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New England Fishery Management Council

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Habitat PDT Meeting Summary

June 11, 2008
 Plymouth, MA

The PDT met on Wednesday, June 11, 2008 in Plymouth, MA to continue work on the Vulnerability Analysis portion of Phase 2 of the Omnibus Habitat Amendment.

Omnibus Phase 2 – Vulnerability Analysis (VA), Data consolidation and evaluation

Gear types

The PDT discussed the Gear Types discussion memo, which focused specifically on trawl gears as a 'first cut.'

The following trawl gears were identified as potentially having impacts that are sufficiently different on the identified assessment endpoints so as to warrant disaggregation:

- Shrimp trawls
- Squid/mackerel/butterfish trawls
- Raised footrope trawls
- Groundfish trawls:
 - *Flatfish*
 - *Roundfish*
 - *Monkfish (Uglyfish?)*

The Team discussed potentially adding Scallop Trawls to this list. Additional gears (mobile and fixed) will be added to the list after a review of gear use frequencies in the various databases. The inclusion of non-bottom-tending gears, in particular herring trawls, was discussed and the Team decided to include herring trawls as a gear type in the analysis, subject to further discussion at the next PDT meeting.

It was noted that in order to disaggregate Groundfish Trawls using existing data, assumptions on gear use based on target species would need to be made. Heuristics should be developed and vetted for making these determinations, but the team feels that such disaggregation is possible.

Three specific types of impact ‘action’ were noted: slicing, flattening and crushing. The Vulnerability Analysis may attempt to estimate the impact of each ‘action’ separately to contribute to one composite metric (additively or otherwise, as appropriate).

One method of categorizing trawl impacts may be as a percentage of the total sweep that contacts the sea bed. Another may be an ordinal ranking of the impact level (perhaps using the slicing, flattening and crushing impacts) of particular gear configurations. The Team discussed potentially combining these two metrics into one measure of gear impact, and is in the process of developing just such a conceptual model.

A sample VA matrix was proposed that broadly resembled the following:

Natural disturbance regime		1						2						3					
Assessment Endpoint Type		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Gear		<i>Qualitative/Quantitative impact summary</i>																	
Trawl	Shrimp																		
	Squid																		
	Raised footrope																		
	Groundfish - Flat																		
	Groundfish - Round																		
	Groundfish - Monk																		
	Herring																		
	Scallop																		
Dredge	Scallop																		
	SC/OQ																		
P/T	Lobster																		
	DSRC																		
Line	Bottom longline																		
Net	Gillnet																		

Geological/Biological structure data consolidation

Drawing mainly from the prepared PDT discussion document, the PDT discussed issues surrounding available data for geo/bio structure in the context of both the VA and the subsequent spatial model. It was decided that the spatial extent of the data should be restricted to the footprint of the fisheries managed by the NEFMC (this will be the spatial scope of the analysis as well).

Final (interim) geological structure classes to be used in the VA were determined as:

1. Mud (silt + clay)
2. Sand
3. Granule/pebble
4. Cobble
5. Boulder

Final (interim) biological structure classes to be used in the VA were determined as:

1. Epifaunal
2. Infaunal

These two classes were discussed as pertaining to both Biota-as-shelter and Biota-as-prey, although it was noted that a more formal approach to the Biota-as-shelter classification, and that this would be discussed prior to and at the next PDT meeting.

Natural disturbance data consolidation

The PDT discussed the use of an SMAST shear strength model to estimate the average daily shear stress experienced throughout the analysis area (averaged across nodes of varying resolution, but generally smaller-scale nodes occurred inshore) and the largest sediment size potentially mobilized by that level of shear stress.

Two separate models were estimated for a first-run, M2 (daily stress) and S2 (biweekly stress) with the model output representing the highest modeled observation. A further refinement may include estimating periodic events (e.g. winter storms), as the shear stress from such events is likely to be significantly higher than that observed on smaller time scales.

Recovery/resilience data consolidation

This topic was tabled until the next PDT meeting.

The Baseline Issue

The determination of a 'baseline' for impacts comparison has repeatedly been raised as an important issue, fostering much enlightened PDT discussion, but ultimately the PDT has not been able to reach a solid consensus regarding how to address this comprehensively.

Given the time scales of data collection (e.g., USGS sediment samples occur from the early 1950's through the mid-2000's), it is unlikely that an analysis will be able to show changes in assessment endpoints over time.

A traditional 'baseline' may look like this: [BASELINE = STATIC CONDITION + NATURAL VARIATION] ...under such a model, impacts (anthropogenic or otherwise) would need to exceed the natural variation before they can be said to deviate from baseline.

The PDT discussion centered around whether or not that Static Condition should include the effects of fishing on bottom habitats. Given that the effect of fishing on bottom habitats is precisely the effect that the model is intended to test for (that is, an impact that may be adverse could only be felt if the fishing effect on habitat exceeded the baseline in the above model), it is obvious that including the effect of fishing on the habitat makes the model circuitous. However, fishing has been present since before our input data was collected, so it is not possible to presume a 'virgin' Static Condition.

The only practical solution to this quandary appears to be using such an impact model to test for impacts in excess of a baseline that includes an unknown but acknowledged fishing-impacted static condition. The magnitude of deviations from Baseline would then be determined using observed or future fishing efforts from known, fixed timeframes. For example, the year 2002 (A13/A10) may be appropriate as a baseline to inform the question of how well the Council may be meeting its MSA mandates since its last major habitat impacts assessment. Ultimately, the PDT felt that this was likely to be viewed as a policy decision, and one in need of guidance from the Habitat Ctte.

The meeting adjourned at approximately 4:15 PM.