



New England Fishery Management Council

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MEETING SUMMARY

Habitat Plan Development Team

January 25, 2021

1:00-2:30 p.m.

Agenda

The PDT discussed a December 2020 interim progress report on Coonamessett Farm Foundation's (CFF) Exempted Fishing Permit-based (EFP) research project within the Rose and Crown section of the Great South Channel Habitat Management Area (GSC HMA).

Background

The GSC HMA has historically been fished for surfclams but was closed to bottom trawls and scallop dredges in April 2018 and closed to clam dredge vessels in April 2019. A subset of the area was open under an exemption program in June 2020, with two areas, the Rose and Crown and Davis Bank, eligible for fishing under an approved EFP. NOAA's Greater Atlantic Regional Fisheries Office (GARFO) issued the EFP for this project in May 2020, and it will expire at the end of May 2021. The Council has a set of research objectives for the GSC HMA, and last winter commented to GARFO on issuance of the EFP, focusing on the relationship between these objectives and the research plan.

In addition to the December progress report, documents provided to the PDT included a shorter August progress report, two versions of CFF's research proposal, the Council's June 2019 research objectives document, and correspondence between GARFO and the Council on EFP issuance.

Meeting attendance

PDT members included Michelle Bachman (Chair), Peter Auster, Sharon Benjamin, Jessica Coakley, Geret DePiper, Rachel Feeney, Kathryn Ford, Julia Livermore, Dave Packer, David Stevenson, and Alison Verkade.

AP members included Ron Smolowitz and Drew Minkiewicz. Committee chairman Eric Reid also attended. Other attendees included Doug Potts (GARFO), Hauke Kite-Powell, Frank Almeida, Joe Myers, Allen Rencurrel, Roger Mann, Luisa Garcia, Farrell Davis, and Natalie Jennings. Ms. Garcia, Mr. Davis, and Ms. Jennings authored the progress report.

Discussion

Ms. Bachman provided some context (see background, above) and CFF staff described aspects of the fieldwork to date, analytical methods, and contents of the progress report. Most of the field efforts involve hydraulic dredging, with dredge-mounted video footage collected during roughly 90% of tows. There was also one non-fishing trip that used a baited underwater video (BUV) system to collect video from a camera stand; another BUV trip is planned. Clams and other constituents of the catch are also sub-sampled.

Classification of seabed features and organisms observed in the dredge-mounted video will be done going forward using BORIS (Behavioral Observation Research Interactive Software), with a classification ethergram for substrate and epifaunal coverage (continuous/state events) in development. Individual organisms that can be counted (crabs, fish) are treated as point events. Training videos have been developed and additional analysts will annotate these standard videos to test for consistency between individuals. Training additional analysts should increase the amount of footage that can be reviewed; thus far only a small percentage of tows have been analyzed. The annotation process codes occurrence of a given habitat component or organism along the length of the tow, generating graphics (Figure 2 in progress report) that show where in the tow path each element occurs, and which substrates, epifauna, and individual organisms such as crabs and fishes co-occur. The PDT felt it would be useful to include citations/additional detail to document how the habitat classifications were assigned. A possibility in terms of further analysis is to compare classifications in tows near each other but that occurred at different tides/times of day/seasons. CFF expressed interest in expanding the project into the Davis Bank section the HMA, which is closed to mobile bottom-tending gears but where fishing could occur if authorized by an EFP. CFF suggested that Davis Bank would be mapped using fishery-independent methods first, and then with the dredge-mounted camera.

Approaches for spatial interpolation of the classification results are still under development. The state and point classifications are georeferenced by understanding when in the tow they occurred and then relating that time to progression along the tow path. The maps reflect both point and line data. At this point the interpolations are only based on a few tows each so the shapes of the habitat-type polygons tend to look striped – see Figure 3 in progress report. The PDT was willing to engage further with CFF staff on refining these mapping methods. One immediate suggestion was to plot tow paths on top of any interpolated surfaces to show where habitat classifications were known based on the video vs. inferred. The PDT asked whether seasonal maps might be created, or if all the data would be pooled.

The PDT also wondered about sample size requirements to detect differences in the relative proportions of different habitat elements, given variability in the habitats. The PDT asked if visibility was an issue. CFF noted that occasionally marine snow has presented an issue in terms of assessing seafloor characteristics. The PDT also asked about plans to compare the surfclam catch data to habitat characteristics. While this isn't one of the Councils research objectives, Mr. Davis suggested that they might use surfclam data to support requests for outside funding (i.e. grants in addition to revenue derived from compensation fishing).

There was some discussion of the Council's research objectives (copied below) and whether they could be addressed via the project (this was previously addressed in the Council's February 2020

letter to GARFO). A limitation of the study is that mapping occurs coincident with tow paths, which means that portions of the Rose and Crown that are unfishable, due to sand shoals, or an expected preponderance of boulder substrate, cannot be mapped. These areas could be mapped with fishery independent methods, such as a benthic camera sled, or drop cameras. Thus far, nearly all data collected are from fishing events. The ability to map substrate, epifauna, and megafauna along the tow paths, less so in unfishable bottom types, indicates that the project has the potential to partially address objective 1. The sense of the PDT was that it is difficult to ascertain whether the habitat classifications and resulting maps are likely to be useful for management, given that the analysis remains largely incomplete with minimal details of visualization and extrapolation approaches. It would be possible to provide a more thoughtful evaluation of any mapping products after additional tows are analyzed and incorporated into spatial interpolations with explicit details of methods.

It is not yet clear what understanding of habitat stability (objective 2) can be gained from these observations absent further analysis. The PDT thought it unlikely that the existing sampling approach would provide substantial insight about habitat vulnerability, including susceptibility and recovery (objective 3) as data do not address either initial impact or recovery. Questions about why the HMA is important to managed species (objective 4) could begin to be considered by estimating seasonal occurrence of fishes and mobile invertebrates in the dredge-mounted video and BUV observations. A question here is what the detection probabilities of these species might be in dredge-mounted video or stationary camera frame, e.g. to what extent does the dredge or the lights on the BUV stand deter or attract different species. It would be helpful to evaluate detectability in the final report.

Mr. Smolowitz asked for some input as to whether they are on the right track – he said they are interested in continuing the project and would like to see some support for gathering more data. GARFO staff indicated that it would not be possible to assess whether an extension or expansion of the EFP would be appropriate without additional analysis. They noted that it would be useful to see a formal extension request as soon as possible if the desire is to roll immediately into a second year of the EFP. Mr. Smolowitz suggested that they would be able to clarify process and methods further, but that limited results would be available in the short term.

Council's research objectives for the GSC HMA:

1. Improve the Council's understanding of the distribution of living and non-living habitat features within the GSC HMA, including topography, substrate, epifauna, and infauna (i.e., develop habitat maps).
2. Improve the Council's understanding of habitat stability including epifaunal persistence in relation to substrate type, tidal flows and storm events.
3. Improve the Council's understanding of habitat vulnerability to mussel and clam dredges. Vulnerability includes both the nature of habitat/gear interactions (susceptibility) and recovery rates.
4. Improve the Council's understanding of why the GSC HMA is important to managed species, such as Atlantic cod.