

**Northeast Regional Planning Body**  
 November 15 & 16, 2017  
 Briefing packet

## CONTENTS

### **November 15, RPB Meeting Day 1 - Data Workshop**

Agenda.....	2
NE Ocean Data Portal Presentation.....	5
Human Use Data Presentation.....	7
Marine Life and Ecological Importance Presentation.....	10
Components of Ecological Importance Review Document.....	15

### **November 16, RPB Meeting Day 2**

Agenda.....	23
Northeast Ocean Data Portal Updates.....	25
• Human Use Data Next Steps in 2018	
• Marine Life, Habitat, and Ecological Importance Next Steps in 2018	
Subcommittee Updates.....	26
• Restoration Subcommittee.....	26
• Sand Management Subcommittee.....	27
Monitoring and Evaluation.....	28
• Best Practices.....	28
• OHI Update and Work Plan for 2018.....	30
• ISMN Upcoming Work.....	32



# Northeast Regional Planning Body

## Day 1: Data Workshop

Wednesday, November 15, 2017, 10:30 to 5:00

Squamscott Room, Holloway Commons

University of New Hampshire

75 Main Street, Durham, NH

### Meeting Objectives

- Engage stakeholders in review of and discussions about updated human use, marine life, and habitat data products, including revised draft products for each of the five Components of Ecological Importance
- Participants provide feedback on the representativeness of the information and how they envision ocean planning data are used—by themselves and by others—and how the Northeast Ocean Data Portal (Portal) could incorporate new features to continue to be an effective tool
- Obtain feedback on progress to date and on potential next steps to inform decisions at the Northeast Regional Planning Body (RPB) Meeting on November 16

### Agenda

**10:00am**     **Registration**

**10:30**         **Call to Order, Introductions and Agenda Review** –*Pat Field, Consensus Building Institute, Facilitator*

**10:40**         **Brief Overview and Context for This Workshop** - *Mel Coté, EPA, NE RPB Federal Co-lead*

**10:45**         **Northeast Ocean Data Portal: Major Recent Milestones and Key Data Updates** – *Nick Napoli, Staff*

- Summary of Portal updates and new features, including case studies, and activities planned for 2018
- Overview of RPB activities to update and obtain stakeholder input on specific data themes

**11:00**         **Review Draft Human Use Data** – *Nick Napoli*  
*Move to three break-out groups for in-depth discussion of the validity of the data and methods; how data can be used or shouldn't be used; and what other review needs to be completed for data products to be final; participants can choose 2 of the 3 to participate in, 45 minutes per session.*

- Commercial fishing: *George LaPointe, fisheries consultant*
  - *Draft Vessel Monitoring System (VMS) data products*
  - *Draft Communities at Sea data products*



- *Options for characterizing lobster fishery*
- Marine transportation: *Daniel Martin, NOAA*
  - *Draft updates data products to related to navigation (e.g. pilot boarding areas, anchorage areas, areas to avoid)*
  - *Draft commercial vessel traffic data products from the Automatic Identification System (AIS)*
- Brief updates and discussion of other human use data: Aquaculture, Recreation, and Energy: *Jenn Greene, Portal consultant*
  - *Aquaculture updates*
  - *Draft Energy and Infrastructure updates*
  - *Brief overview of recreation theme updates and options for updating the footprint of different recreational activities*

**12:30 Lunch (provided)**  
*Lunch presentation by students from the College of the Atlantic who are documenting commercial fishing and coastal community connections to the ocean.*

**1:30 Reactions to Human Use Data – Pat Field**  
*Participants provide brief reactions to the information shared during the breakout sessions and lunch presentation, including recommendations for work in 2018*

**1:45 Updating Marine Life, Habitat, and Components of Ecological Importance Data Products – Emily Shumchenia, Staff**

- Overview of RPB activities to update draft data products for marine life and habitat
- Summary of the review process, feedback received, key remaining questions, and longer-term priorities for the draft products and methods supporting components of ecological importance
- Initial visualization and presentation concepts that allow multiple data applications and a discussion about potential uses

**2:15 Biodiversity and Abundance (Components 2 & 3) – Jesse Cleary, Duke University**

- Key takeaways, remaining questions, and longer-term data development priorities for biodiversity and abundance data
- Exploration of visualization/presentation options
- Key questions presented for group discussion
- *Questions and discussion*

**3:15 Break**



- 3:30**      **Habitat drivers, Productivity, Vulnerability, Rarity (Components 1, 4, & 5) – Emily Shumchenia**
- Key takeaways, remaining questions, and longer-term data development priorities for habitat drivers, productivity, vulnerability, and rarity data
  - Exploration of visualization/presentation options
  - Key questions presented for group discussion
  - *Questions and discussion*
- 4:45**      **Summary and next steps**
- 5:00**      **Adjourn**

Northeast Ocean Plan  
 Northeast Regional Planning Body  
 Data Workshop  
 November 15, 2017



## Northeast Ocean Data Portal Work Plan Priorities



1. Understand and promote use of the Portal
  2. Conduct outreach and trainings
  3. Enhance functionality and content
  4. Maintain and update priority data
- 
- ↳ Integrate into existing programs and practices

2

### 1. Portal Use



NORTHEAST OCEAN DATA  
 www.northeastoceanplan.org



NEARLY 10,000  
 UNIQUE VISITORS  
 IN APRIL 2017



INCREASING DATA  
 DOWNLOADS

(776GB total bandwidth)



3

### 1. Portal Use



- Surpassed previous highest annual visitation in early July
- Portal mentioned in interview with BOEM Acting Director and in many recent articles
- Increased use of certain data/services around relevant events/announcements and increased use by certain industries
- Case Studies – planning/management, regulatory/siting, educational



4

### 1. Portal Use - Case Studies



#### Planning and Management

- CT Blue Plan
- NY Geographic Information Gateway
- New England Fishery Management Council
- USCG waterways management, including aids to navigation
- US Navy identify areas for testing and potentially affected stakeholders
- NOAA charts

#### Education and Research

- Island Institute
- Pew
- UMass Dartmouth; UMass Boston
- UMaine
- Brown

#### Regulatory and Siting

- States inform coastal effects test under CZM
- Consultants to support permitting and leasing or custom apps for regulated clients
- EPA to review other agency EA and EIS
- USACE regulatory division
- NOAA Office of Habitat Protection and Protected Resources Division
- BOEM Guidelines for Renewable Energy Activities
- NEMAC Mussel Farm in Mass Bay
- NERACCOOS wave buoy in Cape Cod Bay
- Offshore wind developers

5

### 2. Outreach and Trainings



#### Objectives:

- Develop in-depth understanding of available data and tools
- Expand user base
- Obtain feedback on potential uses and related user needs (data, functionality)
- Integrate with existing activities

6

## 2. Outreach and Trainings



### Completed (or scheduled) for 2017:

- NOAA Fisheries
- BOEM Environmental Studies Program
- Federal Renewable Ocean Energy Working Group
- MA Division of Marine Fisheries
- EPA
- RPB meetings and workshops
- Coastal GeoTools
- Coastal and Estuarine Research Federation
- Northeast Arc User Group
- Environmental NGOs hosted by TNC and WCS

7

## 2. Outreach and Trainings



### Potential for 2018?:

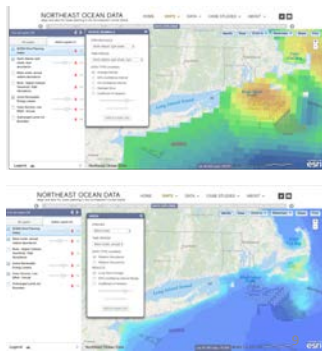
- Other federal and state agencies
- Tribes
- Industry - Offshore Wind? Aquaculture? Others?
- Consultants (Environmental Business Council?, Other opportunities?)
- Education/Academia?

8

## 3. Functionality & Other Content



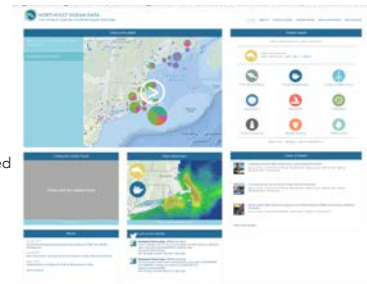
- Customize data explorer maps
  - Active layers tab
  - Order and layer data
  - Hide layers but keep in active session
- Individual marine life species available via Data Explorer
- Media page
- Case studies
- New basemaps
- Resizable and moveable legend and content windows



## 3. Functionality & Other Content (Coming Soon)



- Redesigned home page
- Better Integration with Northeast Ocean Plan themes
- Videos/tutorials
  - Simple overviews
  - Greater detail for specific topics and data themes
- Improved connections to related tools and initiatives
- Advanced tools for decision-making
  - Animations over time
  - Custom thresholds and visualizations
  - Custom data packages



10

## 4. Data Updates (so far)



- Aquaculture and shellfish management areas
- Long Island Sound trawl (fish biomass for 50+ species)
- Deep sea coral management area alternatives
- Fishery management areas
- Ocean observing buoys and stations (including data access)
- Northeast Canyons and Seamounts Marine Monument



## 4. Data Updates (coming soon)



See subsequent detailed slides about upcoming human use, marine life, and ecological importance updates

12

## Summary of Proposed Northeast Ocean Data Portal Priorities for 2018



1. Understand and promote use of the Portal
  - Continue to monitor web/data statistics and stories for trends/changes in use
  - Continue to develop case studies
2. Conduct outreach and trainings
  - Continue and increase the number of RPB entity trainings
  - Provide and increase the number of trainings for industry, consultants, and environmental organizations
3. Enhance functionality and content
  - Complete website redesign
  - Develop tutorials and videos
  - Enhance functionality for decision-making:
    - Increase temporal resolution; develop tools to show change over time
    - Provide ability to customize visualization, including threshold sliders

13

## Summary of Proposed 2018 Priorities



4. Maintain and update priority data
    - Complete large human use updates and stakeholder outreach for marine transportation, commercial fishing, and energy
    - Refine options for different recreational activities and identify potential partners and funding sources
    - Refine options for lobster fishery and identify potential partners and funding sources for longer-term projects
    - Update marine life data products and determine options for long-term maintenance
    - Resolve remaining questions, and complete and post initial data layers and tools for the Components of Ecological Importance
    - Identify marine life and human use data products/packages that may support current issues or fill key data gaps
- ↳ Integrate into existing programs and practices

14

## Summary of Proposed 2018 Priorities



### \* Develop a long-term plan for Portal maintenance

#### Considerations:

- Data updates and data sharing agreements
- IT infrastructure and host
- Stakeholder outreach and trainings
- Coordination with Marine Cadastre and Mid-Atlantic
- Funding sources

15

## Human Use Data Updates and Stakeholder Outreach



16

## Human Use Data and Stakeholder Outreach Coming Soon



### Complete update to the Marine Transportation theme

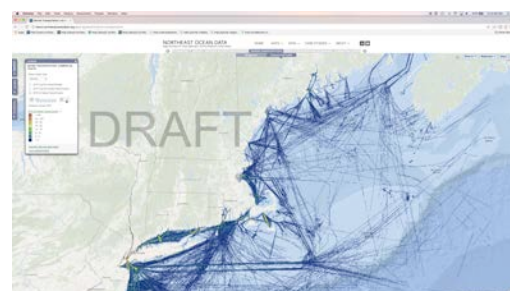
- Navigation sub-theme: anchorages, pilot boarding, areas to avoid, aids to navigation, federal navigation projects, disposal sites
- Commercial traffic sub-theme: AIS vessel transit counts for 2015 and 2016 with potential monthly animations

### Outreach: Jan-Apr 2018?

- Port Operator Groups and Safety and Security Forums
- Other opportunities?

17

## Human Use Data and Stakeholder Outreach Coming Soon



18



### Human Use Data and Stakeholder Outreach Coming Soon

NORTHEAST OCEANPLAN

**Commercial Fishing**

- 2015-2016 Vessel Monitoring System
- 1996-2015 Communities at Sea
- Options for characterizing lobster fishing

**Outreach: Sep 2017 - Jan 2018**

- NEFMC and MAFMC
- Industry contacts
- NOAA Fisheries and State Fisheries

19

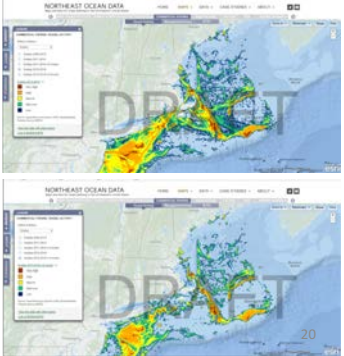
### Human Use Data and Stakeholder Outreach Coming Soon

NORTHEAST OCEANPLAN

**Commercial Fishing**

**2015-2016 VMS w/ speed thresholds:**

- Multispecies
- Monkfish
- Herring
- Scallop
- Surfclam/Ocean Quahog
- Squid
- Mackerel



20

### Human Use Data and Stakeholder Outreach Coming Soon

NORTHEAST OCEANPLAN

**Commercial Fishing**

**Communities at Sea**

- Methodology developed by Kevin St. Martin, Rutgers
- Implemented by Jim Trimble, Rutgers
- Links VTRs to vessel permit data
- Enables gear type and community combinations
- Outputs density maps representing labor hours

21

### Human Use Data and Stakeholder Outreach Coming Soon

NORTHEAST OCEANPLAN

**Commercial Fishing**

**Communities at Sea**

1996-2000  
2001-2005  
2006-2010  
2011-2015

- Total effort by gear type
- Polygons representing 90% of the effort from each fishing port for each gear type




22

### Human Use Data and Stakeholder Outreach Coming Soon

NORTHEAST OCEANPLAN

**Commercial Fishing**

**Options for Lobster Fishery**



- VTRs used in
  - 85% of offshore trips
  - 15% of inshore trips
- Map reflects the majority of fishery close to shore
- Compared to 2010-2011 Endline map, shows detail in where fishery occurs.
- Shows heavy activity in Lobster Area 1

23

### Human Use Data and Stakeholder Outreach Coming Soon

NORTHEAST OCEANPLAN

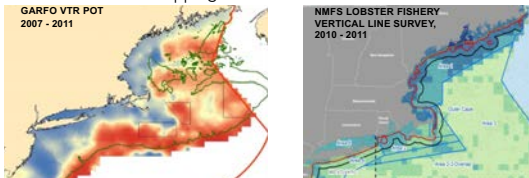
**Commercial Fishing**

**Options for Lobster Fishery**

Previous Options from 2015:

No good comprehensive location information

- VTR maps
- NMFS Office of Protected Resources end line survey
- State mapping efforts



24



## Human Use Data and Stakeholder Outreach Coming Soon



### Options for Lobster Fishery

1. Lobster Endline Map (2010-2011)
2. VTR Map, 2011-2015
  - VTRs used in
    - 85% of offshore trips
    - 15% of inshore trips
  - Map reflects the majority of fishery close to shore (shows importance of Area 1)
  - Compared to 2010-2011 Endline map, shows detail in where fishery occurs.
3. Future mapping efforts
  - Difficult without mandatory location reporting
  - Costs, logistics to develop and implement
  - Purpose:
    - Map to map, or
    - Map for a specific purpose

25

## Human Use Data and Stakeholder Outreach Coming Soon



### Energy & Infrastructure

ENERGY & INFRASTRUCTURE

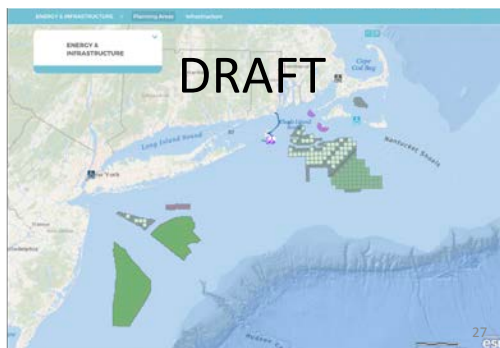
- **Infrastructure sub-theme:** Updated to reflect current installations
- **Planning areas sub-theme:** To be updated to show current status of each area/project – generally classified as “permitted”, “projects in review”, “active lease(s)”, or “planning area(s)”. Examples of recent/pending additions:
  - NYSERDA Areas of Consideration
  - Atlantic Link Cable Alternatives
  - Maine Aqua Ventus

26

## Human Use Data and Stakeholder Outreach Coming Soon



ENERGY & INFRASTRUCTURE



27

## Human Use Data and Stakeholder Outreach Coming Soon



### Recreation

- **Recreation areas sub-theme:** Water trails, boat launches and access points, beaches, coastal recreation and conservation lands
- Options for updating recreational boating, boating/fishing events, whale watching, SCUBA, other activities

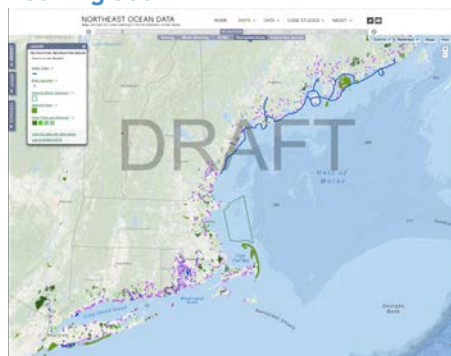
Outreach: Jan 2018 – Jun 2018?

28

## Human Use Data and Stakeholder Outreach Coming Soon



Recreation



29

## Human Use Data and Stakeholder Outreach Coming Soon



### Options for Recreational Boating

- Online mapping survey
- Paper surveys
- PGIS – in person or webinar
- Citizen science/data collection
- AIS or other tracking
- Expert interviews/meeting

30

## Human Use Data and Stakeholder Outreach Coming Soon



### Options for Sailing and Regattas

- Online mapping survey
- Paper surveys
- PGIS – in person or webinar
- AIS or other tracking
- Expert interviews/meeting
- Existing databases/data sources

31

## Human Use Data and Stakeholder Outreach Coming Soon



### Options for Competitive Board and Paddle Events

- Online mapping survey
- Paper surveys
- PGIS – in person or webinar
- Existing databases/data sources

32

## Human Use Data and Stakeholder Outreach Coming Soon



### Options for Whale Watching

- Online mapping survey
- Paper surveys
- PGIS – in person or webinar
- Data collection by/through operators
- AIS or other tracking

33

## Human Use Data and Stakeholder Outreach Coming Soon



### Options for Scuba Diving

- Online mapping survey
- Paper surveys
- PGIS – in person or webinar
- Existing databases/data sources
- Expert interviews

34

## Marine life and ecological importance:

### Overview

35

## Marine Life and Components of Ecological Importance – Progress update



- I. 2017 updates to marine life and habitat data
- II. Timeline of review and feedback on IEA data/methods
- III. Summary of feedback received
- IV. Broad key remaining questions per
- V. Presentation options

36

## I. 2017 marine life & habitat updates



- Added CT DEEP Long Island Sound fish species biomass products
- Updated regional eelgrass layer
- Draft coral management areas, with NEFMC
- Audubon Important Bird Areas
- New Data Explorer widget to add any individual species layer(s) to a map and overlay with any other data
- Updates to MDAT cetacean and avian products (more on this later)



## II. IEA data/methods review

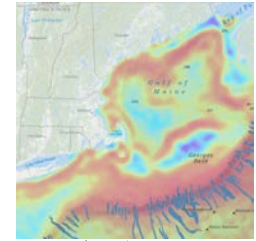


### February 2017

- Northeast RPB initiated review of draft data/methods with regional scientists and RPB staff

### February – May

- Provided webinars and held individual calls with scientists and RPB staff, engaging approximately 30 individuals
- Facilitated data access via SeaSketch to over 110 individuals
- Collected and documented feedback



Summer SST fronts and canyons

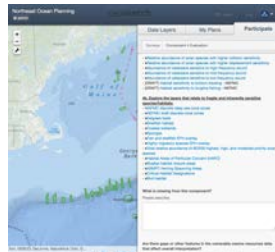
38

## II. IEA data/methods review



### May 2017

- Access to SeaSketch granted upon request to academics, industry reps, federal agencies, states, NGOs
- Purpose: everyone understands scope of what potential IEA data/methods are being reviewed; what key questions we have; and is able to provide input/comments
- Mid-Atlantic RPB requests access to SeaSketch for its entities and stakeholders



39

## II. IEA data/methods review



### May - September 2017

- Over 130 additional users added to SeaSketch (~50 from academia, industry, NGOs, in both regions)
- In-person meetings, webinars, phone calls, facilitated access to SeaSketch to discuss draft data, methods, key questions – over 80 additional individuals engaged
- Collected and documented feedback
- As of September 2017, 16 individuals also provided detailed input via SeaSketch data evaluation tool



40

## II. IEA data/methods review



### SUMMARY

- 240 individuals were provided access to data
- 111 provided direct feedback verbally on calls, webinars, and in meetings
- 16 went on to provide detailed feedback via SeaSketch

41

## III. Summary of feedback



### OVERALL MESSAGE:

- Support for what has been compiled
- Opportunity to improve some products and finalize others
- General tendency toward wanting more detail (maps) per component than less
- Focus on presentation strategy via the Portal
- Help with discussion about how to make data applicable and usable, like other data on the Portal, under existing authorities

42

### III. Summary of feedback



For each component, the following were compiled:

- Key takeaways; a few remaining questions (note: see next slides)
- Next steps (note: see document "Results of Ecological Importance Data Methods Review"):
  - near term (by end of year), and
  - longer term (1-2 year time frame; science and research priorities 2+ years)

43

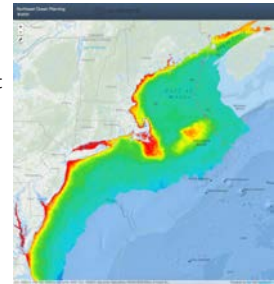
### IV. Key remaining questions



#### Component 1 - Productivity

What temporal windows are most useful?

- Seasonal climatologies?
- Decadal summaries?



Chlorophyll-a median concentration, spring

44

### IV. Key remaining questions



#### Component 2 - Biodiversity

Can we choose a single diversity metric (Shannon or Simpson)?

NEFSC demersal fish



Species richness

Shannon diversity

Simpson diversity

45

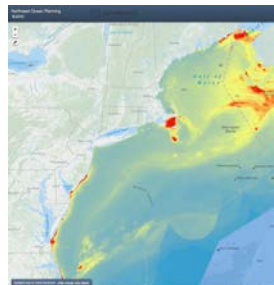
### IV. Key remaining questions



#### Component 3 - Abundance

Which of the three abundance metrics best represent abundance patterns?

- Do any of these metrics adequately address the dynamic nature of abundance and also areas of long-term aggregation?



All avian species total relative abundance, annual

46

### IV. Key remaining questions



#### Component 4 - Vulnerability

Should we continue building data products for **specific stressors** and for representing **inherent** vulnerability?



Habitat sensitivity to bottom trawling (NEFMC Swept-Area-Seabed-Impact model)

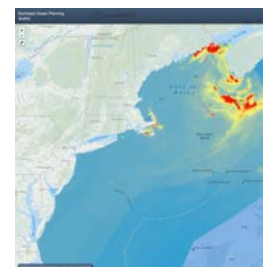
47

### IV. Key remaining questions



#### Component 5 - Rarity

- How can we better spatially characterize rare species and habitats?
- What other sources of information could be used to fill data gaps for rare species and habitats?



Total relative abundance of Northeast state-listed avian species

48

## IV. Key remaining questions



### Relevant to all components:

- How can these data layers be made accessible for a diversity of potential uses and applications?
- What additional Portal tools could be developed to facilitate data access and understanding?

49

## V. Presentation options



### Challenges

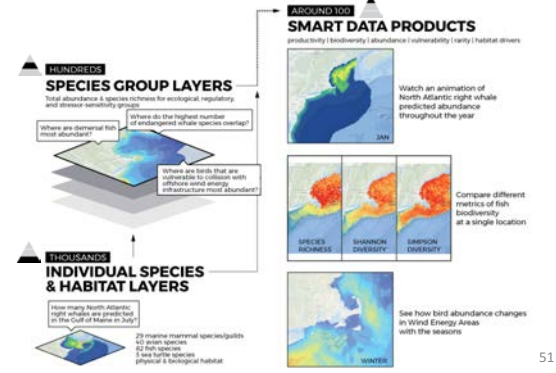
- How can Portal users consume all of this data?
- How can the Portal facilitate a diversity of uses and applications?

### Ideas

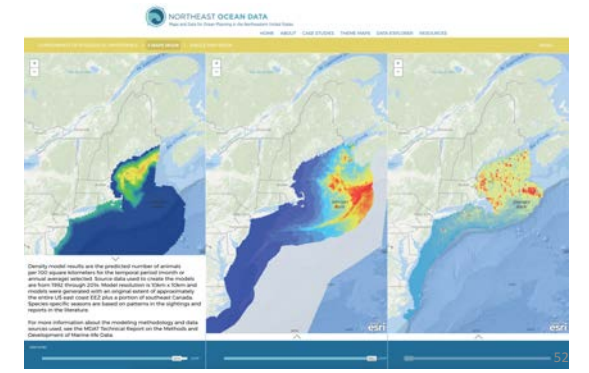
- “Smart data products” – present multiple layers (e.g., months, seasons) in a single data product
- Add to the Portal interface to allow users to customize data visualizations and more easily compare multiple layers
- Expand on the Portal’s ability to overlay marine life, habitat, and human use data

50

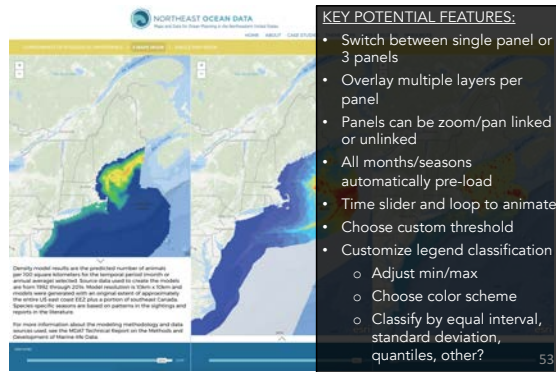
## V. Presentation options



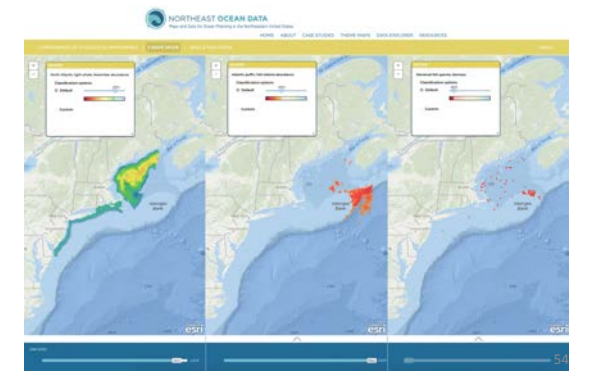
## V. Presentation options



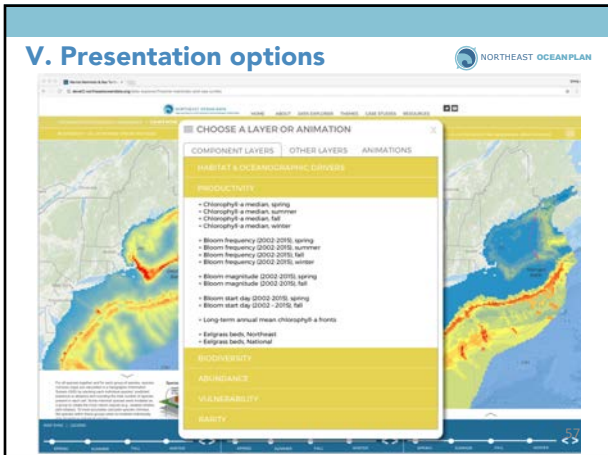
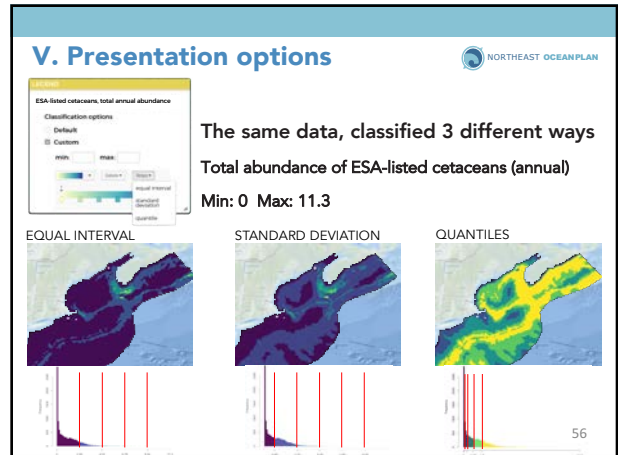
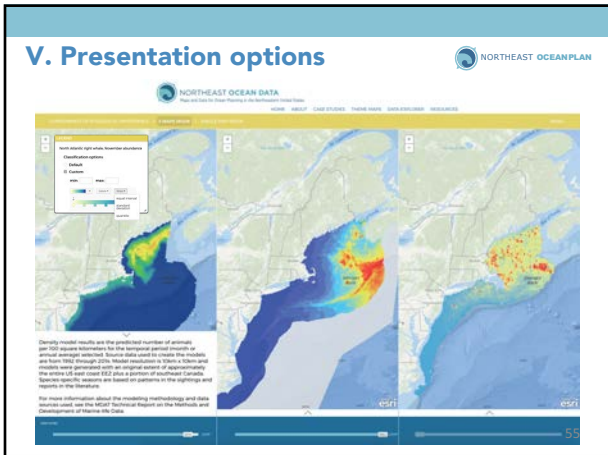
## V. Presentation options



## V. Presentation options







### Marine life and ecological importance:

Additional slides with detail, discussion questions, and recommendations for each component to be presented at the workshop

58

## **Summary of the review process, feedback received, and remaining questions for draft data products and methods relevant to the components of ecological importance (from the Important Ecological Areas Framework in the Northeast Ocean Plan)**

### **October 2017**

This document describes the review process for draft data products and methods compiled for each of the components of ecological importance<sup>1</sup>. The narrative of the review process describes the number of individuals and which sectors/groups provided feedback, and it describes by what methods that feedback was obtained. In the subsequent section, the feedback received is generally summarized. Then, key questions remaining after the review of each component are broadly outlined. Finally, additional detail on the feedback and remaining questions for each component is provided.

### **Review process**

Between July 2016 and February 2017, the Northeast Regional Planning Body (RPB), Marine-life Data and Analysis Team (MDAT), and ocean planning staff assembled available (published, peer-reviewed) datasets and methods relevant to each of five components of ecological importance (productivity, biodiversity, abundance, vulnerability, rarity). More than 100 individual datasets were assembled, many of which are already included on the Northeast Ocean Data Portal, but each of which needed to be reviewed for their appropriateness in this context.

In February 2017, the RPB initiated review of the draft data and methods with regional scientists and staff from RPB entities. Between February and May, ocean planning staff held webinars and calls, facilitated data access and review via SeaSketch (a web-based mapping application)<sup>2</sup>, and collected and documented feedback that was provided during these sessions. Over 110 individuals were provided access to the data via SeaSketch and approximately 30 individuals provided feedback during webinars and calls during this time.

In May 2017, component data and methods available on SeaSketch were made accessible to interested members of the public, with the purpose of providing the opportunity to as many individuals as possible to understand the draft data and to provide input on methods and potential uses of the data. Also in May 2017, the Mid-Atlantic RPB provided access to SeaSketch for its entities' staff and ocean planning stakeholders. Between May and September 2017, over 130 additional users from both regions were added to SeaSketch, around 50 of whom were

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<sup>1</sup> See Northeast Ocean Plan, pp. 53-55 and 196-199; and subsequent documents at: <http://neoceanplanning.org/library/>

<sup>2</sup> SeaSketch ([www.seasketch.org](http://www.seasketch.org)) is a mapping tool that enables discussion and collaboration on spatial datasets and maps by multiple users. It was used for this review process as a tool to allow controlled access to draft datasets, and does not replace the public datasets and information on the Northeast Ocean Data Portal.



members of academia, industry, and non-governmental organizations. During this time, ocean planning staff coordinated and held in-person meetings, webinars, and phone calls, and facilitated access to SeaSketch to discuss the draft data, potential methods, and key questions. Over 80 individuals engaged in discussions with ocean planning staff one-on-one or as part of a group. In addition, as of September 2017, 16 individuals also provided detailed input on the draft data and methods relevant to one or more components via a SeaSketch data evaluation tool.

**In total, over 240 individuals were provided access to the draft data and methods. 111 individuals provided feedback verbally through in-person meetings, phone calls, and webinars. 16 individuals went on to also provide detailed feedback on one or more components through the SeaSketch data evaluation tool.**

### Feedback received

Overall, feedback was generally positive about the usefulness of the assembled datasets and the published methods that were chosen to develop them. Many individuals also noted key data gaps for each component that represent important considerations when using the data or when identifying regional science and research priorities.

An important consideration throughout the data development and review process has been related to how many data layers are appropriate for illustrating each component. In general, individuals requested more detail (i.e., more data layers) per component. For example, individuals were interested in seeing monthly and seasonal map products and animations versus annual averages, and many individuals discussed the greater potential value of ecological group-level products (e.g., “demersal fish”) versus taxa-level products (e.g., “all fish species”) in order to show patterns that are useful for making decisions. The feedback received throughout the review process, however, is much more complex. For example, for some components, the feedback may lead to an overall reduction in the number of data layers due to selecting one method over another, or due to the recognition that some methods may require more time and research in order to be useful. It should also be noted that some individuals preferred a smaller set of averaged, summarized, or synthesized map products per component, and that some individuals preferred that the RPB discontinue the exercise altogether due to concerns about data gaps, the robustness of methods, and potentially unclear uses of the final data products.

There was also support for advancing a strategy to present and visualize these data via the Northeast Ocean Data Portal. There was broad recognition that some datasets and concepts require additional explanation and documentation to inform how datasets can be used. Many individuals also suggested that additional attention on presentation would enhance the usability of the datasets and advance an understanding of important ecological patterns. Presentation options were discussed, including new tools with the ability to overlay information or to visualize temporal variability within a single view (e.g., animations).

### Key remaining questions

Following the review and discussion of data layers and methods under each component, some broader, thematic questions, as well as some technical questions, remained. The questions below relate to the representation of each component as a whole, and indicate important topics to be discussed at the November workshop. Additional scientific and technical questions are captured in the “Detailed feedback” section below.

**Component 1:** Which/how many temporal windows are important to include for productivity metrics (e.g., long-term averages, annual averages, seasonal averages, monthly averages?)

**Component 2:** Which, if any, diversity metrics (species richness, Gini-Simpson index, Shannon index) are redundant, and how could they be used?

**Component 3:** Which of the three abundance metrics (total abundance/biomass, core abundance/biomass area richness, ranked relative abundance) best represent abundance patterns? Do any of these metrics adequately address the dynamic nature of abundance and also areas of long-term aggregation?

**Component 4:** Should the RPB continue building data products for specific stressors while also developing products that represent inherent vulnerability?

**Component 5:** How can the RPB better spatially characterize rare species and habitats? What other sources of non-spatial information could be used to fill data gaps for rare species and habitats?

**Relevant to all components:** How can these data layers be made accessible for a diversity of potential uses and applications? What additional Portal tools could be developed to facilitate data access and understanding?

### Detailed feedback on each component

The detailed feedback received for each component has been synthesized by ocean planning staff and is summarized below. This feedback reflects the results of the SeaSketch data evaluation tool, but even more so, the many conversations and discussions held on this topic via webinar, phone, and in-person since February 2017. The table below provides context for material that was reviewed (“What was reviewed?”), describes discussion topics for each type of data, and lists key remaining questions and potential next steps as context for discussion at upcoming meetings. For additional information about the datasets that were reviewed, see the full [IEA Data Guide](#).

Where possible, ocean planning staff and the technical team estimated when specific feedback can be addressed and potentially incorporated into the next phase of product development: by the end of 2017; in the near-term (1-2 years), or longer-term science and research priorities (2+ years).

#### Component 1: Productivity + habitat and oceanographic drivers

*Data layers to support Component 1 are predominately derived from NOAA Northeast Fisheries Science Center (NEFSC) products and research. Due to issues with data availability, the technical team reproduced some data layers for this component (and included them in SeaSketch) using NEFSC methodologies but with different source data. However, in the future, any publicly available data products under this component should be representative of NEFSC’s final and publicly available, peer-reviewed, data products.*

What was reviewed?	Feedback received	Key remaining questions	Potential next steps
Regional scale primary productivity, using NEFSC methods	Good; NEFSC data are authoritative. “Bloom start day” is somewhat different in that it could capture temporal change or phenological patterns.	What and how many temporal windows are most useful (monthly, seasonal, annual)?	Coordinate with NEFSC (near-term)
Fine-scale primary productivity, using different methods	Promising; needs to be peer-reviewed and published.		
Regional scale secondary productivity (NEFSC)	Good; NEFSC are authoritative. Continuous coverage maps of zooplankton biovolume are preferred.	What and how many temporal windows are most useful (monthly, seasonal, annual)?	Coordinate with NEFSC (near-term)
Habitat and oceanographic drivers Spatially static: canyons and seamounts; Temporally dynamic: sea surface temperature fronts, eddy probabilities	Relevant to more than one component. Should be separate and used as context for other component data.	For static features: what’s missing? For dynamic features: what temporal windows are most useful?	Add surface and bottom current data (by end of 2017). Develop animations and/or dynamic data products (near-term)

## Component 2: Biodiversity

Component 2 relies on data products produced by the Marine-life Data and Analysis Team (MDAT). Accordingly, this component is limited to representations of biodiversity of sampled/observed cetacean, avian, and fish species and therefore has significant data gaps (e.g. highly migratory finfish, benthic fauna).

What was reviewed?	Feedback received	Key remaining questions	Potential next steps
Taxonomic metrics of diversity for cetaceans, birds, and fish	<p>Data are limited to observed cetaceans, birds, fish; there are significant data gaps.</p> <p>The three metrics are good; want to know more about similarities and differences among Species Richness, Shannon Index, Gini-Simpson Index.</p>	<p>Are any of the metrics redundant? How could they be used?</p>	Compare results of the 3 metrics, and explain scenarios for when one might be used vs. another (near-term)
Experimental layer representing functional diversity – richness of avian foraging guilds	<p>Functional diversity refers to the variety of biological processes, functions or characteristics of a particular ecosystem.</p> <p>This is an important category of biodiversity but there are limitations that affect data interpretation and potential use, e.g., layer does not represent the relative abundance of birds exhibiting their particular feeding behavior (it represents all observations of the species that tend to feed in a particular way, including non-feeding behavior).</p>	How can functional diversity be mapped?	<p>Develop data products for (one or all three) biodiversity metrics for cetacean, bird, and fish ecological groups as one way to characterize biodiversity patterns across different functional groups (by end of 2017)</p> <p>Develop approaches to map functional diversity (long-term)</p>

### Component 3: Abundance

*Like the Biodiversity component, Component 3 relies primarily on MDAT data products. There is one additional data product representing areas of above average abundance of benthic megafaunal species produced by the University of Massachusetts Dartmouth School of Marine Science and Technology.*

What was reviewed?	Feedback received	Key remaining questions	Potential next steps
Three abundance metrics for cetaceans, birds, fish	<p>Good; want to know more about similarities and differences among Total Abundance/Biomass, Core Abundance/Biomass Area Richness, Ranked Relative Abundance.</p> <p>A strength of the experimental Ranked Relative Abundance (RRA) products is the monthly (cetacean) or seasonal (avian) layers.</p> <p>Annual averages tend to smooth spatial/temporal patterns in abundance. Abundance products with the highest temporal resolution possible are useful for decision-making.</p> <p>Abundance patterns are dynamic – try animating layers to show how abundance patterns change throughout the year.</p> <p>Consider the value of the Northeast/Mid-A scale core abundance area richness maps, and/or provide additional guidance for their use.</p>	<p>Are any of the abundance metrics redundant?</p> <p>Do any of these metrics adequately address the dynamic nature of abundance and also areas of long-term aggregation?</p> <p>What’s the best way to display/visualize temporal variability in abundance?</p>	<p>Tool(s) to compare Total Abundance/Biomass, Core Abundance/Biomass Area Richness, Ranked Relative Abundance (near-term)</p> <p>Tool(s) such as time-sliders or animations to visualize dynamic patterns in one or all abundance metrics (near-term)</p>
Life history products (areas of spawning, breeding, feeding, migratory routes)	<p>Good; but some are not related to high abundance (e.g., sometimes migratory routes = dispersed); all layers are repeated in Component 4</p>	<p>Do all of these layers relate to areas of high abundance?</p>	<p>Consider how these products do or do not fit in Component 3 (near-term)</p>

### Component 4: Vulnerability

*There was general support for the approach of assembling data relevant to both specific stressors and to inherent sensitivity/fragility. However, a limitation within the stressor-by-stressor category is that it would be difficult to compile a comprehensive and representative set of data products. A limitation within the inherent sensitivity category is that many of the layers are limited to species of regulatory concern, and to compile a suite of data products using life history traits to assess inherent sensitivity of a broader list of species would be a large long-term project.*

What was reviewed?	Feedback received	Key remaining questions	Potential next steps
Stressor-based sensitivity data products, including: Offshore energy infrastructure (birds) Sound (cetaceans) Pelagic and benthic fishing gear (habitat)	There are so many ways to be vulnerable that it is hard to pick out locations of high overall vulnerability. Difficult to be comprehensive and representative; need to include climate change (e.g., temperature, sea level, acidification), marine debris, entanglement as stressors.	Should the RPB continue building data products for <b>specific stressors</b> and for representing <b>inherent</b> vulnerability? What other stressors are important to include?	Add fish climate vulnerability groups based on NEFSC work (Hare et al. 2016) (by end of 2017). Track literature and add vulnerability groups for climate change (cetaceans), marine debris, and entanglement when available (near-term, long-term)
Inherent sensitivity (i.e., life history products for species of regulatory concern) data products	Good; however, would be a long-term project to expand the life history concept to all species. Biologically Important Areas (BIAs) <sup>3</sup> could fit here.	What methods and data sources can be used to map sensitivity based on life history characteristics?	Add Mid-Atlantic eelgrass, wetlands, shellfish data (by end of 2017, near-term) Develop approaches to map sensitivity/vulnerability based on species' life history characteristics (long-term)

<sup>3</sup> The Biologically Important Areas (BIAs) component of the NOAA CetMap effort supplements the quantitative information on cetacean density, distribution, and occurrence by: 1) identifying areas where cetacean species or populations are known to concentrate for specific behaviors, or be range-limited, but for which there is not sufficient data for their importance to be reflected in the quantitative mapping effort; and 2) providing additional context within which to examine potential interactions between cetaceans and human activities. <http://cetsound.noaa.gov/important>

### Component 5: Rarity

*This component is likely to always have significant data gaps. Spatial data products are dependent on robust observations and therefore rare species and habitats are underrepresented in these products. Despite of and due to the lack of quantitative distribution data for many rare species and habitats, agencies have developed and use spatial data products such as species ranges, critical habitats, biologically important areas that are relevant to rare species and habitats. By the end of 2017, these existing data products can be added to this component.*

What was reviewed?	Feedback received	Key remaining questions	Potential next steps
Regionally rare (state-listed species and regional conservation concern) Globally rare (ESA-listed)	<p>There will always be data gaps; quantitative data is limited.</p> <p>Rare species that are not formally protected by states or federal authorities, or are not listed as of conservation concern, are not represented. Spatially rare habitats are missing.</p> <p>Agencies already use data to address these gaps such as species ranges<sup>4</sup>, critical habitats<sup>5</sup>, and Biologically Important Areas<sup>6</sup>.</p> <p>Does not currently address the underlying reason that a species or habitat is rare – e.g., does the species/habitat have naturally low occurrence, or is its occurrence presently low due to historic and current stressors/disturbances? This type of information is important for decision-making.</p> <p>There is an important coastal connection to several rare fish species (Atlantic sturgeon, river herring, Atlantic salmon) and many bird species (see Northeast state-listed species).</p>	<p>How can the RPB better spatially characterize rare species and habitats?</p> <p>What other sources of non-spatial information could be used to fill data gaps for rare species and habitats?</p>	<p>Add species ranges, critical habitats, Biologically Important Areas (by end of 2017).</p> <p>Add data table of Mid-Atlantic state-listed species (by end of 2017).</p> <p>Include data and information at the individual species-level for species that are endangered or rare, including cetaceans, birds, corals, and sea turtles (by end of 2017).</p> <p>Mathematically calculate spatially rare habitats (long-term).</p> <p>Consider developing a more complete articulation of “rarity” (near-term).</p>

<sup>4</sup>The range of a species is defined as the general geographical area within which that species can be found, including those areas used throughout all or part of the species' life cycle. See Atlantic sturgeon example:

<https://www.greateratlantic.fisheries.noaa.gov/protected/section7/guidance/maps/atlanticsturgeon.pdf.pdf>

<sup>5</sup>Critical habitat is defined as specific areas: within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. <http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm>

<sup>6</sup>See footnote on previous page; <http://cetsound.noaa.gov/important>





## Northeast Regional Planning Body

### Day 2: Fall 2017 RPB Meeting

Thursday, November 16, 2017, 9:00-4:30

Old Exeter Town Hall, Exeter, NH

#### Meeting Objectives

- Review and obtain feedback on progress with implementation nearly one year after the Northeast Ocean Plan was certified
- Decide on next steps with key Northeast Ocean Data Portal updates and Regional Planning Body subcommittee and work group activities
- Learn about and explore tribal priorities

#### Agenda

**8:30am**      **Registration**

**9:00**            **Welcome to New Hampshire**

**9:15**            **Introductions and Agenda Review** - *Mel Coté, EPA, Northeast Regional Planning Body (RPB) Federal Co-lead*

**9:30**            **Implementation and Use of the Northeast Ocean Plan** - *Ted Diers, NH, RPB State Co-lead*

RPB discussion about the use and implementation of the Northeast Ocean Plan by RPB entities, including consideration of a how the Plan/Portal might be used to inform a conceptual project that crosses multiple jurisdictions.

**10:30**          **Public Comment**

Public comment about plan implementation or about interesting public uses of the Plan/Portal

**10:45**          **Break**

**11:00**          **Northeast Ocean Data Portal Updates (carry over from 11/15)** - *Nick Napoli and Emily Shumchenia, staff*

- Presentation and discussion about next steps to update, obtain feedback, and use human activity data on the Portal
- Presentation and discussion about next steps with the development and use of marine life, habitat, and Components of Ecological Importance data



- 11:30**      **Public Comment and RPB Decision about Next Steps with Northeast Ocean Data Portal Updates**
- 12:00**      **Lunch (on your own)**
- 1:00**        **Tribal Priorities** – *Elizabeth James-Perry, RPB Tribal Co-lead*
- 1:30**        **Subcommittee Updates and Next Steps**  
Updates and discussion about RPB Subcommittee activities and plans for 2018
- Restoration Subcommittee - *Larry Oliver, USACE, and Ivy Mlsna, EPA*
  - Sand Management Subcommittee – *Jeff Reidenauer, BOEM*
- 2:30**        **Public Comment**  
Public comment on tribal priorities, Restoration Subcommittee, and Sand Management Subcommittee activities
- 2:45**        **Break**
- 3:00**        **Monitoring and Evaluation**  
Updates and discussion about Monitoring and Evaluation activities and next steps
- Plan Implementation
    - Use of Best Practices in decision-making – *Jennifer McCarthy, USACE, and Chris Boelke, NOAA Fisheries*
    - Progress Report - *Ted Diers and Mel Coté*
  - Ecosystem Health
    - 2018 Ocean Health Index Work Plan - *Emily Shumchenia* (on behalf of the OHI team)
    - Integrated Sentinel Monitoring Network (ISMN) – *Ru Morrison, NERACOOS, ISMN Steering Committee Member*
- 4:00**        **Public Comment**  
Public comment on Monitoring and Evaluation. Also, RPB Co-leads solicit ideas on the format and frequency of future meetings.
- 4:30**        **Adjourn**

## Northeast Ocean Data Portal Updates

During this session, staff will present a summary of proposed updates to the Northeast Ocean Data Portal, including human use, marine life, habitat, and ecological importance data that were discussed on the previous day. Please refer to the briefing materials from November 15 for this agenda topic. Staff may modify these materials based on the previous day's proceedings.

- See Northeast Ocean Data Portal Updates, page 6
- See Human Use Data Next Steps for 2018, page 7
- See Marine Life, Habitat, and Ecological Importance Next Steps for 2018, page 7

## Subcommittee Updates: Restoration Subcommittee

The Restoration Subcommittee (RSC) met twice by conference call to consider options to implement the Actions listed in the Ocean Plan. The consensus of the RSC is that each state and tribe will provide approximately ten "good representative restoration projects" to be displayed on the Portal. The projects displayed on the Portal will reflect state and tribal restoration priorities and the scope of restoration projects within their jurisdiction, but will not explicitly indicate that the projects in the Portal are of higher priority than other available opportunities. Each state has a comprehensive list of potential restoration projects. The Portal will include points of contact for each state and project so proponents/funders may follow-up with questions or requests for further information and a link to more detailed project lists where available. The RSC will develop metadata parameters such as cost information, project phase, and expected ecological outcome to provide some consistency across states/tribes. The RSC funding agencies developed a list of funding sources for the Ocean Plan and will update the list periodically. The end-user or audience for this information is funding agencies, financial decision-makers, and project proponents. The data layer as envisioned would hopefully attract more funding (as projects highlighted by NROC/RPB) and would result in better informed investing.

Some additional benefits we see with the approach as outline above:

- Good opportunity to highlight restoration activities/needs and different restoration programs within the region
- Does not force regional consistency for restoration projects or suggest that there are regional priorities that are endorsed by the RPB
- The Portal provides additional spatial data as context for each of the listed projects, including water quality, wetlands, SAVs, ecological conditions, human activities, etc.

In making this recommendation, the RSC considered the following options:

1. Update the Restoration theme on the Portal:
  - 1A: Choose the top restoration projects of any type for each jurisdiction (no consistency and prioritization across jurisdictions, but we know they're important to each).
  - 1B: Agree to choose the top restoration projects with some regional consistency
2. Funding opportunities
  - 2A: Update the current table of funding opportunities available via the Portal
  - 2B: Update the table of funding opportunities and attempt to match types of projects with appropriate funding opportunities
3. Discontinue Restoration Subcommittee and Portal theme
  - 3A: RPB decides the actions in the Plan are no longer useful and relevant
  - 3B: RPB decides to ask a partner to take up the effort

## Subcommittee Updates: Sand Management Subcommittee

The NE Sand Management Subcommittee is co-led by the State of RI (replacing, at least for the interim, the State of MA) and the Bureau of Ocean Energy Management (BOEM), and has been engaged in discussions related to sand management over the past several months. The Subcommittee has determined the need for broader education and discussion among government players of sand management issues, including resources, regulatory roles and challenges, and use conflict and ocean user engagement. As an initial step, the Subcommittee will organize an internal coordination meeting for federal and state staff to further educate each other on federal and state roles and responsibilities, and to address the regulatory reality and challenges around sand management. Staff will prepare for the meeting by completing a matrix of regulatory roles and responsibilities. The workshop will also tie back to the Northeast Ocean Plan and discuss topics such as use conflicts in accessing sand areas, related maps, and best practices for early engagement across government and with ocean users. Some issues already identified by the Subcommittee include regulatory permitting roles, sand resources, multiple uses of sand, onshore/offshore processes, and the need for better communication. The meeting will also be used to discuss a future public workshop on offshore sand management in the region.

## Monitoring & Evaluation: Best Practices

The NE Ocean Plan (Plan) was created to better inform and coordinate actions that affect ocean users and resources. The Plan identifies broad Federal responsibilities to encourage the use of the Northeast Ocean Data Portal (Portal) by agencies, users, and ocean industry, and to ensure that appropriate coordination among federal, state and tribal partners is occurring. These responsibilities are identified for different types of ocean management issues in Chapter 3 of the Plan, summarized in Chapter 4, and have collectively been referred to as “Best Practices” throughout the planning process and during implementation. Federal Agencies are in the process of identifying specific steps in order to implement these aspects of the Plan.

### Use of Plan data and the Portal

The use of ocean plan data and the Portal are important to understanding specific uses and resources that occur in a specific location. In developing plans for ocean infrastructure, it is important for potential developers to understand potential conflicts with existing uses, and natural resources and habitats. Likewise, it is important for federal permitting and consulting agencies to understand potential conflicts and impacts resulting from ocean activities, or when developing plans. In order to catalog the various steps being taken to implement these goals, Federal agencies will qualitatively identify actions to encourage the use of data and information in planning and to obtain feedback about potential data and Portal improvements that will better support decision-making.

The steps can fall into 2 broad categories. Examples are provided for RPB discussion and do not suggest all activities that have or could be completed within each category.

1. Outreach to ocean stakeholders (examples)
  - a. BOEM reference in Renewable Energy Guidance
  - b. ACOE public notice to applicant
  - c. Portal trainings and presentations
2. RPB staff trainings (examples)
  - a. NMFS/GARFO (11/8/17)
  - b. ACOE quarterly staff meeting

There are also a few quantitative measures that can be considered to inform the use of ocean plan data and the Portal. These include total hits on the Portal, use of specific datasets (number and by who), and Portal inquiries. Additional activities to be considered include the following potential Portal enhancements:

- Portal user email list
- Videos/tutorials for different types of management questions
- More direct linkage to the Federal Register and public notice about current projects
- Inclusion of actual footprints for projects that are currently under review



### Coordination

Similarly, early agency coordination is important to ensure that Federal, state and tribal agencies are working together to identify and discuss potential user conflicts and resource issues with ocean development actions. Similarly, RPB agencies may wish to create additional opportunities to discuss emerging issues (those without proposed actions, e.g., offshore wave power). In order to catalog the various steps being taken, Federal agencies will qualitatively identify actions to encourage early agency coordination. Examples of current coordination actions include:

1. ACOE pre-application meetings
2. BOEM renewable energy task forces
3. NROC and related workgroups

### Case Studies

The RPB has recently developed several case studies that demonstrate both the use of the Portal and agency coordination, and additional case studies are currently under development. RPB entities will determine how use of the Plan and the Portal can be articulated through case studies, and will encourage project proponents and other stakeholders to consider providing case studies as well.



# Monitoring & Evaluation: OHI Update and Work Plan for 2018

## Northeast Ocean Health Index Update - November 2017

The Ocean Health Index team has been working with RPB staff, local stakeholders, and RPB members over the last year on initial steps to adapt the Ocean Health Index framework to the unique context of the US Northeast. In this document, we provide an update on progress to date as well as a brief timeline of expected OHI-related research and engagement opportunities through 2018.

### Research and Engagement Timeline:

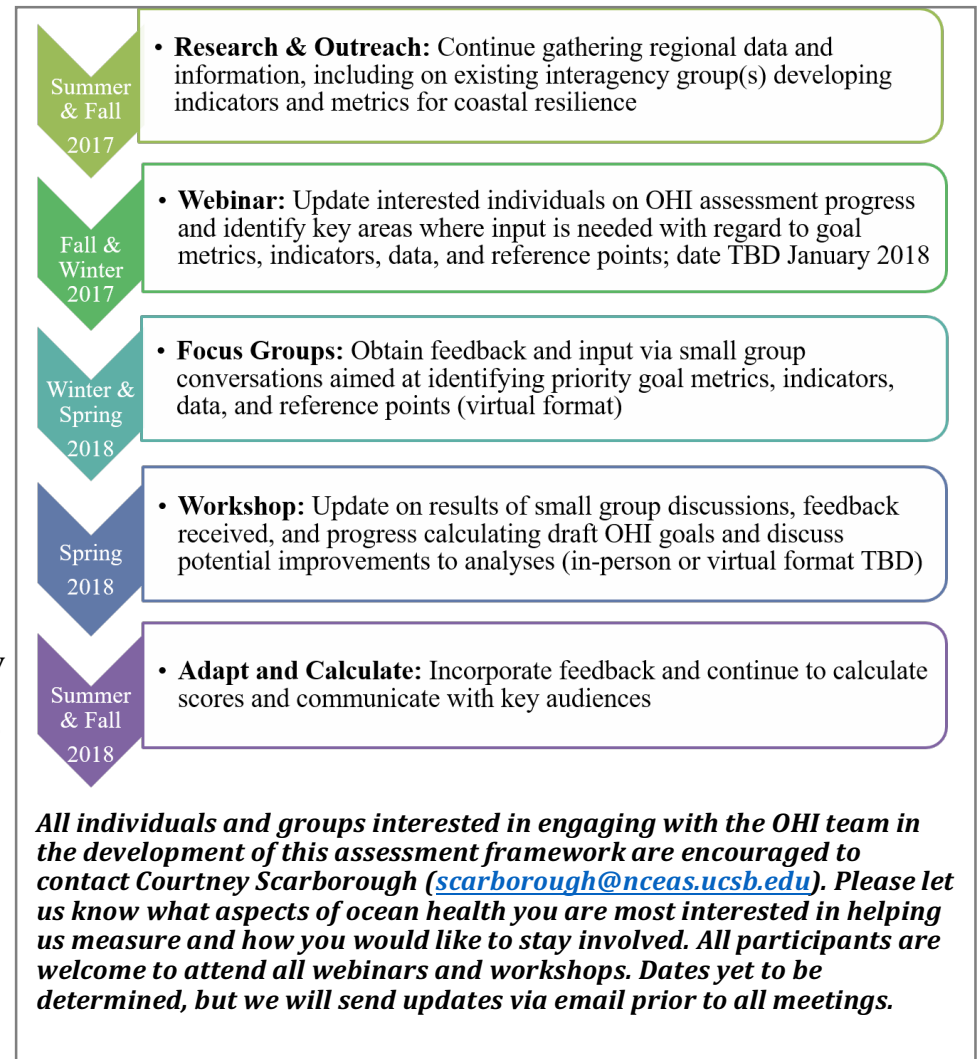
The OHI team scheduled an in-person workshop for September 2017 that unfortunately had to be canceled due to travel complications associated with Hurricane Jose. As such we have adapted our research and engagement timeline and strategy to offer more opportunities to interact with interested individuals remotely and aim to get as much local engagement as possible.

### Progress on reporting regions and defining OHI Goals for the Northeast:

Four reporting regions options have been presented by the OHI team for consideration. Future discussions should consider whether data are available for each goal at the scale of each potential reporting region.

Determining ocean health requires an approach that integrates social, economic, and environmental information. The Ocean Health Index does this by measuring progress towards widely held goals that represent key benefits and services provided by healthy marine ecosystems, such as seafood, tourism, recreation, and jobs. By analyzing these goals together, we obtain a comprehensive picture of the state of the ecosystem.

On the next page is a list of the Ocean Plan Resources & Activities and the priorities that are highlighted in the Northeast Ocean Plan (as identified by the OHI team). If we begin to look at the Plan from an Ocean Health Index perspective where we focus on the benefits and services provided by a healthy ocean, some of these priorities can be grouped together to systematically capture the priorities the RPB has for healthy oceans.



Below is a suggestion of how we could capture all of these priorities from an OHI, service/benefit-first, perspective.

We plan to work with all interested stakeholders to adapt and refine these goal definitions and develop indicators and reference points to measure how well the ocean is providing each of these goals sustainably to the people of the Northeast.

OHI Goals	Definition - A healthy ocean provides:	Ocean Plan Resources & Activities	Priorities Highlighted in the Plan								
Biodiversity	A diversity of healthy marine species, habitats, and landscapes	Marine Life & Habitat	Habitats	Species	Biodiversity	Species richness	Ecosystem function				
Sense of Place & Identity	A deep sense of identity and belonging provided through connections with our marine communities	Cultural Resources Commercial & Recreational Fishing	Working waterfront	Maritime connection to the sea	Coastal parks & reserves	Native American fisheries	Historic places	Cultural importance of fishing	Recreational fishing	Designated protected areas	Access
Coastal Livelihoods & Economies	High quantity and quality of ocean-dependent jobs and local revenue	Marine Transportation Commercial & Recreational Fishing Recreation Aquaculture National Security Energy & Infrastructure	Livelihoods	Jobs & revenue	Seasonal employment	Access					
Seafood Provision	Sustainably harvested seafood from wild-caught fisheries and mariculture	Commercial & Recreational Fishing Aquaculture	Food	Access							
Tourism & Recreation	Opportunities for people to enjoy coastal areas through tourism and recreation	Recreation Cultural Resources	Tourism & Recreation	Coastal parks/reserves	Social importance	Access	Park visitation	Designated protected areas			
Natural Products	Sustainably harvested ocean-derived living resources for purposes other than consumption	Energy & Infrastructure Offshore Sand Resources	Energy production	Offshore sand resources	Access						
Coastal Protection & Carbon Storage	Storage of carbon and protection of our coasts from storm damage by living natural habitats, such as seagrasses	Offshore Sand Resources Marine Life & Habitat Restoration	Natural vegetation to stabilize shorelines & dunes	Habitats	Estuaries	Eelgrass	Native coastal vegetation				
Local Fishing & Resource Access Opportunities	Opportunities for Native Americans and other local community members to access local natural resources	Cultural Resources Aquaculture Recreation Commercial & Recreational Fishing	Tribal importance for sustenance	Access to the ocean	Working waterfront	Native American fisheries	Cultural importance of fishing	Tribal importance for water quality restoration	Access to resources		
Clean Waters	Coastal waters which are free of contaminants	Marine Life & Habitat Restoration	Land-sea interface	Trash	Nutrients	Chemicals	Pathogens				

## Monitoring & Evaluation: ISMN Upcoming Work

Members of the Integrated Sentinel Monitoring Network (ISMN) steering committee met on October 12th. The group reviewed existing membership in the network and are reviewing new membership. The steering committee would like to start meeting monthly in order to move ISMN priorities forward. Workshops in the pipeline include 1) monitoring efforts and methodologies; 2) monitoring assessments; 3) Collaborative for Analysis, Prediction and Evaluation (CAPE) governance structure and implementation; and 4) data integration. The steering committee is interested in exploring overlapping interests and goals with the EcoSystem Indicator Partnership (ESIP), the Northeast Regional Planning Body, and the Department of Fisheries and Oceans Canada.