

## Session: Communication

## Ecosystem Reporting

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Ecosystem reporting encompasses the range of activities related to data collection, data analysis, product generation, and providing data to users and consumers. The main outlet for public access to Northeast Fisheries Science Center ecosystem data is the NEFSC Ecosystem Considerations website. The Ecosystem Considerations webpage includes contributions from more than 60 Center scientists drawn from each of the organizational divisions. The landing page for the website is:

<http://www.nefsc.noaa.gov/ecosys/>

The screenshot shows the homepage of the Northeast Fisheries Science Center (NEFSC) website. At the top, there is a navigation bar with links for Home, About Us, Education, News & Media, Publications, and Research. Below this is a search bar. The main content area features six blue buttons for navigation: Ecology of the Northeast Continental Shelf, Climate Change, Ecosystem Status, Current Conditions, Spatial Analyses, and Modeling Approaches. To the right of these buttons is a large map titled "Northeast Shelf Regional Ecosystem" showing the Atlantic Ocean coastline with various icons representing ecosystem services, stressors, adverse effects, and issues of special concern. Below the map is a caption: "Figure 1. Examples of some important ecosystem services (blue icons), stressors (red), adverse effects (yellow), and issues of special concern (green) that will be considered in Ecosystem-Based Management on the Northeast U.S. Continental Shelf (adapted from image by Barbara Ambrose, National Coastal Data Development Center)." At the bottom of the page, there are three columns of links: NEFSC Links, NOAA Fisheries/DOC, and NOAA Links. The footer contains the website URL, search and disclaimer links, and a file modification date of Mar. 23, 2016.

The information on the site is organized into six main topic areas that can be accessed by clicking one of the buttons on the left side of the entry page. The **Ecology of the Northeast Continental Shelf** section contains contextual information on the ecology of the ecosystem including the physical setting, the food web, and human dimensions. The **Climate Change** section includes background information and perspectives on climate change issues as well as

assessments of projected impacts. The **Ecosystem Status** section contains a regularly updated assessment of the ecosystem intended to provide a range of information to managers, stakeholders, scientists, and the public. In addition, the data in the report will inform the Integrated Assessment process for the Northeast Shelf large marine ecosystem. The **Current Conditions** section is a biannual report on changes in ecosystem conditions on a time scale that reflects the ecosystem production cycle and survey activities. The **Spatial Analyses** section contains animations of fish and invertebrate species distributions for two seasonal migration periods. The **Modeling Approaches** section contains some background information on ecosystem modeling and, more importantly, information on the independent peer review of modeling approaches used to support ecosystem-based fishery management in the region conducted at the Center in 2011.

The website uses common themes in graphic displays and includes both static and animated graphics in an attempt to present ecosystem data coherently. The website is visited on the order of 25,000 times annually, though analysis has not been done on the number of repeat visitors. Postings on the website are often used as subjects for NEFSC media releases, especially when they contain information of wide interest. For example, when Center scientists started to see the development of record-high ocean temperatures in 2012, a press release was developed for the Current Conditions reporting on the temperature conditions that generated tremendous interest both nationally and internationally.

An important subpage of the Ecosystem Status page is the “Executive Summary”, found here:

<http://www.nefsc.noaa.gov/ecosys/ecosystem-status-report/executive-summary.html>

The “Executive Summary” constitutes a “State of the Ecosystem” report that is regularly presented to regional fishery management councils to keep members apprised on the state of the ecosystem as it may influence decisions related to fishing measures. This section of the webpage uses a graphics style adopted from the California Current Integrated Ecosystem Assessment process.

In addition to providing information on the ecosystem to a broad range of users, the reporting process is an important point of departure for research activities. The reporting process has been a testbed for methods development (*e.g.* development of bloom detection algorithms) and organizing data, which has facilitated analyses and publications. As a further step, the Center is developing an environmental data capability building on the routine assessments done for ecosystem reporting, which is intended to provide environmental datasets to support ecosystem-based approaches to management.

Data reporting is critical for Strategic Planning and Management Context (Theme 1). Managers increasingly deal with decisions that require consideration of changing environmental conditions and need to be literate on these issues. Ecosystem data are critical to performing ecosystem analyses, especially for developing and parameterizing operating models (Themes 2 and 3). The NEFSC reports a wide range of ecosystem data to inform EBM and EBFM. The nature of this reporting will continue to evolve as our data systems mature and ecosystem considerations are incorporated into management protocols (Themes 4 and 5).