

**Ecosystem Based Management Work Group**

January 6, 2016 1:00 pm – 4:00pm

Providence Marriot

Providence, RI

**Meeting objectives:**

- Review progress on Draft Northeast Ocean Plan, marine life and habitat data product development
- Review and provide feedback on Important Ecological Areas (IEAs) Framework, including applicable marine life and habitat datasets as well as science and research needs for IEA components

**Materials:**

- “Identifying Important Ecological Areas in Northeast Ocean Planning” (pages 2 - 7)

**Call-in:** 888-748-4618 **Code:** 1126217**Webinar Link:** <https://global.gotomeeting.com/join/975097269>

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**Agenda****1:00 Welcome and introductions**

- Welcome (*Betsy Nicholson, NOAA or Nick Napoli, NROC*)
- Introductions & review agenda

**1:15 Progress on Draft Northeast Ocean Plan (*Nick Napoli, NROC*)****1:25 Marine life and habitat data development update (*Emily Shumchenia, NROC*)**

- Presentation of progress to date on marine life data products (individual species products, species groups, core areas, total abundance, diversity, richness) and habitat data (physical and biological)
- Questions and discussion on data products as context for Important Ecological Areas

**2:00 Review Important Ecological Areas Framework (*Emily Shumchenia, NROC*)**

- Review definitions of six IEA components
- Review existing data and longer term science, research and data needs for each IEA component
- Discussion
  - i. Have relevant existing datasets been identified and included in the appropriate IEA component(s)?
  - ii. Are long-term data needs incorporated into the appropriate IEA component(s)?
  - iii. Do thresholds need to be determined for certain existing datasets and long-term data needs and if so, how to define?
  - iv. How could the framework be used?

**3:30 Determine next steps (*Nick Napoli, NROC*)****4:00 Adjourn**

## Identifying Important Ecological Areas in Northeast Ocean Planning

The *Framework for Ocean Planning in the Northeast US* (adopted by the NE RPB in January 2014) includes an Action and a specific Task to assess regional efforts to identify areas of ecological importance and to convene the NE RPB, scientists and stakeholders to consider options for how to proceed with characterizing and using important ecological areas (IEAs) in ocean planning. It also suggests that defining IEAs is the first step to identifying those areas. In June 2014, the NE RPB issued a “Draft Summary of Marine Life Data Sources and Approaches to Define Ecologically Important Areas and Measure Ocean Health”<sup>1</sup> and convened a public workshop to consider next steps related to defining and using IEAs. Informed by that workshop, the NE RPB decided to take a stepwise approach by first developing regional marine life and habitat data.

Since June 2014, the NE RPB, through the efforts of the Northeast Ocean Data Portal Working Group<sup>2</sup> and the Marine Life Data and Analysis Team<sup>3</sup>, has developed numerous data layers that map various habitats and the distribution and abundance of over 140 species of marine mammals, bird, and fish. In April 2015, the NE RPB convened an Ecosystem Based Management Workshop, resulting in the formation of an Ecosystem Based Management Work Group (EBM WG). The role of the EBM WG is to support and inform a range of activities designed to incorporate additional EBM considerations into the 2016 Northeast Ocean Plan, including approaches to define and characterize IEAs. At its September 30, 2015 meeting, the EBM WG reviewed regional marine life and habitat data that have been developed to date and recommended that the RPB define IEAs as various ecological components and ecosystem functions, using existing definitions from National Ocean Policy documents as a starting point.

In the Final Recommendations of the National Ocean Policy Task Force, important ecological areas are described as including “areas of high productivity and biological diversity; areas and key species that are critical to ecosystem function and resiliency; areas of spawning, breeding, and feeding; areas of rare or functionally vulnerable marine resources; and migratory corridors.” This description provides a basis for defining IEAs for ocean planning in the Northeast. Several other definitions and criteria for important biological or ecological areas provide additional context, mostly demonstrating consistent definitions and similar approaches nationally and internationally<sup>4</sup>.

Using the NOP definition as the basis, we developed six IEA components, noted their consistency with the NOP and other approaches to defining IEAs, defined each IEA component according to ecological features and the existing natural resources datasets that could be used to characterize and map those features, and included long term data needs for each component. An initial draft IEA document was then released for review and public comment in November 2015. EBM WG review was generally

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<sup>1</sup> [http://neoplan.org/wp-content/uploads/2014/08/Marine-Life-Assessment-Inventory\\_Draft.pdf](http://neoplan.org/wp-content/uploads/2014/08/Marine-Life-Assessment-Inventory_Draft.pdf)

<sup>2</sup> <http://www.northeastoceadata.org>

<sup>3</sup> <http://neoplan.org/projects/marine-life>

<sup>4</sup> The following efforts to define IEAs were considered:

- National Marine Sanctuary nomination criteria for national significance, 15 CFR Part 922.10
- Essential Fish Habitat as defined by the Magnuson-Steven’s Act, 16 U.S.C. §§ 1801-1884
- Identification of Ecologically and Biologically Significant Areas, Canada Department of Fisheries and Oceans, DFO Can. Sci. Advis. Sec. Ecosystem Status Rep. 2004/006
- A biological valuation map for the Belgian Continental Shelf, a research project to support marine spatial planning in Belgium, Research project EV/37
- Scientific criteria for identifying ecologically or biologically significant marine areas in need of protection in open-ocean waters and deep sea habitats, United Nations Convention on Biological Diversity, COP 9 Decision IX/20, Annex
- Oceana Discussion Paper, Ayers et al. (2010) Important Ecological Areas in the ocean: A comprehensive ecosystem protection approach to the spatial management of marine resources

positive, especially regarding the definition and identification of six IEA components. Other feedback focused on the details of which ecological datasets could be used to characterize the IEA components (see below). The following framework for defining and identifying IEAs incorporates feedback on the November draft from the NE RPB, the EBM WG and public comment. The framework includes:

- The identification of six IEA components and a simple definition to describe and bound each IEA component
- A table suggesting categories of existing marine life and habitat data (as of December 2015) that could be used to characterize and map IEA components, recognizing that an individual ecological resource and corresponding dataset may be applicable to many IEA components
- A table suggesting longer term data-needs, to be included as Science and Research Priorities in Chapter 5 of the NE Ocean Plan
- Immediate next steps for reviewing the framework and determining it's potential use in the NE Ocean Plan

#### Six Components of Important Ecological Areas:

The following italicized definitions are intended to describe and bound the types of datasets that could be applicable to each component.

1. **Areas of high productivity** – *includes measured concentrations of high productivity and known proxies for high productivity*
2. **Areas of high biodiversity** – *includes metrics of biodiversity and habitat areas that are likely to support high biodiversity*
3. **Habitat areas and distribution of species critical to ecosystem function and resilience** – *includes areas/species that perform ecological functions such as providing structure and nutrient-cycling and core areas for marine life populations*
4. **Areas of spawning, breeding, feeding and migratory routes** – *support ecological functions essential for marine life survival*
5. **Areas of functionally vulnerable marine resources** – *support ecological functions essential for marine life survival and are particularly vulnerable to natural and human disturbances*
6. **Areas of rare marine resources** – *distribution and population cores of ESA-listed species and rare habitats*

#### Use of Existing Marine Life and Habitat Data to Describe IEAs

The following tables provide a listing of existing spatial marine life (Table 1a) and physical and biological habitat data (Table 1b) and suggest where each dataset could fit within the IEA component framework. The tables incorporate feedback on the November 2015 draft, much of which could be grouped into the following general themes:

- Each ecological resource and corresponding dataset could fit into more than one IEA component
- Some ecological features could be determined to be inherently important over their full extent
- Some datasets characterizing an ecological feature may require determining a certain population threshold, areal extent, or time of year in order to be used to identify IEAs (see table below for examples)

Table 1a. Applicability of existing marine life spatial data to IEA components<sup>5</sup>.

	1	2	3	4	5	6	
	Areas of high productivity	Areas of high biodiversity	Habitat areas and distribution of species critical to ecosystem function and resilience	Areas of spawning, breeding, feeding and migratory routes	Areas of functionally vulnerable marine resources	Areas of rare marine resources	Threshold needed? (Some example thresholds provided as context)
Diversity of marine mammals, birds and fish (Shannon diversity index for each group from MDAT)		•					
Multi-taxa species richness (richness for ~140 species mammals, birds, fish from MDAT)		•					
Marine mammal abundance core area, bird abundance core area, and fish biomass core area (based on annual averages from MDAT - this could be for species groups, whole taxa, and/or multiple taxonomic groups) <sup>6</sup>			•	•	•		Core as defined by MDAT?
Core areas for ESA-listed species (from MDAT)					•	•	
Core areas for species groups that are sensitive to particular disturbances or impacts (e.g., marine mammal species groups sensitive to high, medium and low frequency sound, or bird species groups sensitive to collision or displacement from offshore wind energy projects <sup>7</sup> ) (from MDAT)					•		

<sup>5</sup> Note that there are no marine life datasets listed that correspond to high productivity. Recognizing that “snapshots” of abundance do not necessarily equal high productivity, can a metric for high productivity be derived from marine life data? See table 2a.

<sup>6</sup> This product could address persistence of abundance for marine mammal and bird species and persistence of biomass for fish species on an annual basis; i.e., provide a very broad characterization of marine life aggregations averaged over a year. There is potential to look at shorter time scales and certain times of year for certain species/groups – this is captured in Table 2a below.

<sup>7</sup> Species sensitivity/vulnerability groups will be derived from published studies such as “The relative vulnerability of migratory bird species to offshore wind energy projects on the Atlantic Outer Continental Shelf”, BOEM 2013-207

Table 1b. Applicability of existing physical and biological habitat spatial data to IEA components.

	1	2	3	4	5	6	
	Areas of high productivity	Areas of high biodiversity	Habitat areas and distribution of species critical to ecosystem function and resilience	Areas of spawning, breeding, feeding and migratory routes	Areas of functionally vulnerable marine resources	Areas of rare marine resources	Threshold needed? (Some example thresholds provided as context)
Rate of photosynthesis	•						
Chlorophyll a concentration	•		•				Highest 10% over 50% of time?
Eelgrass meadows	•		•	•	•		Presence?
Cold-water coral habitat		•	•		•	•	
Wetlands	•		•	•	•		
Shellfish beds			•				
Frontal boundaries	•	•	•				>50% of year?
Upwelling zones	•	•	•				
Canyons	•	•	•				
Seamounts	•	•	•				
Areas of complex seafloor	•	•	•				
Essential fish habitat (EFH)				•			
Designated ESA critical habitat				•	•		
Habitat Areas of Particular Concern (e.g., Atlantic cod, Atlantic salmon, Tilefish)				•	•		

Long Term Science and Data Needs to Advance the Identification of IEAs

The following tables provide a listing of potential marine life science and data-needs (Table 2a) and physical and biological habitat science and data-needs (Table 2b) that would advance the identification of IEAs and suggests where each identified need could fit within the IEA component framework. The tables incorporate feedback that was provided throughout the course of the NE Ocean Planning process, including suggestions provided during the September EBM WG meeting, the October Stakeholder Forum, and comments on the November 2015 draft IEA document. This potential listing of science and data needs will be included as Science and Research Priorities in the NE Ocean Plan (currently Chapter 5).

Table 2a. Long-term marine life science and spatial data needs relevant to IEA components, for inclusion in NE Ocean Plan Science and Research Priorities Chapter.

	1	2	3	4	5	6	
	Areas of high productivity	Areas of high biodiversity	Habitat areas and distribution of species critical to ecosystem function and resilience	Areas of spawning, breeding, feeding and migratory routes	Areas of functionally vulnerable marine resources	Areas of rare marine resources	Threshold needed?
Multi-taxa metric of high marine life productivity	•						
Multi-taxa index of high biodiversity		•					
Identification and distribution of keystone species, foundational species and ecosystem engineers			•		•		
Distribution and abundance of benthic fauna, including crustaceans			•		•		
MDAT core areas for species with low fecundity, slow growth, longevity					•		
MDAT core areas for species groups sensitive to impacts including warming waters and acidification					•		
MDAT core areas for mammals, birds, fish (monthly or seasonal averages)			•	•	•		
Seal haul outs				•			
Identification and distribution of ecologically rare species						•	

Table 2b. Long-term physical and biological habitat science and spatial data needs relevant to IEA components, for inclusion in NE Ocean Plan Science and Research Priorities Chapter.

	1	2	3	4	5	6	
	Areas of high productivity	Areas of high biodiversity	Habitat areas and distribution of species critical to ecosystem function and resilience	Areas of spawning, breeding, feeding and migratory routes	Areas of functionally vulnerable marine resources	Areas of rare marine resources	Threshold needed?
Distribution/abundance of kelp forests	•	•	•		•		
Multi-taxa index of high productivity	•						
Identification and distribution of offshore habitats defined by pelagic processes			•				
Distribution of bivalve-dominated communities			•		•		
Rolling closure and spawning area closure areas for fish				•			
Identification and distribution of ecologically rare habitats						•	

Reviewing and Using the IEA Framework

This approach provides a framework for organizing existing marine life and habitat data to identify IEAs in terms of the ecosystem components and functions that are necessary for healthy ocean and coastal ecosystems. The framework references existing marine life and habitat data that have or will be included in the Northeast Ocean Data Portal and will be described in the draft NE Ocean Plan. Due to recognized limitations in data availability and our inherent understanding of the marine ecosystem, we also identified related science priorities that will enable and advance identification of IEAs and a more ecosystem-based approach to management. Most immediately, the January 2016 EBM WG meeting will focus on reviewing the framework and recommending next steps to be included in the draft NE Ocean Plan. This includes:

- Ensuring that existing marine life and habitat datasets have been identified in Tables 1a & b and incorporated into the appropriate IEA component(s),
- Reviewing the long term data-needs proposed in Tables 2a & b and ensuring they are incorporated into the appropriate IEA component(s),
- Proposing thresholds for different categories of marine life and habitat data, and
- Determining next steps for using the framework