



New England Fishery Management Council

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MEETING SUMMARY

Habitat Plan Development Team

October 24, 2019

1:00 - 3:30 p.m.

After a few updates on the Council's habitat related work and management actions, the PDT received and discussed two presentations, briefly summarized below.

Meeting attendance

PDT members included Michelle Bachman (Chair), Geret DePiper, Rachel Feeney, Kathryn Ford, Julia Livermore, Dave Packer, David Stevenson, Page Valentine and Alison Verkade. Scott Gallagher from WHOI was invited to present his work to the PDT. Heidi Henninger listened to the call as a member of the public. The webinar recording was provided to Habitat PDT, Scallop PDT, Habitat Advisory Panel, and Habitat Committee members afterwards.

Northern Neighbors: Exploring Deepwater Communities in the Transboundary U.S. and Canada Continental Slope and Gulf of Maine, 2019 – Dave Packer, NOAA Northeast Fisheries Science Center

The Northern Neighbors cruise was a partnership between U.S. and Canadian scientists aboard the NOAA Ship *Henry B. Bigelow* using the Canadian ROV *ROPOS* for sampling and imaging the seabed and the *Bigelow's* equipment for multibeam mapping. The survey was completed during June 2019 and focused on transboundary regions of the canyons and Gulf of Maine. The presentation focused on the U.S. results only.

Goals of the cruise were multiple:

- delineate and map spatial extent of deep-sea coral (DSC) habitats and management areas,
- multibeam map the seafloor, filling in gaps,
- document co-occurring species, especially managed fish and shellfish,
- collect specimens for taxonomy, reproductive analysis, age/growth, genetics studies,
- document human impacts,
- groundtruth DSC habitat suitability model,
- provide Fishery Management Councils with contemporary data, and
- evaluate boundaries of Canadian management areas.

In U.S. waters there were three dives in the vicinity of Munson, Nygren, Kinlan, and Heezen canyons. Black corals, bamboo corals, and sponges were notable, and the stony coral *Lophelia*

pertusa (only occasionally seen in New England canyons) was documented. Describing certain canyons as “minor” appears to underrepresent the diversity of the fauna and topography occurring in them; they are only minor in the sense that they generally incise the shelf to a lesser extent and are smaller than the named canyons.

Gulf of Maine sampling included dives in Western Jordan Basin, Outer Schoodic Ridge, and North-Central Jordan Basin. In the Gulf of Maine, corals are found at much higher densities but at much lower biodiversity as compared to the canyons, with soft corals and sea pens predominating the coral fauna. Both patterns likely stem from the shallower depths at the Gulf of Maine sites. Some of the coral observations represented shallow depth records for the species, at least amongst recent (early 2000s to present) survey work. As compared to the canyons, more commercially important fish and shellfish were observed during Gulf of Maine dives. Acadian redfish in particular were extremely abundant at the Outer Schoodic ridge sites amidst the soft coral *Primnoa resedaeformis*. The North-Central Jordan Basin site had not been previously explored. There was frequent evidence of human disturbance including plastics and abandoned fishing gear at the Gulf of Maine sites, much more so than in the canyons.

Overall the work emphasized the importance of multibeam bathymetry to serve as a guide for future sampling, as seafloor terrain conditions are an important determinant of faunal distributions. A written summary of these results will be provided to the PDT at a later date once additional data processing and analysis is complete.

Impact of Disturbance on Habitat Recovery in Habitat Management Areas on the Northern Edge of Georges Bank – Scott Gallagher, Woods Hole Oceanographic Institution

This study was funded by the Scallop Research Set Aside program with the goal of evaluating habitat and ecosystem resiliency in response to fishing disturbance. The design included six long and narrow study sites, in the range of benthic habitat types known to occur on the Northern Edge. At each site there was a fine-scale pre-impact optical survey (2016), intense scallop dredging (20% impact; 2016), immediate post-impact optical survey (2016), and two additional post-impact optical surveys at 10 (2017) and 22 (2018) months. The team hopes to return for additional post-impact sampling in the future. The study occurred entirely within the Closed Area II Habitat Closure Area, although other draft management areas considered during Omnibus Habitat Amendment 2 development are shown on the slides. (The Council recommended reconfiguring habitat management areas on the Northern Edge but these aspects of OHA2 were not approved by NOAA Fisheries.)

The entire CAII Habitat Closure Area was mapped at the outset of the study (July 2012 and July 2016) to determine the spatial distribution of sediments, benthic epifauna (including detailed information on sea scallops), and fish. The distributions of these seafloor features are heterogeneous across the entire study region and amongst the six study sites. Fine scale mapping occurred at each of the study sites at the time periods noted above. Stereo images were taken with HabCam V5 and analyzed using Convolutional Deep Neural Network Classification methods, trained with manually annotated sets of images specific to the Northern Edge of Georges Bank. The automated classification can identify certain types of fish to species, and performs well at classifying scallops, although live vs. dead or damaged scallops are difficult to

discern. The classification also discriminates between epifauna, sand, gravel, and shell hash substrates.

Descriptive information about conditions at the study sites before and after dredging constituted the balance of the presentation. At all six sites dredging had a substantial impact on the observed fauna (attached epifauna where present, scallops, and fish), reducing their abundance as compared to pre-dredging conditions. In general, abundance increased by the time of the 10- and 22-month surveys. The PDT suggested that a more detailed investigation of community composition before and after dredging would be informative, for example are epifaunal species at the sites post-dredging different, even if overall percent epifaunal coverage was restored? The percent cover of sands and gravels was generally not affected by dredging but did change markedly at some of the study sites over time, suggesting storm-induced disturbance of the seabed that caused shifts from gravel vs. sand-dominated seabed types.

Statistical analysis of the results is ongoing and will be provided separately to the PDT once complete.

The call concluded at 3:13 pm.