



Mid-Atlantic Fishery Management Council
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MEMORANDUM

Date: March 28, 2024
To: Council
From: Hannah Hart, Staff
Subject: Northeast Trawl Advisory Panel Progress Report for the Industry-Based Survey Pilot Project

On Wednesday, April 10, 2024, the Mid-Atlantic Fishery Management Council (Council) will receive a progress report on the draft Industry-Based Survey Pilot Project. Background information and a list of materials are provided below for the Council's discussion of this agenda item.

Background

At the October 2023 Council meeting, Northeast Fisheries Science Center (NEFSC) staff provided an update on recent performance of federal fishery independent surveys in the Northeast region. The presentation highlighted recent challenges with the multispecies bottom trawl survey (BTS) conducted aboard the NOAA ship *Henry B. Bigelow*. The BTS monitors fishery stock abundance and distribution on the Northwest Atlantic continental shelf from Cape Lookout, North Carolina to the Scotian Shelf and is one of the longest fishery-independent time series in the world. In recent years the survey has experienced losses of survey days and/or reduced sampling coverage due to vessel mechanical issues, staffing shortages, weather, and other challenges. Most notably, the spring 2023 survey lost 43 of 60 sea days and was only able to sample 70 of the 377 planned stations due to staffing shortages and vessel mechanical issues.

During the October presentation to the Council, NEFSC staff described efforts underway to develop four potential options for contingencies in the event the *Bigelow* is not available for the BTS. The four options include using 1) the *Bigelow*'s sister ship, the *Pisces*, as a back-up ship, 2) a different NEFSC vessel calibrated to the *Bigelow*, 3) an industry vessel calibrated to the *Bigelow*, and 4) a parallel industry-based survey that operates complementary to the *Bigelow*. As a result of the presentation and subsequent discussion, the Council passed a motion requesting that the NEFSC develop a white paper further outlining option 4, an industry-based survey that is complementary to the BTS. The New England Council had passed an identical motion during their meeting the month prior.

In response to the Councils' requests, the NEFSC worked with a newly formed working group of the Northeast Trawl Advisory Panel's (NTAP) to develop a white paper titled "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf." The white paper was presented to the New England and Mid-Atlantic Councils at their January and February 2024 meetings, respectively. After reviewing the white

paper, both Councils passed motions recommending that NTAP develop a pilot project to test the viability of an industry-based survey as described in the white paper and provide a progress report of the draft pilot project to the Council at the April 2024 meeting.

The full NTAP met after the February Council meeting on February 8, 2024, and the NTAP Bigelow Contingency Plan working group met on February 29, 2024, to continue its discussion of the Industry-Based Survey Pilot Project. The following is a summary of recommendations resulting from those discussions:

- Survey should be able to operate in wind farms.
- Develop a list of data elements collected in the trawl survey, identify which elements are sensitive to standardization.
- Develop a biological sampling protocol for the pilot project that targets sampling needs.
 - The working group emphasized that survey-specific age-length keys are useful.
- Address who will process biological samples.
 - *Note: for the pilot project it is likely that the NEFSC will be able to; however, for a shelf-wide survey this will need to be addressed depending on the volume of sampling needed.*
- Consider some level of overlap between the industry-based survey and bottom trawl survey.
 - When there are multiple indices and data sources it is best to make sure there is overlap so that the model can better address the multiple surveys/data sources.
- Use a restrictor rope in the pilot project.
- Use the same gear as the Bigelow.
- Incorporate any re-stratification of the survey done on the Bigelow.
- Use the same electronics and mensuration gear across vessels.
- Sample in more than one of the 4 major areas for proof of concept.
- Reduce depth limit to 130-150m. Investigate minimum depth required before loss of data required for individual stock assessments versus ecosystem-based assessments.
- Host a follow up meeting to discuss net mensuration value, need, and similarity across different systems.
- Host a follow up meeting with existing survey programs to discuss sampling stations.
- Host a series of public meetings to gather industry feedback. Similar to what was done for pilot hook and line survey.
- Host a workshop with vessel owners to discuss feasibility and/or limitations.
- Have someone ready to help with [System for Award Management \(SAM\)](#) registration so vessels are able to bid on the project in a timely fashion.

Meeting Materials

Materials listed below are provided for the Council's consideration of this agenda item.

- 1) NTAP meeting summary from February 8, 2024
- 2) NTAP Working Group Summary from February 29, 2024

Northeast Trawl Advisory Panel Meeting

~ NOTES ~

Thursday, February 8, 2023

9:00 AM - 5:00 PM

I. Executive Summary

The meeting was held in-person on Thursday, February 8 in Arlington, VA. Attendance was high with most attendees joining virtually. The meeting covered a range of topics including updates on the Northeast fisheries Science Center (NEFSC) and NEAMAP fall surveys and spring preparations. **All fall surveys were successful though gear interference in Gulf of Maine (GOM) remains a concern for Bigelow and NH/ME surveys.** Presentations by NEFSC and School for Marine Science and Technology (SMAST) included an update on the restrictor rope research which will soon be submitted to a journal for peer review. **The restrictor rope did not cause significant changes to species composition or size classes in the area studied. Multiple NTAP members supported expanding the range of restrictor rope research into the GOM.**

Bigelow contingency plans as well as the industry-based survey (IBS) white paper was discussed. Option 1, using the Pisces as a primary backup for the Bigelow, was the preferred short-term plan. Some members expressed doubt regarding the viability of this option and its effectiveness but there was **strong support for continuing to plan and fund the necessary upgrades to the Pisces and ensure it could be used as backup for the Bigelow.** In the context of developing an IBS complementary to the Bigelow (contingency option 4), there was support for exploring this idea though members had some reservations about the viability of this option. Under this option, NTAP had a general consensus around keeping the net and sweep the same as the Bigelow and modifying certain standards (i.e., doors, wire, sweep, auto trawl) to ensure a wide variety of vessels could be considered (more details are provided in the white paper). There was also consensus for maintaining the Bigelow survey as the region's "backbone."

However, since initiating the IBS discussions with the understanding that the survey would start a new, standalone time series, there was **interest in considering an IBS survey not strictly as a Bigelow contingency** (the Pisces is a better contingency option, so use an IBS in a different way). NTAP supported broadening data collection, using gear/protocols that result in more stable net spread and head rope height that is more capable of sampling flatfish, and that can sample inside of wind farms. There is interest in using restrictor ropes but caution about applicability in the GOM. **There was also interest in splitting the survey area into 2 and using different sweeps in each area.** The areas are generally described as being divided by Cape Cod. There were different opinions about what elements of standardization are crucial (e.g., wire diameter). Many NTAP members supported not utilizing auto trawls if the captain is skilled. There are differences in opinion about vessels' ability to sample in wind farms though consensus at this time was that mobile gear will be incompatible of sampling within floating wind farms. There were differences in opinion related to sampling daylight hours vs. 24 hours.

The NTAP working group will meet next to continue discussions on an IBS pilot study. The next full panel meeting will be in summer 2024.

II. Participants

A. NTAP Members:

Name	Affiliation	In attendance
Kathryn Ford	NEFSC	x
Phil Politis	NEFSC	x
Anna Mercer	NEFSC	x
Tim Miller	NEFSC	
Dan Salerno	NEFMC Member Co- Chair	x
Jameson Gregg	MAFMC Scientist	
Jim Gartland	MAFMC Scientist	x
Dan Farnham	MAFMC Member	x
Peter Whelan	NEFMC Member	x
Wes Townsend	MAFMC Member Co-Chair	
Terry Alexander	MAFMC Stakeholder	x
Emerson Hasbrouck	MAFMC Stakeholder	x
Chris Parkins	ASMFC Representative	x
Pingguo He	NEFMC Scientist	x
Vito Giacalone	NEFMC Stakeholder	x
Mike Pol	NEFMC Scientist	x
David Goethel	NEFMC Stakeholder	x
Sam Novello	NEFMC Stakeholder	
Michael Hiller	MAFMC Stakeholder	x
Bobby Ruhle	ASMFC Representative	x

B. Other Participants:

Name	Affiliation
Katie Burchard	NEFSC
Hannah Hart	MAFMC
Alexander Dunn	NEFSC
Andy Jones	NEFSC
Catherine Foley	NEFSC
Angelia Miller	UMASS Dartmouth SMAST
Jainita Patel	ASMFC
Jessica Blaylock	NEFSC
Joe Grist	MAFMC
Chris Moore	MAFMC
GF	<i>unknown</i>
Rebecca Peters	ME Department of Marine Resources
Sefatia Romeo Theken	MA Department of Fish and Game
Catalina Roman	UMASS Dartmouth SMAST
Gareth Lawson	CLF
Kiley Dancy	MAFMC
Jon Hare	NEFSC
Russell Brown	NEFSC
Scott Curatolo-Wagermann	Cornell Cooperative Extension
Ron Larsen	Sea Risk Solutions LLC
Michelle Duval	MAFMC
Alex Mercado	Cornell Cooperative Extension
Andy Lipsky	NEFSC
Renee Reilly	ROSA
Michael Pentony	GARFO
Scott Olszewski	RI Department of Environmental Management
Brad Blythe	BOEM
David McElroy	NEFSC
Katie Viducic	NEFSC
Josh H	<i>unknown</i>

III. Notes by Agenda Topic:

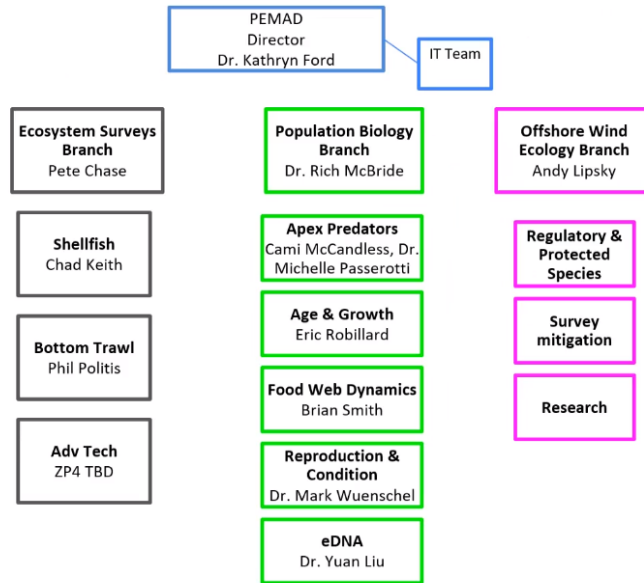
Welcome, Introductions, Logistics (D. Salerno)

- Round Table Introductions

Center Updates (K. Ford, A. Mercer, K. Burchard, A. Dunn)

- Update on action items from last meeting; actions taken on all items. Outstanding: waiting on OMAO guidelines regarding transiting through wind farms (NMFS has reached out to OMAO; they do not have a policy at this time; commanding officers have discretion for both transiting and trawling).
- Correspondence since last meeting
- Funding Update
 - NTAP funding received to support ~2 years of in-person meetings.
- **Bottom Trawl Survey update (Phil Politis)**
 - Fall 2023
 - This marked the 60th year of the NEFSC Bottom Trawl Survey (BTS).
 - Completed 335 trawls of 377 planned.
 - 107 bongo samples of 116 planned.
 - Some weather impacts during leg 1 in September, made up time on following two legs.
 - Significant fixed gear encountered Downeast Maine, Stratum 039. Fixed gear is a bigger problem in the fall.
 - Spring 2024
 - On track to begin as scheduled, currently preparing.
 - Planning for 60 days, 3 legs.
 - Tentative schedule: March 6 - May 15.
 - 377 stations planned.
 - One NTAP member requested additional details related to what stations were not completed and reasons why in future NEFSC update presentations.
- **Gulf of Maine Bottom Longline Survey Update (Anna Mercer)**
 - Completed 100% of stations (45 total) in fall 2023.
 - This marked the 10th year of the Bottom Longline Survey (BLLS).
 - Highlights:
 - Strong catches of groundfish, including haddock, pollock, and cod.
 - Strong catches of hakes (white hake and red hake).
 - Strong catches of large barndoor skates.
 - Two small halibut caught in the eastern strata.
 - One golden tilefish (6kg) caught in the eastern strata.
 - One blue shark (35kg) caught and sampled for the Apex Predator program.
 - Lowlights: High spiny dogfish catches made for a challenging workflow.

- Data recently used for Atlantic cod, barndoor skate, red hake and thorny skate stock assessments.
 - On track to contribute indices of abundance for 5 additional stocks in 2024.
- New [webpage](https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/gulf-maine-bottom-longline-survey) (https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/gulf-maine-bottom-longline-survey)
- **NEAMAP surveys (Jainita Patel, NEAMAP Coordinator)**
 - **MA DMF Fall Trawl Survey**
 - 88% station completion (91 of 103)
 - 100% stations in GOM 514.
 - Combination of vessel staffing issues related to family medical situation and prolonged poor weather were issues for second half of survey.
 - Lost a station in Muskeget Channel due to Vineyard Wind avoidance area around unprotected cable.
 - High catches of Spotted Hake, Red Hake and Silver Hake.
 - Scup is still the dominant species in southern stations.
 - Continued decline of Little Skate and Winter Skate.
 - Spring 2024 planned as normal. No major changes.
 - **Maine New Hampshire Inshore Trawl Survey**
 - Spring 2023
 - 97 tows completed out of 120 planned.
 - Missed tows were due to bad weather at start of survey and mechanical issues combined with bad weather at end of survey.
 - Fall 2023
 - 78 tows completed out of 120 planned.
 - Missed tows were due to fixed gear and bad weather.
 - The number of tows dropped because fixed gear increased again in the last two years.
 - State still communicating with fixed gear fishermen to try and reduce loss of stations.
 - **Mid Atlantic/Southern New England Nearshore Trawl Survey**
 - Spring 2023
 - 150/150 stations completed.
 - Completion in 35 calendar days.
 - Top species by count: Scup, Butterfish, Longfin Squid.
 - Notable: Three field employees departed our workgroup prior to/during the spring trip, including two chief scientists, one of which was the Chief of Trawl Operations.
 - Fall 2023
 - 150/150 stations completed.
 - Completion in 29 calendar days.
 - Top species by count: Spot, Scup, Butterfish.



- Offshore Wind Ecology Branch (OWEB) joined as a new branch in October 2023.
- Wind Update
 - Block Island (5 turbines) and CVOW Pilot (2 Turbines) – Operational.
 - South Fork (12 turbines), Rev Wind (65), and Vineyard Wind (62) are under construction.
 - Integrated Science Plan for Offshore Wind, Wildlife, and Habitat in U.S. Atlantic Waters (effort by RWSC).
 - BOEM and NOAA Fisheries released North Atlantic Right Whale and Offshore Wind Strategy.
 - Fisheries monitoring plan development (effort by ROSA)
 - Other resources: Mid-Atlantic Council wind website (<https://www.mafmc.org/northeast-offshore-wind>)

IBS Survey + Bigelow contingency plan next steps (K. Ford)

- Presentation covered background on NEFSC Multispecies BTS, need for Bigelow Contingency Plan due to performance concerns in last several years.
- Contingency planning
 - September 2023: NTAP working group started developing a plan.
 - Draft Contingency Plan was developed, considering multiple options:
 1. Pisces
 - Progress update: Readiness plan has been drafted and is being refined with NMFS and OMAO.
 2. NEFSC vessel calibrated to Bigelow
 - Progress update: Drafted memo about pursuing this option, started identifying potential vessels. Lots to still figure out including funding and calibration.
 3. Industry based vessel(s) calibrated to Bigelow

- Progress update: no progress (but can be informed by Option 4 conversations)
- 4. Industry based survey (IBS) not calibrated to Bigelow (parallel, separate survey)
 - Progress update: white paper provided to Councils and presented at Jan/Feb ASMFC, NEFMC, and MAFMC meetings.
- Presentation reviewed the IBS as described in the white paper.
- Following the presentation a similar motion was made at each of the meetings.
 - ASMFC Motion 1/25/2024: made by Mr. Reid and seconded by Mr. Keliher. Motion carried by consent.
 - *Move to recommend to task NTAP and the NTAP Industry Based Survey (IBS) Working Group to develop an outline detailing a proposal to conduct an IBS Pilot Program to test the viability of the program as presented in the "Proposed Plan for a Novel Industry Based Bottom Trawl Survey" white paper with a particular focus on adapting Section 2 "Survey Design Elements" to current Industry platform capabilities. Delivery date for the outline should be in time for further discussion at the Spring 2024 meeting cycle for the Commission and both the Mid-Atlantic and New England Councils in April 2024.*
 - NEFMC Motion 1/30/2024: made by Mr. Salerno and seconded by Mr. Pappalardo. Motion carried by consent with one abstention by NMFS (Mr. Pentony).
 - *Move to recommend to task NTAP and the NTAP Bigelow Contingency Working Group to develop an outline detailing a plan to conduct a multi-vessel IBS Pilot Program to test the viability of the program as presented in the "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf" white paper with a particular focus on refining Section 2 "Survey Design Elements," considering NEAMAP protocols and current Industry platform capabilities. A progress report on the draft plan should be presented in time for further discussion at the April 2024 meetings of the NEFMC and MAFMC, and the spring 2024 meeting of ASMFC.*
 - MAFMC Motion, 2/7/2024: made by Mr. Hughes and seconded by Mr. Rhule. Motion carried by consent.
 - *Move to recommend to task NTAP and the NTAP Bigelow Contingency Plan working group to develop an outline detailing a plan to conduct a multi-vessel IBS pilot program to test the viability of the program presented in the "Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf" white paper with a particular focus on refining section 2 "Survey Design Elements", considering NEAMAP protocols and current industry platform capabilities. A progress report on the draft plan should be presented in time for further discussion at the April 2024 meetings of the NEFMC and MAFMC, and the spring 2024 meeting of ASMFC.*

- Next Steps
 - Finish the contingency plan.
 - Explore connections with offshore wind.
 - Plan out a pilot survey to be on the water in FY2025.
 - Give a progress report on the draft plan at the April/Spring Councils and Commission's meeting cycle.

Discussion and Questions:

- What is the objective? An industry-based survey that improves on the Bigelow/adds information that the Bigelow isn't collecting, or a contingency for the Bigelow (trying to match the Bigelow)? Would it be a standalone time series or calibrated to the Bigelow?
A: The white paper describes an approach that is a contingency for the Bigelow; it would be a standalone time series.
- Want to create a survey that doesn't have to wait 5 years before the data can be used. Something you can use in the short term.
A: data streams from the IBS that could be used more quickly were outlined in the white paper. Oceanographic data and age data could be incorporated in a short time scale.
- Can we use swept area biomass in assessments, efficiency?
A: Analytical assessments are a model-based assessment using Bigelow data as relative abundance. Empirical assessments (i.e. monkfish) use the trend. Some of our empirical assessments calculate swept area biomass. Taking area, the catch, and catch efficiency and calculating swept area biomass. Description of catch efficiency studies and how catch efficiency is used in stock assessments. Jon Hare will follow up with the Population Dynamics Branch and get back to Vito.
- What is the status of the Pisces?
A: Conversations have begun, we have a scoping plan with the Pisces. We are on track for 2026 and 2027, not on track to have it ready for this Spring.
- Status of a new NEFSC research vessel.
A: In an ideal world we would have estimates in a year. But there are a lot of variables outside of the Science Center at play that can influence timing.
- If the Pisces isn't ready to fill in for the Bigelow, are there any considerations to postpone the refit of Bigelow?
A: There is currently some uncertainty with currently scheduled refit. As far as timing, there are plans for each ship to be the replacement for each other, but that could shift depending on funding availability.
- What is the status of the restrictor rope study? When will it be submitted for peer review?
A: Not long, it is currently going through NMFS internal review and then will be submitted for peer review in a couple of months.
- We need to split the IBS and contingency plan issues. The first issue is the contingency plan for the Bigelow and the options that go along with that. The second issue is then to develop the IBS pilot project to get on the water ASAP. Test out the unknowns (12/24-hour sampling days, 20-min tows, etc.).

- Are there plans to calibrate the Pisces to the Bigelow? Are the physical characteristics similar enough to not calibrate? When the IBS is considered, does this mean that two vessels with similar tonnage and length will not need calibration either (or three vessels that are physically similar enough)?

A: Calibrating between the Pisces and Bigelow as a part of the contingency plan has not yet been decided. Need to understand the characteristics of the vessels that could do this work.

- Pisces has already filled in for our time-series. Maybe some assumptions that calibration is not needed? Sister ships should be the same, what are the similarities/dissimilarity of vessels that would require calibration?

A: NEFSC agrees that calibration may not be needed. We will also be limited to some level. We have not had the chance to calibrate Pieces and Bigelow yet, but it may be identified as a priority.

- Does the Pisces cost \$56,000/day?

A: That is the standard day rate; but the impact on NEFSC budget is not \$56,000 per day.

- Example given of the scallop survey – redundancies were available at reasonable costs when the research vessel was unavailable. The only way to ensure data is redundant.
- Keep in mind “cold start” problem; consider potential ways around that – splitting time or season across the vessels. Adds a tremendous amount of resilience if done right.
- Interesting to get feedback on whether we will be able to trawl in wind farms? Should we assume we cannot trawl there? May help us answer questions.
- Description of the cod IBS - make it so that anyone could do the work on the go. Cod survey uses 4 different boats, bottom sensors, the Notus System, and anything outside the parameters got thrown out. Most tow were completed using the same nets, same doors. Not worried about wire size, as long as net configuration and door configuration was the same. Ideally restrictor rope will be used in the IBS and will lessen concerns related to consistent door spread, etc.
- It’s easy to take things away from a survey but harder to add. I think we can accomplish both an IBS and a calibration if we used the 400x12 on multiple vessels based on strata. Doesn’t make sense to use vessels best suited for deep water to sample inshore. Survey overlap is crucial. Wire to wire is all that is important. Different vessels fit different criteria. Appropriate vessels to pull gear through GOM. Use industry vessel to fill in data gaps.
- With wind energy areas, significant holes will appear in our survey. Whatever we build as an IBS survey needs to be able to operate and maneuver in wind farm areas. GOM different windmills. But for southern New England/mid-Atlantic could an IBS still operate in those areas?
- We need more information about these wind farms to know who and what can tow there. Also, need additional details on how they will be cabled. Crosshatched? Buried? Block Island Wind farm is currently having trouble keeping their cable buried. I do think we still need to flesh out IBS. Restrictor rope work getting published gives us the answer. Standardize wing spread and have the best doors and be happy with your catch. There will always be uncertainty.
- Discussion about tow time: power take off hydraulic system vs. a haulback and the catch rate you’d encounter. NEAMAP protocols call the tow time at the initiation of trawling mainly because we are in shoal water. The survey tow time is from the time it starts until haulback. Technically it can still catch fish coming up. Tried minimizing that variance by stopping everything at the end of the tow.
- Discussion about restrictor rope, multiple vessels, and introduction of uncertainty.

- Cod IBS used 4 different vessels similar size and horsepower. Didn't use any sort of calibration but standardized gear. Minimizing variation via standardization.
- It is not ideal to use multiple vessels but may be needed. How can we conduct a multi-vessel survey without needing to calibrate but doing all that we can to eliminate as much of the potential variation as possible.
- Standardize wingspread, recognizing equipment differences. Could never calibrate all boat variables, need a way to minimize variation. It's a rabbit hole. If you change net ends you get different geometry, there is no way to get it perfect. We have to design something that will do the best job possible. I fear trying to design something perfect and never coming out of the rabbit hole.
- Bigelow wire size was too big.
- Need to be cautious we don't standardize the wrong thing. Better served to standardize performance metrics and geometry. Anything beyond that just creates problems for availability of vessels. You want to put bounds on the boat but don't focus on what is irrelevant to the application of the gear. Industry knows the implications of changes to gear. Wire size has no impact on catch. As long as spread isn't disrupted the door could be upside down and would not impact what is being caught.
- What was the added value of having an auto trawl on the Bigelow? Albatross didn't have it. I have never heard any justification related to why it is so important.

A: Auto trawl balances the tensions between the two warps. Comes into play when the current is pulling more on one side. Also, in high wind conditions the wind can start pushing the vessel to one side or the other relative to the gear. In this type of situation, the auto trawl will balance out the tension between the two warps. An auto trawl improves the consistency of tows and therefore the data collected. Also added benefit to when you hang minimizing gear damage. There is literature that has studied these elements.

- Leave Bigelow survey alone we don't want to mess up that time series. How important is it that these vessels are similar to each other and/or similar to Bigelow, given it will be a stand-alone/complementary data set? Is there flexibility in how we design the IBS?
- If the IBS data will be treated differently, will data coming off say 4 boats need to be as close as possible or can we have more vessel differences and deal with the data analytically? There are advantages to having different vessels operate according to the area being fished.
- As far as the vessel effect goes, it's not only towing speed and net geometry there is inertia from heavier boats so boats would need to be similar in size and horsepower. Vessels could be a class of vessels. The "cart" should be standardized but the "horse" should be similar in size and class. But the subtlety and variability in vessels will help us better cover geography, depth, and bottom.
- There are a number of ways to compare a new net and an old net. What's important is whatever you are doing. We need to be open and aware of where you are holding your nose as to where you are willing to accept variation and where you aren't. A net maker can make the same two of the exact net and one will catch differently than the other.
- Captain experience to deploy gear ensures consistent performance so that data is the highest we can get. To design an IBS, we'll lean on captains with experience. How do we leverage experience and maintain consistency? Experienced captains mean less need for auto trawls. It would be good to

get expertise from NTAP captains to ensure metrics across vessels could be valuable to all multi-vessel surveys.

[The following points were presented at the end of the meeting and placed here due to relevance to this section.]

- Edits are needed in Section 2.3 sampling gear. We never talked about using a chain sweep or considered it for use in a survey, we talked about the chain sweep efficiency factor not the chain sweep itself due to degradation of size. The cookie sweep has the least amount of variability.
- Endurance, nowhere you can't make port in several hours. 7 days is enough. 10 days with a single crew could weigh on them rather heavily.
- Need to know about the boat before building out the plan.
- There are portable acoustic units that could work for acoustic requirements. Boats have to have acoustics to see in front of them. Now-a-days we all have sounders.

Action: We need to think about at least 1-2 working group meetings to discuss metrics important to have consistency across vessels before April. Hannah will organize a doodle poll.

Survey redesign & mitigation (C. Foley, Fay, M. Hall, A. Mercer)

Presentation by Catherine Foley (NEFSC)

Current stratification is a problem. Oversamples some strata and under samples others. Currently, NEFSC is looking at reducing the number of strata by condensing existing strata into "superstrata" or using a spatially balanced sampling design such as Generalized Random Tessellation Stratified (GRTS), which is adaptable to change. The presentation provided some examples. Also looking at impact of wind energy areas. If there is no sampling inside of wind farms, are we able to estimate what's going on inside by sampling outside? Perimeter sampling was representative of the biomass for small wind areas. This declines with the increase in size of wind areas.

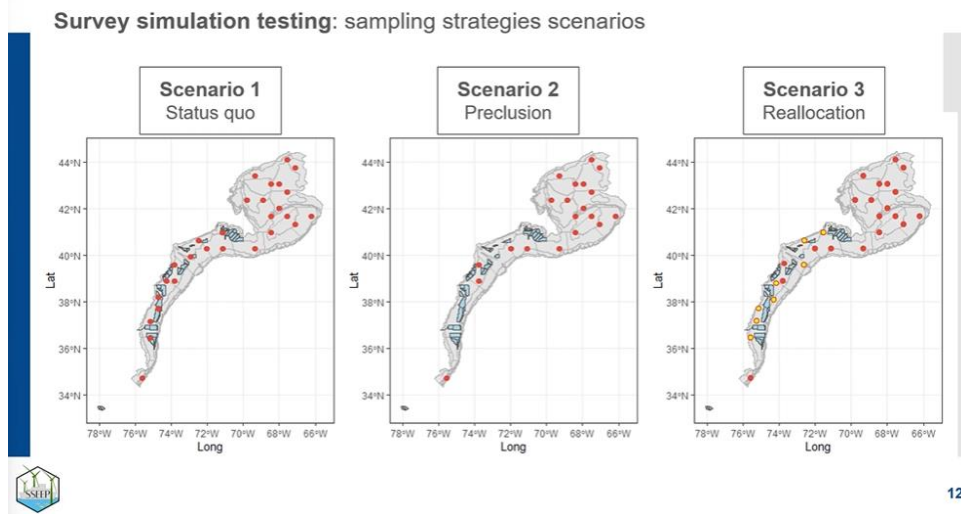
Next step is a collaboration with Ocean Science and Technology NOAA Head Quarter's Distribution Mapping and Analysis Portal (DisMAP), using our data as well as others to develop species distribution maps for every species we're interested in. We can start to assess different sampling designs and which species are most affected by perimeter sampling.

Presentation by Gavin Fay (SMAST)

Survey Simulation Experimentation and Evaluation Project (SSEEP) update. Goal: can we quantify likely changes of effort reduction associated with offshore wind? If supplemental sampling is done, what approaches might be better than others? Guided by two stakeholder workshops in 2022.

First part of project: Doing analysis using existing trawl survey data to look at the potential impact of survey effort reduction to sampling numbers and abundance indices. We looked at removing stations in wind farm areas. There was a change in the abundance index for summer flounder.

The second part of project: Using species distribution models for summer flounder and mackerel to test different sampling strategies.



Presentation by Madison Hall (NEFSC): Survey specific mitigation plans

Offshore wind will impact multiple surveys conducted by the NEFSC. There is a Federal Survey Mitigation Strategy that includes developing survey specific mitigation plans. Nineteen plans are being developed, including for the BTS and the BLLS. These are going through an internal and external review process.

Progress on drafts and reviews was presented.

It is unclear if the BLLS will be able to operate in floating wind areas in the GOM. Could reduce gear length if turbines adequately spaced; could do paired sampling between short and traditional gear to calibrate new approach.

BTS can't sample in wind farms; still evaluating impact of doing perimeter sampling. New approaches include smaller vessels to sample inside wind farms, passive gear, and remote sensing.

Discussion and Questions:

- There will be loss and exclusion for surveys in wind energy areas. What is the impact on abundance estimates? Is the change due to lost stations or will this reflect actual rise/lower stocks in wind areas? Do some of the simulations address estimates?

A: *Very much at the front of our minds. SSEEP was designed to address these questions. We can use the simulator to test different spatial patterns. Won't tell us why the patterns are changing. Using species distribution models helps us determine what would happen if catch rates increase within these areas and we aren't able to survey them. We can test assumptions that catch rate will be higher in wind farms in one simulation and the opposite where the catch rate is lower in wind farms. Pull those simulated predicted catch rates and distribute across the grid. Starting to get at how to*

incorporate those. It's also important to be careful to think about how we combine data streams if different surveys are covering wind areas.

- What are the expectations for the developers for the new mitigation requirements?

A: No answer yet. We're in the beginning phases of this conversation with Revolution Wind. The options Madison presented are some of the options we'd give to developers.

Presentation by Anna Mercer (NEFSC): Pilot hook and line survey

Project goal is to develop and test the methodology for a new hook and line survey to provide data continuity for multiple resource species in complex habitats and alongside offshore wind turbines. Assuming we won't be able to conduct current trawl surveys in wind farms. This is a pilot project, not year 1 of a new survey. Trying to identify if this type of survey is worth the resources it would take to fully develop a long-term survey. Not a species-specific survey. Intended to target a wide range of species. The pilot is meant to inform how close to the turbines we can get.

Presentation provided specifics on gear and vessel recruitment (14 vessels applied, 3 were selected).

Discussion and Questions:

- Lures or bait setup?

A: Baited using squid

- How are the sites selected? By bottom or depth?

A: Working with Catherine and Madison to select stations for smaller, pilot survey. Range of stations will encompass the entire survey area with structured bottom. Final decision not yet made, should be made by end of next week.

- Will any stations be chosen specifically in the wind farms,

A: Yes, include areas around the VA and RI/MA turbines.

Restrictor Rope Research (A. Jones)

Presentation by Andy Jones (NEFSC)

- Conclusions:
 - We observed limited impacts of the restrictor rope on catches.
 - Worth considering the positive impacts of the restrictor on standardizing gear performance when surveys in wind energy areas are being developed.
 - Specifically, in scenarios where standardizing net geometry is likely to be more important (e.g., when a large depth range is covered by a survey, or multiple survey vessels may be used).
 - One caveat is that we do not have enough data to definitively say that there is no effect of the restrictor rope for all species, but we have some confidence based on the diversity of species sampled through this research.

- Next steps and questions
 - Incorporating edits received from panel members.
 - Will likely target fisheries journal such as ICES Journal of Marine Science.
 - Work to be presented at World Fisheries Congress in Seattle in March.
 - Present work to NEFMC/MAFMC?
 - Work with other groups (e.g., ROSA) to provide guidance on the application of this gear to new surveys?
 - What would this look like?
 - Who would like to be involved?
 - Wait until after peer review is complete?
 - Create Decision Matrix to describe recommendations for restrictor rope use.
 - Survey Types:
 - New wind impact survey
 - New science survey
 - Existing wind impact survey
 - Existing science survey
 - Survey conditions:
 - Multi-vessel?
 - Spans large depth range?
 - Data used for assessments?
 - Data used for region/cumulative impacts?
 - Species overlap with experiment?

Discussion and Questions:

[Limited discussion time was available.]

- Happy to see this work reach a wider audience.

Brainstorming next research project

- [summary of previous discussion](#) - slides outline potential project ideas and considerations to make when prioritizing.
- Follow up on items raised during the meeting.
- Review previous materials - research recommendations from research track assessments.
- Goal: 3-5 titles of research projects NTAP would like to see funded.

Discussion and Questions:

Wide ranging discussion about priorities and needs.

- Multiple NTAP members supported expanding the range of restrictor rope into the GOM. Maybe there's more flexibility in using this if we use a boat without the historical data set. There is also

value in reaching out to the ICES group that has better data on the positive effects of the restrictor rope. **Andy Jones offered to solicit a presentation from that group.** If there's no problem using a restrictor rope in GOM, then we can bring in other boats without calibrating them. **(A. Jones will send restrictor rope draft to Terry Alexander).**

- One member indicated he was a big proponent of acoustics.
- Calibration and standardizing across many surveys in the wind areas is needed. Need to take into account working in impact zones. Linkages between new gear development (e.g., acoustics) and sampling in wind areas.
- Expand NEAMAP – extend sampling further offshore. If this is done to cover wind energy areas, keep in mind that 15-20 miles around wind areas should also be sampled to better understand how they will change fish distribution.
- For Bigelow contingency, there is at least one large industry vessel with an auto trawl. **Bobby Ruhle offered to get more information.**
- GOM will be a new ball game for surveying. Pilot jig study is interesting, though many species don't take jig. How to manage groundfish with floating offshore wind. We don't know what the anchoring system will look like, maybe 12" diameter cables? No towing or gillnetting will be possible. How to address in GOM is difficult. No footprint yet, either. Sample as much as we can and sit on it and use it to establish a baseline. Get as many data collection tools as possible on the water to see what's there first.
- ROSA is hosting meetings about developing a common database, part of the ROSA work plan.
- Unsure if sampling can occur with trawling inside of wind farms; uncertainty if some areas can be left for sampling. **It would be good to get these questions on paper to ask the wind industry (turbine spacing, cables, electric stations, heat generation).**
- If perimeter sampling has any value, it would be useful to have studies that establish spatial coherence at a very fine scale, say over a scale of miles. This would entail sampling in the vicinity of the boundaries. Before-After-Gradient (BAG) type studies do this. However, in the context of future monitoring, such information could be used to establish the correlation between observation from outside the area to unsampleable areas within the area. Species with fidelity to structure would not necessarily be amenable to this approach. Example black sea bass hanging around rock piles.

Discussion also covered funding. Currently there is no specific funding identified, but resolving the challenge of sampling inside of wind farms is a priority so there will probably be avenues for funding available through wind.

A general theme came up several times regarding the different objectives of adding an IBS and doing an IBS as a Bigelow contingency. NTAP can make their own recommendations for priorities that they think are important. A real need is to determine if we can sample in wind farms. The SMAST wind farm sampling program is assuming they'll be able to sample within 500 meters of foundations.

Discussion about data, developing standards and a common database. NEFSC described a small project where they're working with scallop research set aside partners to deliver data in a format NEFSC can use

more efficiently. At least one NTAP member was supportive of developing this kind of capacity, another indicated that data sharing is a high priority for wind developers.

Maybe worth updating the NTAP charter to include wind. Ideas like a Bigelow shadowing survey, NEAMAP expansion are all clearly within the NTAP remit, but the wind area work gets away from the charter.

Conversation covered concerns about BOEM as a regulator not listening to NMFS, lack of clarity regarding how NTAP can move the needle on some of these issues, regulatory issues such as letters of acknowledgement for fisheries surveys in wind farms.

IV. Wrap up & adjourn

- Scheduling next full panel meeting
 - This summer, considering June/July. Location/date TBD and details will be provided at a later date.
 - Location will likely be in New England
 - NEFMC meeting in June 24-27 in Freeport, ME
 - Scheduling NTAP meetings right after/before Council meetings can be easier for scheduling, booking rooms, etc.
 - MAFMC meeting will be in Riverhead in mid-June.
 - ASFMC meeting is planned for August.
 - Note: Holding the meeting in conjunction with the Council meeting was viewed as successful, but only because it was the winter meeting which has a light agenda. Coupling NTAP with Council meetings should consider the length and agenda of the Council meeting and may only work for Council meetings of shorter length (1-2 days) and limited agendas.
- Scheduling next working group meeting
 - **A doodle poll will be sent out.**
- Topics for next meeting
 - **Please provide to the co-chairs**

Northeast Trawl Advisory Panel Bigelow Contingency Plan Working Group Meeting- Virtual

Thursday, February 29, 2024

9:00 AM - 12:00 PM

-- NOTES --

Working Group Attendees: Anna Mercer, Daniel Salerno, David Goethel, Eric Reid, Jameson Gregg, Kathryn Ford, Philip Politis, Sam Novello, Tim Miller, Vito Giacalone, Wes Townsend.

Other Attendees: Dave McElroy, Gareth Lawson, Katie Burchard, Hannah Hart, Will Poston.

Meeting purpose: Discuss next steps for Industry based survey.

Meeting minutes:

9:00-9:15 a.m. Welcome, Recap

Timeline of events

July 2023: NTAP formed Bigelow Contingencies Working Group (WG).

Sept 2023: Working group kickoff, 4 contingency options:

- Pisces
- NEFSC vessel
- Industry Based Survey (IBS) calibrated to Bigelow
- IBS not calibrated to Bigelow (parallel, separate survey)

Sep/Oct 2023: Council motions to develop Option #4 as a white paper.

Jan 2024:

- Working group meeting (Jan 12).
- White paper delivered to the Atlantic States Marine Fisheries Commission (ASMFC), MAFMC, NEFMC (Jan 18).
- Presentations to ASMFC (Jan 25), NEFMC (Jan 30), and MAFMC (Feb 7).
- Jan/Feb Council/ASMFC motions made to develop an IBS pilot project.

Feb 8, 2024: NTAP Full Panel meeting

- Discussion around supporting Pisces development and developing IBS pilot project.

Feb 29, 2024: WG meeting to discuss IBS and next steps.

April 2024: Progress report at MAFMC and NEFMC Council meetings.

9:15-9:45 a.m. Options 1-3

Status updates

1. Pisces
 - a. Proposal with needed improvements submitted to OMAO.
 - b. SEFSC agreement that Pisces can be primary backup to Bigelow.

- c. Next steps
 - i. Specific plan and funding for improvements.
 - ii. Discussion needed of when to “trigger” Pisces.
- 2. NEFSC vessel calibrated to Bigelow
 - a. Proposal provided to NEFSC Director, being discussed at NMFS HQ.
- 3. Industry vessel calibrated to Bigelow
 - a. No progress.
- 4. Industry-based survey
 - a. White paper completed, submitted and presented to Councils.

Lots of energy on 1 and 4, options 2 and 3 still need to be fleshed out. However, it may be wise to continue to put our effort into developing options 1 and 4.

Councils’ February 2024 Motion: *Move to recommend to task the NTAP Bigelow Contingency Plan working group to develop an outline detailing a plan to conduct a multi-vessel IBS pilot program to test the viability of the program presented in the “Draft Proposed Plan for a Novel Industry-Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf” white paper with a particular focus on refining section 2 “Survey Design Elements”, considering NEAMAP protocols and current industry platform capabilities. A progress report on the draft plan should be presented in time for further discussion at the April 2024 meetings of the NEFMC and MAFMC, and the spring 2024 meeting of ASMFC.*

Discussion/comments:

Where is the Pisces home ported?

A: *Mississippi, would take multiple days to get up to New England*

Need to be on standby right from the get-go. Would be two weeks best case minimum to get the boat up here from Mississippi.

Another thing that is concerning is that this vessel doesn’t trawl often, should be exploring having the vessel ready.

After white paper we have a lot of support for moving forward with the pilot. Today we need to put more meat on the bones to really start developing how this survey would run. New time series for the science center in addition to Bigelow and NEAMAP.

9:45- 10:45 a.m. Industry Based Survey (option 4)

- What are the key goals for a pilot?
 - Should it operate inside wind farms? Can we replicate survey tows inside of a wind farm?
 - Questions to address in a pilot: 12/24-hour day, vessel size, crew size, ops protocol, bio sampling protocol, gear incl. use of restrictor rope, towing across cables/proximity to fixed structures.

Discussion/comments:

- Context from NEFSC: Next biggest threat is wind farms. Assumption that the Bigelow will not be able to be in or tow within a wind farm. If we are losing those windfarm

stations, especially since wind farms are going to cause a change in habitat this is a big problem.

- Wind farm surveys not designed for a long-term solution with time series needed.
- Developing an IBS that can operate in wind farms, or determining now if it should, would be helpful.

Operating in wind farms

The group discussed the need for the IBS to operate in wind farms and for a pilot to be designed to test operability of different sized vessels in wind farms. No clear consensus - some felt that existing fisheries monitoring work and commercial fishing activities once farms are built will tell us what we need to know about what kind of vessels can fish mobile gear inside of the wind farms. Others recommend determining vessel requirements and feasibility of operations within wind farms as a goal of the IBS. Other comments:

- We're having two different conversations: pilot that an industry or pair of industry vessels can sample in a complimentary way to the Bigelow. We are going to have a pretty good idea how different size vessels will operate in a wind farm development anecdotally via wind farm monitoring currently being conducted without having to incorporate this into the pilot.
- We're not going to bring someone in if they are not willing to go into a wind farm area.
- Not going to be a difference in ability between different sized trawlers (100-foot vs 50 foot) to fish in the fixed platforms. In the Gulf of Maine (GOM) all of them will be floating. Still don't know what the logistics are going to look like.
- Insurance coverage to tow in the wind farms could be a problem. Should check with insurance companies on coverage. Set up an IBS outside of the windfarms. For the pilot, insurance might be unique for the project; will be affected by the number of people on board the vessel.
- There could be value in knowing the capacity - operation on deck of different vessels. What level of catch volume can be handled; number of staff need.

24 vs 12-hour sampling

- If the decision is to do 1 boat for 24-hour days, pool of capable vessel is going to be smaller.
- Two vessels operating a 12-hour day will require a smaller vessel/smaller crew, less insurance and more availability. Going to 24 hours per day is not a good idea as it will raise expenses and there are fewer capable/willing vessels.
- Catch handling and biological sampling requirements will be better managed on two smaller vessels working 12 hours per day. Will also provide more options on crew.
- Are there any cons to doing two smaller vessels with a 12-hour shifts that we aren't thinking of? Two vessels: one running during the daytime and one nights. Or overlap option: half-darkness, half day? The overlap option would have 24-hour day coverage but split duties. Getting more granularity is important.
- Under the overlap option, Vessel 1 would fish noon to midnight and vessel 2 fishing midnight to noon. Have the vessel not conducting the tow shift figuring out where the next two should be.
- More vessels will be able to bid on the contract if it's a 12-hour shift. Be more efficient with less people needed. Using a large vessel would be a sole source contract. If that vessel breaks down, we're in the same situation as the Bigelow.

- There are cons from a standardization standpoint and managing a survey that uses a fleet of vessels makes it more complicated.

Gear

- Use the gear package that is currently being used on the VIMS NEAMAP survey (ground cable and ground gear)?
- Bigelow uses rockhopper, VIMS NEAMAP uses cookie. Bigelow has wider cod end to get additional length. Differences in mesh sizes in side panels.
- Two workgroup members emphasized that being similar to the Bigelow survey should take precedence and that the Bigelow gear should be used in the pilot. They pointed out that NTAP research has provided information comparing rockhopper and cookie.

Communication needs?

The group discussed how to best plan for the pilot study. Should we conduct workshops similar to those conducted for the hook & line survey? Is an operations workshop needed and/or visiting vessels?

- Questions about solicitation for scallop vessels: What did that solicitation look like? How much interest did you get?
A: There were several vessel visits gauge folks interest in registering with the [System for Award Management](#) (SAMS). Fair amount of interest. The scallop solicitation was different because it's an existing survey. Pilot IBS study may need to follow a different process. But we don't currently have someone to lead this effort. The hook and line effort conducted a series of meetings down the coast to help with their design.
- The hook and line meetings were very helpful. It was helpful to have predefined questions we wanted discussion on. Definitely suggest having a point person dedicated to this effort. The meetings were a good platform for recruiting vessels, giving them information about requirements, and for responding to solicitations. A mix of in-person and virtual scoping workshops would be beneficial.
- Having someone in the office help with registration so the vessel can bid on the project would be beneficial. Including answering questions related to inspections, insurance requirements, etc. Starting earlier is better. Would likely need 9-12 months lead time.
- Also need to keep in mind deadlines for large contracts too. That will impact the timing and timeframe for setting the schedule. **This year the \$250K- 5M deadline is May 13th.**

Design elements

- Be adaptable to potential loss of survey area. Incorporate any re-stratification of the survey done on the Bigelow.
- Do we want to do exactly as Bigelow does or incorporate some previous industry recommendations such as 30-minute tows and re-stratification of deep-water strata?
- Where would this pilot occur? Southern New England? At what depths?
- Three or four areas required to figure out. Mid-Atlantic, Southern New England (SNE), George's Bank (GB), GOM. Pilot should cover three areas for a proof of concept. Potentially SNE/Mid-Atlantic, GB, and GOM. The pilot doesn't have to occur in each region at the same time and vessels could share gear.
- Is sampling all the way to 200 fathoms worthwhile? Staying within 130-150 fathoms should be better. The deeper depths may be more important in different regions (e.g.,

monkfish, white hake). From one working group member: Gulf of Maine out to the 140's is solid American plaice, witch flounder and monkfish habitat. So, 150 fathoms would be safe maximum depth for final IBS design.

- How much money are we going to need? How much gear are we going to need? Spare nets if there is space on each vessel? We need to figure out basic things like that to determine cost. Everyone must have the same electronics and net menstruation systems and safety equipment.
- We're not trying to replicate an ecosystem survey we are trying to provide data for stock assessments. What is the maximum depth need before we lose data for stock assessment versus for ecosystem assessment?
- How far inshore would we want to go to overlap with other state and NEAMAP surveys? Some gaps in coverage in the 60-90 ft range. May be a good starting point in addition to some of the deeper areas where NEAMAP currently samples so there is some overlap.
- Recommend that for pilot there is a focus on overlap with the Bigelow to determine if the survey could work, should stick with where Bigelow goes, and then can modify from there. Post pilot need to determine what was done well vs. what needs to be fixed.
- For pilot target mid-depths, cut out deeper depths because they're more expensive to do (need larger wire, cost more comparatively). It's easier and less expensive to go shallower than deeper.
- Discussion about ratio of wire out; Bigelow and NEAMAP use depth-dependent ratio, NEAMAP also considers net geometry, commercial vessels operate similarly (shorter wire out in deeper water). Use pilot to determine scope for a longer-term survey. Gear needs to be on the bottom and fish with proper net geometry. If using a restrictor rope may not need to worry about this. With restrictor rope you'd use bigger doors, and the rope would be the restricting factor so that net geometry is held consistent. Would simplify entire question.
- Consider sampling water chemistry. Also, acoustics, plankton, etc. (where/if possible). At least to understand if these could be part of pilot/longer-term survey.
- Tow speed and tow time need to be defined.
- Don't require auto trawl (several working group members agreed, but others see value in auto trawl at least long term).
- Do we need to standardize net mensuration gear? Might need a separate meeting on this. Differences of opinion about value of net mensuration gear.
- Would be useful to survey vessels to get a sense of what electronics are already used/on industry vessels (depth).
- What are the costs of the sampling electronics/workstations? Can we build standard workstations that will work across multiple vessels? Portable FSCS is a good option, on boats would need servers, barcode scanners, etc. Talking about at least \$30K (other working group members estimated much more, a scale alone can cost \$9k). FSCS has been used in the past on industry vessels.
- Also need to define what needs to be supplied to these stations - hydraulic, mechanical, electrical? Darana R. only provides electricity (110V). Understanding the reality of moving these stations from boat to boat is a need. Need 110V inside too to run servers. Would need at least 2 scales, 1 fish board, 1 scanner, display(s), computer(s), calipers etc. per station.
- Would be beneficial to have a follow-up meeting with those that have used these systems to talk through all the different options and potential needs. Have this meeting

prior to a public workshop, so at the public workshops the message could be relayed and vessel owners/operators would have an understanding of what would be needed/required. At public workshops should already have a clear idea on specifics about set up, workstations, power requirements, space, and sampling equipment.

- Consider a follow-up discussion on the data management process.
- Consider length of time required for a pilot - 10 day vs. 5 days, etc.
- *Reminder: there are currently no funds available for this work, capacity of Center funding is limited and is currently struggling to fund the surveys that already exist.*

Summary of recommendations:

- Ensure survey can operate in wind farms.
- Develop a list of data elements collected in the trawl survey, identify which elements are sensitive to standardization.
- Develop a biological sampling protocol for the pilot that targets sampling needs. (Point made that survey-specific age-length keys are useful.)
- Address who will process biological samples. (For the pilot it is likely this can be done by the NEFSC. For a shelf-wide survey the volume of sampling will need to be addressed.)
- When there are multiple indices and data sources it is best to make sure there is overlap so that the model can better address the multiple surveys/data sources.
- Use a restrictor rope in the pilot study.
- Use the same gear as the Bigelow.
- Host meetings like done for hook and line survey.
- Have someone ready to help with SAMS registration so the vessel can bid.
- Incorporate any re-stratification of the survey done on the Bigelow.
- Use same electronics, mensuration gear across vessels.
- Sample in more than one of the 4 major areas for proof of concept.
- Reduce depth limit to 130-150m - look at how deep we go before we lose data for stock assessment versus for ecosystem assessment.
- Meet about net mensuration value, need, similarity of different systems.
- Meet with existing survey programs to discuss sampling stations.
- Have workshop with vessel owners to discuss feasibility, limitations.

Notes from the slides as edited during the working group meeting:

Should it operate inside of (fixed foundation) wind farms?	Yes (ideally)
Questions to address in a pilot: 12/24-hour day, vessel size, crew size, ops protocol, bio sampling protocol, gear incl. use of restrictor rope, towing across cables/proximity to fixed structures	<p>2 boats sampling 12-hour periods over a 24-hour day (noon-midnight/midnight-noon); use restrictor rope.</p> <p>For the pilot, bio sample as much as possible, consider processing needs (who is doing it, what is their capacity); how/if CTD and plankton sampling is done, acoustics.</p> <p>Learn from other wind farm monitoring surveys and commercial activity in wind farms.</p>

	Use pilot to develop a scope table for optimal spread; consider impact of using restrictor rope (spread won't be dependent on scope).
Workshops like hook & line survey? Operations workshop?	Workshops useful - Confirm the gear we're moving forward with (gear used on Bigelow for consistency); make sure they're structured; describe process clearly (i.e. scallop survey; include specs as early as possible); fall better.
Connection to wind farm trawl surveys, will that answer questions around towing across cables/proximity to fixed structures?	(Skipped this - covered under 1 and 2)
What are key stat design questions - how does that matter for a pilot?	<p>Spatial overlap with other surveys.</p> <p>Future-proof survey designs, being adaptable to potential loss of survey area.</p> <p>Incorporate any re-stratification of the survey done on the Bigelow.</p> <p>More discussion of key elements of the survey design - consider if there is anything the pilot should examine - 20/30 min tow time, for example, tow speed.</p>
Where will the pilot occur?	<p>The 3 areas: MA-SNE, Georges, GOM. Include multiple areas ideally.</p> <p>Pilot doesn't have to occur in each region at the same time, vessels could share gear.</p> <p>Depth: using wire on the vessels will be less expensive; what would we miss stock assessment-wise 130-200 fathom (e.g., white hake); pilot focus on same strata as Bigelow, but truncate depth if needed to accommodate existing wire lengths; future need: overlap with NEAMAP/state surveys - include 60-90 ft range gap between NEAMAP and Bigelow.</p>

- Auto trawl - do not require this for the pilot.
- Mensuration - identify specific measurements needed; not necessarily a specific unit (keep data management complications in mind, though)
- Electronics - can use what is on the vessels (needs more exploration based on data management needs)
- Horsepower - 20 min tow at 3 kt.
- Sampling workstations - portable FSCS; costs are >\$30k; need to specify space and electrical needs.

10:45-11:30 a.m. Next Steps

- Develop cost estimates - back of the envelope we're in the \$750K to \$2M range.
 - Also need to consider how to handle the funds (maybe ASMFC).
- Co-chairs will provide an update at Councils' upcoming April 2024 meetings.
 - NEFSC staff will provide briefing materials to support Council meeting updates.
 - MAFMC briefing book is due March 29.
 - NEFMC briefing book is due April 5.
- Plan for a follow-up Working Group meeting following the April Council meetings prior to June meetings.
- Provide NTAP full panel meeting minutes and WG meeting summary. Prior to summer NTAP meeting, prepare any memos or background info required and share slides with MAFMC staff a day ahead of meeting.