

## **Fish Work Group Meeting #2**

### **Wednesday, October 22; 10:00am – 11:30am**

#### **Participants**

Work Group: Daniel Martin (NOAA), Jake Kritzer (EDF), Kathy Mills (Gulf of Maine Research Institute), Steve Cadrin (UMass), Todd Callaghan (MA CZM), Peg Parker (Commercial Fish Research Foundation), Giancarlo Cicchetti (EPA), Malin Pinsky (Rutgers), Sharri Venno (Houlton Band of Maliseet Indians), Jonathan Grabowski (Northeastern University), Peter Auster (UConn)

Marine Life Data & Analysis Team (MDAT): Jesse Cleary and Corrie Curtice (Duke), Mike Fogarty (NEFSC), and Charles Perretti (Duke/NEFSC)

NROC: Nick Napoli, Emily Shumchenia, Katie Lund

#### **Welcome, introductions, etc.**

After roll call, Nick briefly described the progress of the marine life expert working groups and the timeline moving forward. The goal of this group is to have a solid understanding of what can and cannot be mapped or modeled and to develop a plan over approximately the next month for work on new spatial products. Emily described the process by which NROC and the MDAT teams are following up with work group members who were unable to attend calls or who have offered feedback outside of formal calls. Members who are absent from future calls will be contacted by Emily or Corrie and given the opportunity to comment on what was discussed during the missed call(s). All comments are documented and shared internally with the MDAT team.

#### **Geographic boundaries – Mike Fogarty (NOAA)**

Mike described the discussions within the MDAT team regarding spatial boundaries for mapping and modeling. There is a desire to have the same geographic boundaries for all marine life mapping/modeling, and for these boundaries to be agreed upon.

- **Work group members will review and provide feedback on geographic boundary options.**

#### **Data sources**

Mike reiterated that the primary data sources for the mapping/modeling effort include the NEFSC bottom trawls, NEAMAP trawls and state of Massachusetts trawls. Because calibration exercises have not been conducted between and among these trawls, individual data products will need to be developed representing each dataset (i.e., three maps of cod distribution and abundance – one for each trawl dataset).

The work group then discussed the possibility of utilizing fishery-dependent data (such as Vessel Trip Reports) as a fourth source, especially for species that are not well-captured by the three trawl datasets. This could potentially include developing products that blend fishery-dependent and independent data. Lobster, squid, butterfish, black sea bass and Jonah crab were mentioned as candidates. Species with strong associations to rocky, complex bottom habitat were also generally suggested as candidates considering the potential limitations of the trawl surveys in these areas.

The work group acknowledged potential limitations with fishery-dependent data and suggested that engaging the industry in understanding those limitations. Nick mentioned that there are ongoing efforts to engage the industry in understanding the potential uses and limitations of fishery-dependent data

that can inform this project and provide an opportunity for industry review of products. The work group suggested it would be best to consider the use of fishery-dependent data after reviewing draft products from the three trawl surveys.

- **Work group members are asked to provide feedback on which species may or may not be well represented by the three trawl datasets.**
- **Work group members who wish to learn more about ongoing efforts to map fishing activity and engage the commercial fishing industry should contact Nick Napoli.**

### **Species/Data Products Recommendations**

The work group discussed species and data product options ranging from raw abundance mapping to habitat modeling, as well as species-specific data products and potential summary products. The work group made the following recommendations (a more detailed description of related work group discussions is included below):

1. Develop summary data products to reduce the overall number of maps managers need to use, including grouping species by functional guild and developing maps of total fish diversity, total fish biomass, and total raw abundance
2. Develop individual data products for a limited number of priority species (e.g., “iconic”, commercially- and/or culturally-important species), while still maintaining a database for all species
3. Develop animations showing trends over time
4. Develop raw abundance products, such as bubble plots
5. Develop a method for showing the effort associated with each data source to complement the distribution and abundance maps

### **Discussion**

The species list that is included in the agenda and materials reflects a better understanding of the geographic scope of this work (species with more southern ranges/distributions have been removed) and account for >90% of the total biomass in all trawl surveys.

The work group then discussed options for grouping species by functional guilds in order to better portray whole fish communities. Work group members agreed that these types of groupings would be useful for addressing regional planning issues and for providing an “overall picture” of fish community distribution and abundance for spatial planning applications.

Then the work group discussed other, “summary” products that would be useful from a planning perspective. These potential products included maps of total fish diversity, total biomass and raw abundance maps. Mike showed examples of these products on the NEFSC spatial tools website ([http://nefsc.noaa.gov/ecosys/spatial\\_tools/mapping.html](http://nefsc.noaa.gov/ecosys/spatial_tools/mapping.html)). The work group discussed ways to represent total raw abundance using bubble plots. Concerns that arose included misconstruing the size of the bubble to represent the spatial footprint of the data, the representation of true “zero” counts versus an unsurveyed area, and the representation of trawl tracks on the same map as the data. Work group members described previous efforts in Massachusetts to represent this type of information and cited bubble plot maps (with representations of trawl/survey locations and zeros) as very useful for conveying information quickly.

The work group discussed the technical challenge of developing and housing hundreds of maps of fish distribution, abundance, diversity, etc. as well as the challenge of conveying important information to

the RPB and other users. Work group members were concerned about choosing a subset of products now and then later needing or wanting a model for a different species or metric. Mike described that even if the work group recommended a core set of species and aggregative final products, all species will need to be mapped as part of that process and would be hosted by NOAA or the MDAT team (so no data would be “lost” in the process of developing final products for this work).

Finally, Mike showed the animation products on his group’s website and the work group discussed the value of showing a time-varying picture of fish distribution and abundance. Further, the work group discussed the value of including 5-year averages or moving-window averages of abundance data into the static final products. Work group members also briefly discussed characterizing the historical distribution and abundance of fish species on the MDAT list and of species that were formally regionally abundant and/or culturally important (e.g., diadromous species). Although not a focus of this work, work group members agreed that the topic is important and could be explored further.

- **Work group members will review the species list and add comments about core/priority species and product options for those species**
- **MDAT will revise the working list of species/data product options**

### **Next steps**

MDAT and NROC will reach out to work group members who were not on the call for input on the discussion topics covered. A species spreadsheet will be distributed via email to work group members for comment and feedback.