Spot Technical Committee

May 9, 2022

Meeting Summary

Committee Members in Attendance: Harry Rickabaugh (MD), Morgan Paris (NC), Ethan Simpson (VA), Stacy VanMortor (NJ), Joseph Munyandorero (FL), Chris McDonough (SC), Martin Gary (PRFC)

ASMFC Staff: Jeff Kipp, Maya Drzewicki, Tracey Bauer

Public/Other: Mike Wilberg, Rob Latour, Willow Patten (NC)

Drs. Mike Wilberg (Chesapeake Biological Laboratory) and Rob Latour (Virginia Institute of Marine Science) are leading a research project to estimate fish abundance and mortality rates in specific regions using a spatial model. The Technical Committee met in May to receive a request from Drs. Wilberg and Latour for spot to be one of the focus species in the project.

Drs. Latour and Wilberg gave a brief presentation that reviewed background on the research project proposed for spot, data needs, expected products, and what they were requesting of the Technical Committee. A summary of this information can be found in the document "Spot letter to TC 4-24-2022.docx", and attached to this summary (Attachment 1).

For Drs. Latour and Wilberg to successfully spatially model the spot population, they need access to confidential-level dependent data from most states on the TC. The TC was asked if any member foresaw issues with them obtaining confidential access to spot commercial data from their state. It was recognized that TC members are not the ones making that final decision, so TC members were only asked if any problems were expected with Drs. Latour and Wilberg gaining access to this data or any issues with providing them this data. Drs. Latour and Wilberg will also need access to independent survey data, from the indices that were used in the previous spot benchmark stock assessment and what will most likely be provided for the upcoming 2024 spot benchmark assessment.

The TC foresaw no issues with providing the required confidential data from each state to develop the model and expressed support for the project. This research project will be separate from but occur in conjunction with the upcoming spot 2024 benchmark stock assessment.

Vision: Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Attachment 1:

Development of a spatial model of Spot (*Leiostomus xanthurus*) abundance and mortality

Mike Wilberg[1] and Rob Latour[2]

April 25, 2022

[1] Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science

[2] Virginia Institute of Marine Science, William & Mary

Background

This research project is led by Drs. Mike Wilberg (Chesapeake Biological Laboratory) and Rob Latour (Virginia Institute of Marine Science) and is supported by a grant from the NOAA Chesapeake Bay Office (NCBO) to develop tools for sustainable fisheries management. In our initial project, we are developing models for two species. The first species is striped bass, which we are currently working on with Katie Drew and Gary Nelson. The second one is yet to be determined, but the lead candidate identified by the Chesapeake Bay management agencies is Spot. Therefore, we are reaching out to the Spot TC to request approval to use specific data in the development of a spatial Spot model to estimate abundance and mortality rates in each region. These include both fishery dependent and independent data sets. We are looking to time the project so that it would have substantially synergies with the upcoming ASMFC Spot stock assessment.

We will use the requested data to develop new methods for estimating abundance and mortality over time for several regions (initially the Chesapeake Bay and the rest of the stock area). Additionally, we will evaluate alternative structures for conducting a spatial Spot stock assessment. This analysis will be completed in collaboration with the Spot Technical Committee. In addition, the work is being overseen by a project advisory panel consisting of representatives from NCBO, the Atlantic States Marine Fisheries Commission, Maryland Department of Natural Resources, and the Virginia Marine Resources Commission who have prioritized Spot for this project.

Model

We expect to develop and age- or size-based spatial model for spot. The model would have two or three areas with one of them being the Chesapeake Bay. The primary outputs of the model would be estimates of abundance, biomass, and mortality rates. The model would allow spot recruitment in all regions and would also allow movement among regions.

We expect that we would need more data than the normal stock assessment to be able to implement a spatial model. Specifically, we will need to develop indices of abundance by age or size for each model region on a subannual time scale. Because survey data alone are probably insufficient for the spatial and temporal scales we are envisioning, we are planning on also developing indices using fishery dependent CPUE. We expect to develop index standardization approaches to overcome some of the inherent weaknesses of fishery dependent data, but we will need access to trip level data to do so. The fishery dependent data would likely be confidential at the level we are requesting, and they would need to be approved by each state. If data requests are approved by the states, we would obtain the fishery dependent data from ACCSP.

Data needs

Development of the type of model described above requires a range of data sources. Our goal is to discuss our plan with the TC so that any data requests could be made with approval of the TC. The specific data sets we would need are:

- Total catch from each state at a subannual time step
- Survey indices of abundance
- Size and/or age composition information for the catch and surveys (not all data sources would need these data)
- Fishery dependent catch and effort data at as small of a spatial and temporal scale as possible to allow for including space and time effects in index standardization models.

Expected products

Our project should have a number of synergies with the upcoming Spot stock assessment. For example, we will be making substantial efforts to develop models for spot that allow spatial estimates of abundance and mortality. Additionally, we will be developing fishery dependent indices. We hope to work with the SAS and TC as we move forward so that the assessment will be able to use the parts of our work that are deemed useful in that context.