, and stakeholder perspectives for implementing ecosystem-based management, and to explore potential opportunities for incorporating ecosystem-based management principles into regional ocean planning. Based on extensive research and public input, the RPB, in collaboration with regional scientists, identified the following key elements of ecosystem-based management.

- **Protect and restore marine ecosystems**
- **Consider cumulative effects**
- **Facilitate connectivity**
- **Acknowledge uncertainties**
- **Create complementary policies over a range of scales**
- **Maintain native biodiversity to provide resilience to changes**
- **Develop indicators to measure the effectiveness of management efforts**
- **Involve all stakeholders**

In September 2015, the RPB convened the Ecosystem-Based Management Work Group, composed of scientists from federal agencies, states, tribes, and academia. The EBM Work Group reviewed the marine life and habitat data referenced in this Plan and helped develop a regional definition of important ecological areas (IEAs), including a framework for using existing data to identify those areas. The EBM Work Group will continue to inform the RPB during Plan implementation, focusing on informing the development of ocean health indicators, the use of the IEA Framework, and the identification and advancement of science and research priorities.



PLAN ACTIONS AND IMPLEMENTATION

The remainder of this Plan details the actions that the RPB and its individual entities intend to undertake to meet the Plan's goals and objectives. The Plan is also organized to provide opportunities to advance an ecosystem-based approach to ocean management, as defined by the key elements of EBM. As this Plan occurred under the direction of a federal Executive Order, many of the actions will be the responsibility of the RPB's federal agencies.

Chapter 3 presents actions for using data and information in the Portal and Plan within the existing regulatory and management framework. The chapter includes maps and data characterizing human activities, recognizing the importance of humans in the ecosystem, our reliance on and connection to ocean resources, and the need to consider these factors when new projects are proposed. It also identifies actions for using new data depicting marine life distributions and underlying habitat, and includes accompanying information characterizing the uncertainty associated with these data products. The Plan organizes many of these marine life datasets into species groups that will enable an ecosystem perspective during decision-making. Importantly, the commitments in Chapter 3 go beyond using maps to make decisions; they include commitments

to maintaining and updating these information sources, enhancing agency coordination with respect to the specific data collection or regulatory and management processes for each of the ocean resources and activities, identifying and communicating with potentially affected stakeholders during agency decisions, and determining additional information and science needs. Chapter 3 also identifies actions to coordinate on ecological restoration activities in the region.

Chapter 4 describes RPB actions and commitments to implement the Plan and to periodically assess and adapt the Plan as necessary. The chapter describes best practices to enhance coordination across federal agencies and between federal agencies, states, and tribes, and to ensure the consideration of Plan information and stakeholder input into pertinent agency decisions. It includes federal agency responsibilities for the continued maintenance and updating of the Portal. It also includes an approach to assessing Plan performance and actions for future ocean ecosystem health monitoring. Finally, it describes the manner in which the RPB would amend or update the Plan in response to stakeholder feedback, emerging issues, monitoring results, and scientific advancements.

Chapter 5 organizes science and knowledge gaps according to six broad priorities to address identified ocean management needs and advance EBM. These priorities include increasing our understanding of marine life and habitats, tribal cultural resources, and human activities, including connections to coastal communities and the interactions between and among uses. They also include priorities to better understand the vulnerability of marine resources to specific stressors and to characterize changing environmental conditions and the resulting impacts to resources and uses. The chapter also puts forth a priority to use these foundational marine life and human use data, along with other information, to advance ecosystem-management by quantifying ecosystem services and cumulative impacts.