



## New England Fishery Management Council

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## MEETING SUMMARY

### Habitat Plan Development Team

Conference call

March 2, 2018

The Habitat PDT met to discuss the clam dredge framework and other business.

#### *Meeting Attendance*

PDT members included Michelle Bachman (Chair), Rachel Feeney, Jessica Coakley, Dave Packer, David Stevenson, Doug Potts, Geret DePiper, and Peter Auster. Alison Verkade (GARFO Habitat Conservation Division) was invited to participate in the meeting. Ms. Verkade has been working on the clam framework image analysis project. George LaPointe listened in on the call.

#### *Clam dredge framework*

##### *Review Nantucket Shoals survey report and identify any questions for authors*

Ms. Bachman explained that the two SCMFIS reports on the Nantucket Shoals clam dredge survey and the ancillary data from the Northeast Fishery Science Center clam dredge survey will be reviewed by a subset of the SSC at the end of March. These studies have not been published or otherwise peer reviewed to date. The idea of the review is to get some feedback on the conclusions in the reports and how they might be used to support development of the framework. For example, are the authors' conclusions about the lack of interaction between clam dredging and complex habitat useful for informing the development of alternatives, or not? Should we make use of the substrate data in these studies, or focus on the clam abundance data only? Are there ways that the substrate data can be used, but with appropriate caveats?

Ms. Bachman noted that she viewed the SSC's review as the next step after the PDT assesses the studies and identifies questions. The PDT has already discussed the ancillary data report and can provide feedback today and later in March about the Nantucket Shoals report. These questions and concerns can be communicated to the reviewers and integrated into the terms of reference. The PDT will have an opportunity to review the draft TORs before they are finalized. One suggestion was that simpler TORs may be better, to avoid leading the panel. (Are survey methods appropriate for assessing habitat? Is the gear appropriate for sampling?) Additional PDT reactions could be provided separately.

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The PDT suggested that it is important to consider first and foremost what the habitat elements are that we are working to protect, and how should we interpret the data from the reports regarding those elements. Key questions include what seafloor conditions exist within the habitat management area at present, what role the seafloor plays in terms of providing habitat for other species, and what are the effects of clam dredges on those habitat types. The review panel should perhaps focus on what are the uncertainties in the studies, and whether the inferences of the authors are reasonable. There are other important questions about the habitat management area that are not addressed in either report. Essentially, the PDT is looking for a second informed opinion about how to use the data from the reports. Do the methods and data align with the conclusions and habitat interpretation?

One specific concern is the validity of the ecological interpretations in the reports. For example, the suggestion that surfclams don't benefit from being in gravel substrates, and that the distributions of surfclams and mussels are somewhat inverse to each other.

Another question is what is the mechanism behind the limited number of attached epifauna on hard substrates (based on the photographic analysis)? Is it that all substrate was subsurface such that attachment was not possible? Or that sediments were at the surface but epifauna did not attach? Or that epifauna were removed during dredging?

The PDT discussed the correspondence analysis in the Nantucket Shoals report. The purpose of such analysis is to show the linkages between different measured elements in a set of samples and the degree to which one factor is related to another. For example, the presence of hydroids, barnacles, the 5<sup>th</sup> depth bin, and certain classes of clams are grouped in the data. Other approaches could have been used instead of correspondence analysis, such as multidimensional scaling analysis, or hierarchical clustering. One concern is how consistently these patterns might be observed since this is only a single survey/snapshot in time.

A suggestion for looking at the distribution of mussels was to overlay the locations of mussel catches in the survey with the sediment map from image data to see if mussels are associated with a certain sediment type.

*Review all data sets available to support clam framework, including image analysis data*

Surfclam abundance and distribution data are available from Nantucket Shoals survey and NEFSC survey near the Great South Channel HMA. The NEFSC survey is grouped into sub-market and market-sized clams, while the Nantucket Shoals survey is broken into additional market sizes. A simpler approach might be better, i.e. all market clams combined. We can probably use all recent data in combination. Although the survey platforms differed, the gear used in NEFSC surveys since 2012 is the same as that used in the Nantucket Shoals survey. While no dredge efficiency corrections were applied to any of the data, market clams should be almost 100% selected for by the dredge, so any corrections would be very minor. One question is whether we need to worry about discriminating market vs. sub-market clams for older survey samples. It does make sense to differentiate small clams in recent samples because these will be the fishable clams in a few years and it seems that small clams are concentrated in specific locations

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on Nantucket Shoals. Although the PDT had talked in the past about gridding the clam survey data, this is likely unhelpful given the spatial resolution of the stations (a 5 km by 5 km grid would have ~ 1 station per grid).

The PDT agreed that the primary question is where are the vulnerable habitat types. A PDT member noted that we are poised to engage in parsing up an area (the Great South Channel HMA) that has already been singled out in its totality as EFH for protection. Saying we are only conserving the most vulnerable EFH is problematic, especially considering the status of some species. We can't ignore the initial premise behind the HMA and lose sight of the baseline. Another PDT member responded that one reason to look at clam distribution is that the fishing industry makes choices about where to dredge based on where CPUE is expected to be highest, vs the cost of fishing, and these spatial patterns will shift over time. He agreed that the habitat distribution is central, but we are not going to be able to develop data sources that allow us to link fish and habitat distributions with certainty. The data we have don't support the spatial resolution of the decisions to be made. The PDT agreed that we struggled with spatial resolution of data even while working at a regional scale to develop OHA2, let alone within a single habitat management area.

A related issue is the question of timing of clam harvesting impacts. When do habitat impacts occur relative to when finfish are using the area?

Given that we can't learn everything about these areas that we would hope to know given the data available, how do we move forward? While it is clearly important to convey the uncertainty in the information at hand, and we can do our best to caveat the data, ideally, we can use the information to discriminate among sections of the GSC HMA and develop alternatives.

A PDT member suggested breaking the area into large pieces as a starting point to see whether habitat types within them can be discriminated statistically. If vulnerable habitat types and fishing grounds are mixed and distributed throughout the HMA, but the habitat distribution data can't be used to parse the HMA spatially, the Council may need to use other criteria for decision making (for example, allow fishing in a certain percentage of the HMA). We also need to put the importance of these areas to the clam fishery into context. For this, we can use approaches like those in the coral amendment, e.g. what is the percentage of an individual's effort or revenue in the HMA vs. outside?

Working towards a more specific analysis of the image data, Ms. Bachman reminded the PDT of the scoring done for each of the images in the video analysis. If there is < 10% gravel in all four images, then the PDT recommended previously that the habitat be defined as not complex. Other combinations of cobble/boulder occurrence and percent cover of gravels would be considered complex. (While these variables can be combined in multiple different ways, the PDT had intended complex vs. not complex to be a binary value. Occurrence of cobble, boulder, pavement, etc. can be mapped separately.) Ms. Verkade commented that based on this standard, most of the area is coming up at complex. One thing she suggested was to look at areas where partially buried cobbles and boulders occur, because there is a lot of evidence of sand movement. However, even in these mobile sand areas, there is often evidence of epifauna, so looking at the epifauna types present would be informative.

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Only the sand shoals seem to have an absence of complex habitat, based on this <10% gravel cover threshold. The Swept Area Seabed Impact Model grid, the Harris and Stokesbury 2012 sediment maps, and nautical charts all show these same features. (Note that the SASI model and Harris and Stokesbury data set, as well as the current image analysis, are all based on video survey images). Looking at tow tracks, it appears that clam dredging does not overlap these sand shoals but does overlap the areas of complex habitat. If complex habitat occurs throughout the HMA, then what are we giving up if fishing is allowed to continue in these areas?

Getting back to a possible statistical analysis, a PDT member suggested comparing the heavily sampled area in the north of the HMA to the less sampled area in the south of the HMA. Alternatively, this could include two areas that are more heavily sampled and two that are lightly sampled. A simple way to compare these two areas is to use binomial distributions, i.e. determine whether the probability of encountering complex habitat is the same between the two sites. Other members agreed this would work as an approach. However, a concern is that by going down the road of parsing out different subsets of the HMA, we are ignoring the bigger picture, that this area is generally important, and that we are trying to conserve the habitat attributes that increase the probability of survivorship and growth to maturity, and those that allow animals to optimize their reproduction, and thus to optimize yield.

The Habitat Committee is going to ask for recommendations about exemption areas where clam dredging can continue with minimal adverse impacts to EFH. The challenge is that if we agree on our definition of complex, it doesn't appear possible to identify large contiguous areas without complex habitat. The PDT was uncomfortable with suggesting subsets of the HMA as exemption areas without further direction from the Committee. As a first step, the PDT can describe all data available on habitat distributions within the HMA to provide the tools to evaluate spatial alternatives. VMS data would be the best way to identify fishing areas across the entire fleet and over multiple years. We can certainly look at the trawl survey fish distribution data as well. Data resolution and linking fish to habitat features will continue to be a challenge. Ultimately it could fall to the Committee to identify a target percentage of the HMA to exempt.

The point was underscored that the GSC HMA is already a small subset of the region. The idea of shifting the HMA entirely was raised, but this would fall outside the scope of this framework adjustment, as outlined in the problem statement for the action.

The PDT talked about process and timing. The next step is for the PDT to think through these issues in more detail on March 16. The review panel will meet in late March, and the Habitat Advisory Panel is scheduled to meet on April 3 to provide their input before the Committee meets. While the AP could be convened after the Committee, the Committee wants both AP and PDT input on this issue, which means that it makes sense for the AP to meet in early April. We can also take the opportunity on April 13 to get feedback from the MAFMC clam AP. Ms. Bachman noted that final action was planned for September.

We know that roughly 20% of clam revenues are generated within this HMA. A PDT member suggested that for the Committee meeting, we should provide the big picture context and

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background, present the data, and then give our best recommendation, even if that is for the no action alternative. Others agreed with this approach.

### *Discuss framework document outline with focus on affected environment section*

The last 30 minutes of the call was mostly spent discussing the framework document outline, with a focus on the affected environment. The goal is to build from the Omnibus EFH Amendment EIS and keep the framework as succinct as possible.

In the section about benefits of habitat management areas and the effects of fishing gear, we can adapt the OHA2 FEIS sections, and drill down in to habitat features used by the species most likely to occupy the area. Because the OHA2 analysis of the habitat impacts of hydraulic dredges done for the SASI model was limited to sand and gravel habitats and did not include cobble and boulder habitats, a more thorough evaluation of gear impacts will be necessary. One PDT member has reviewed all the existing studies and summarized the results but pointed out that they were all done in sandy bottom habitats. The best approach would be an expansion of the original scoring of susceptibility and recovery scores, which relied on professional judgment of PDT members.

The question of the effects of climate change on the surfclam resource can be addressed in the surfclam distribution and life history section. Jessica Coakley noted that they are developing updated versions of their fishery information documents that we can borrow from. She noted that the paralytic shellfish poisoning sampling cost issue isn't really relevant to this action, since the vessels that fish on Georges Bank are larger and distinct from those fishing Nantucket Shoals. If the GSC HMA closes, the vessels fishing there won't go out to Georges Bank. She also mentioned that there will be a surfclam assessment update available soon. Finally, Lisa Colburn at NEFSC SSB has assessed social vulnerability to climate change, with some work specifically on clams.

In the section on other fisheries, Ms. Bachman noted that the Council recently became aware of a mussel dredge fishery in the GSC HMA. This fishery was not discussed in OHA2 but should be mentioned here, although there is limited data. Mussel dredge gear is defined as a mobile bottom-tending and would be prohibited from the HMA once it is designated.

In terms of the human community descriptions, we can mirror approaches taken in the coral amendment. After the call, staff discussed that the Herring Amendment 8 communities section might be a good model.

One question is how much we need to talk about protected resources, since hydraulic dredge gear has not had protected resources interactions in the past.

Staff will revise tables of landings and revenue, working with MAFMC on data queries.

### ***Other business***

Ms. Bachman noted that she has had limited time to work on the Deep-Sea Coral Amendment submission, given other priorities, including the clam framework, but that she will send out requests for assistance as needed.

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In terms of the updates to the fishing effects model, Dave Stevenson suggested forming a subgroup of the PDT to talk about technical issues.

Ms. Bachman noted she was investing lots of time in offshore energy issues in recent months.

The meeting adjourned at noon.

**Table 1 – Follow up items from March 2, 2018 PDT meeting**

<b>Task</b>	<b>Name(s)</b>	<b>Due date</b>
Draft TORs for SSC subpanel review	Michelle Bachman	3/15 (distributed 3/20)
Binomial test between subsets of HMA	Michelle Bachman, working with Jessica Coakley and Geret DePiper	3/16 first cut; clean up sub-areas and update week of 3/19
Develop affected environment	Michelle Bachman, Rachel Feeney, working with Jessica Coakley	4/15 draft for Committee distribution
Get feedback on what the Committee is expecting for their meeting	Michelle Bachman	3/16
Maps of different data sets (clam, habitat from image data, VTR, trawl survey)	Michelle Bachman	3/15 (update by 3/27 for distribution to AP)
Update SASI impact analysis for hydraulic dredge gear	Entire PDT to review work of a sub-group	April