Implementation of the Integrated Sentinel Monitoring Network (ISMN)

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December 16, 2019





### What is ISMN:

A regional infrastructure to facilitate observation and interpretation of ecosystem changes in the Northeast.

- Joint project of NERACOOS & NROC
- Based at NERACOOS
- Represents a broad consensus of scientists & managers that the present monitoring activities are fragmented and leave important gaps in coverage of key ecosystem properties.



### Regional Infrastructure to Facilitate Observing Change in NE Regional Ecosystems



## The Oversight Committee

Advises the ISMN Director on the implementation and integration of ISMN activities.

**Determines** priorities for enhancement of present observing activities.

**Establishes** and **recruits** participants in technical science committees to integrate and facilitate effectiveness of data collection, management, and analysis.



**Guides** the ISMN Director in awarding grants for data synthesis through the Center for Analysis, Prediction and Evaluation (CAPE).

### Center for Analysis Prediction & Evaluation (CAPE)

ISMN Ofo Engages regional experts in short-term activities:

- Enables integrated analysis across datasets
- Generates information products about the status of the Northeast region ecosystems
- Addresses identified needs for ecosystem-based information and skills for federal and state agencies and other stakeholders

### Biodiversity and sentinel variables



The selection process involves matching each sentinel indicator with a question formulated from either:

- **hypothesis-based** predictions of responses to environmental pressures, or
- identification of **key ecosystem properties** that are known to be fundamental to ecosystem structure and function, without necessarily understanding the mechanisms or impacts of change (i.e., covering for the unexpected).

# Integration of national observation networks within within the NE ISMN framework: example of the pelagic Gulf of Maine ecosystem

 MBON supported by the National Oceanographic Partnership Program, with funding from NOAA and BOEM

- Support of time series observations at WBTS and CMTS
- CAPE: lipidscape and NARW

o Data management



esp Sentinel: Calanus

finmarchicus

Microplankton, especially diatoms



### **Update for NROC meeting**

- 1. ISMN receives funding for MBON expansion into the Gulf of Maine
- $\circ$  Awarded in July
- Two sources, BOEM and NOPP (NOAA)- needed to write and submit a second proposal to BOEM
- Final award arrangements in November
- Three components
  - Monthly sampling for comprehensive plankton and environmental data at two time series stations: WBTS and CMTS. Sampling at WBTS station started in November with partners at UNH. CMTS in spring
  - Establishment of CAPE with project to predict foraging distribution by modeling time changes in the spatial pattern of abundance of *Calanus finmarchicus*, its principal prey. Three experts engaged: N. Record, R. Ji and D. Pendleton. Planning meeting in November and another in January.
  - Data integration and management. Working with Riley Morse Young (GMRI) who is the primary NERACOOS contractee for data management. Integrating new and also previously collected ecosystem data into NERACOOS data framework. Focusing now on integrating new and past plankton monitoring data.

### Update for NROC meeting (cont.)

- 2. Oversight committee:
- Fourteen members, still working on filling two spots
- Meeting this summer at GMRI, also informal meeting in Portland GoM2050 in November. Next meeting scheduled January 10.
- Subcommittees to develop sentinel indications Benthic, Nearshore and Estuarine Habitats, with goal of identifying possibilities for a white paper type document to supplement S&I plan

3. ISMN poster presentation at GoM2050 meeting in Portland, November 2019

4. Teleconference with Emily Shumchenia, Courtney Scarborough; Jamie Afflerbach about Ocean Health Index (OHI).