

Northeast Trawl Advisory Panel Meeting

~ NOTES ~

Thursday, January 19, 2023

9:30 PM - 5:00 PM

Northeast Fishery Science Center Lab, Narragansett, RI (with WebEx option)

I. Participants

A. NTAP Members:

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

B. Other Participants:

Name	Affiliation
Katie Burchard	NEFSC
Hannah Hart	MAFMC
Alexander Dunn	NEFSC
Andy Jones	NEFSC
James Fletcher	United National Fishermen's Association
Gareth Lawson	Conservation Law Foundation
Dakota	N/A
Eric Reid	NEFMC Chair

II. Notes by Agenda Topic:

Welcome, Introductions, Logistics (W. Townsend)

Round Table Introductions, Last Meeting summary approved.

Center Updates (K. Ford)

Funding Update: No official notice of funding yet.

Operation Manual Update

Received one set of written comments and there were 19 attendees at the NTAP meeting on Nov 19 that discussed the document. Comments were minor, next draft will be sent to NTAP members and executive directors of the Councils for a final review.

Other news:

Dr. Ford will be presenting about NTAP at both upcoming Northeast Cooperative Research Summits.

Catch Efficiency Research paper published

(<https://www.sciencedirect.com/science/article/pii/S0165783622003423>).

Bottom Trawl (P. Politis)

Description of fall 2022 bottom trawl survey: Lost 14 sea days due to COVID cases (SNE, GB, GOM). Was able to get most of Mid-Atlantic coverage. Leg 1 ended 6 days early. Second leg had 2 more positive cases and was significantly reduced. Due to the number of sea days lost, could only reduce one station per strata which had a larger impact on the northern stations. Ran into a lot of gear issues due to fixed gear and bottom type, and weather events impacting coverage into strata 37 and 38.

Discussion of lack of coverage in northern region (100 fathoms) strata 39 and 40 in particular. Affects too many stocks. A problem in fall, not spring because of right whale closures. Discussion of moving fixed gear, announce survey timing and move gear. The NEFSC survey is further offshore, covers a much larger area than inshore surveys, and it's harder to predict timing of survey activity. One day's notice is likely not enough for fishermen. **Can NMFS assets be used to move the gear? [This question will be answered and added to the Orientation Document Appendix FAQs section.]**

Description of spring 2023 bottom trawl survey: Bigelow in dry dock in Northern VA. Start of the survey will be delayed a few days from usual timing. Planning to stage out of Norfolk, Virginia to avoid any more delay. March 15th - May 26th.

Bottom Longline Survey (A. Mercer)

Completed 100% of stations planned. Had to re-survey two stations due to sharks splitting the longline. High catches of barndoor skate, red hake, cusk, and large white hake. Low cod catch consistent with last year. Haddock catches are also low, yet higher in spring. One covid case that did not impact survey operations. Finished the survey in record timing due to good weather.

Discussion: Does the longline have a plan to transition to ropeless gear? Short soak (2 hours) and vessels stay on the station so always watching gear. It's unlikely to need to transition; the issue has not been raised at NEFSC.

Communication updates (K. Burchard, A. Dunn)

An objective of NTAP is to improve communication. The NEFSC NTAP Team is exploring ways to better connect with the assessment process. One approach is to review research tracks that have occurred and bring priorities back to the NTAP panel. Still working through the process so we are very happy to accept feedback on what your needs are. Alex Dunn, the communication specialist connecting to assessment processes, will provide links and information.

NTAP members have access to a tool Alex and Katie developed for collecting and capturing how the results from NTAP catch efficiency research is being used in stock assessments.

Discussion: Panel suggests adding a glossary for certain stock assessment terms to have available on the dashboard. Can add as a tab in the dashboard, might make sense to link NTAP orientation document or use that as basis for the glossary. Add 'Considered' to google form language. Review of the current version of the dashboard tool shows some errors, these will be corrected through communications with assessment biologists. **To do: update dashboard, make a few changes (note - some updates were done by end of the meeting, esp. yellowtail error).**

Panel members inquired about stock assessments that are behind schedule. Black sea bass and cod are behind schedule. Recommendation to monitor progress and hold working groups accountable. Expectation is that the Research Track Steering Committee will do this.

Panel members recommend scheduling face-to-face meetings to improve communication and get to matters/problems better.

Break

Restrictor Rope Research (D.Gregg, R.Ruhle, A.Jones)

Presentation

Conducted paired tows on the F/V Darana R to test if adding a restrictor rope to a trawl configuration has an impact on catch

- Many efforts coordinating and performing the field work including Captain and Crew from F/V Darana R, VIMS staff, RI DEM staff, ROSA staff and NEFSC staff.
- Summary of objectives presented.
 - Conducted paired tows on the F/V Darana R.
 - Evaluated catch and gear performance.
 - Collected key metrics.
- Two sampling periods, spring and fall 2022.
- Completed 142 tows (71 pairs).
- Catches processed using VIMS software and processing protocol.

- Net performance measured with Simrad net mensuration system.
- Goal was to keep tows as close as possible.
 - Only three tows (2%) where mean distance is greater than 400 m.
 - A couple tows appear to cross at various points (~40).
- Gear Metric analysis methods/results.
 - Series of box plots (net height, net width, door width, scope, depth - spring and fall).
 - Note that NEAMAP uses different nets (but they have the same specs) in spring and fall, so that could explain some differences in performance between spring/fall.
 - Seeing subtle treatment effect on net performance (bridle angle, net & door width).
 - Suggests that the restrictor is 'working.'
- Comparing catches in paired tows by plotting catch in two dimensions.
 - Focus of this work was on semi-pelagic roundfish- which were species most likely to be impacted by the rope; also added longfin squid based on working group recommendation/interest.
 - No clear effect of restrictor on catch diversity (species composition).
 - Species composition of catches varied by season.
 - Difference between seasons driven by spiny dogfish and fluke.
 - Can we whittle it down to prevalence of different species?
 - Butterfish and Scup stand out as the most commonly caught.
 - Linear models suggest that there is no significant difference for butterfish, scup, silver hake and longfin squid.
- Aggregate weights:
 - Applied cubic root transformed catch data.
 - Close to 1:1 when regressing catches without and catches with the restrictor rope.
 - Linear models suggest that there is no significant difference for the four species.
 - Suggest no detectable effect on the restrictor rope.
 - Many different model formulations but results similar.
 - Suggestion to re-plot results using equal/square aspect ratio.
 - Suggestion to expand the species plotted.
- Individual lengths for three of the most common roundfish encountered:
 - Trimming tails to lengths that were caught at > 10 stations for each species. Center of the length distributions for each focal species.
 - Accounted for very subtly different swept areas between tows.
 - Analyzed using:
 - Linear mixed binomial models -Binomial GAMS (similar to Holst and Revill 2009)
Holst, R. and Revill, A., 2009. A simple statistical method for catch comparison studies. Fisheries Research, 95(2-3), pp.254-259.
 - Scup
 - Linear mixed binomial model:
 - No effect on length, order, or season.
 - Small positive effect of depth.
 - GAM
 - Quasibinomial GAM models for scup.

- Results of model are no effects of depth, order, season, or length.
 - Butterfish
 - Linear mixed binomial model:
 - No effect of length, order, or season.
 - Small negative effect of depth (decreasing catches within R set).
 - GAM
 - No effect of season, length, depth, or order.
 - Significant effect of current. Head tide, fair tide etc.
 - Similar results from the more recent log-Gaussian Cox method.
 - No covariates included.
 - Silver Hake
 - Linear mixed binomial model:
 - No effect of length, order, depth, or season.
 - GAM
 - Effect of order and depth.
- Overall Summary
 - Gear comparison
 - Some effect on net width and door width.
 - Very slightly wider without restrictor.
 - Impact on bridle angle
 - More work needed to look at variability.
 - Suggestion to make box plots of values rather than use color scale.
 - Aggregate weights
 - No effect on four focal species: butterfish, scup, silver hake or longfin squid.
 - Individual lengths
 - GLMMs: Small effects of depth on catches, but otherwise no detectable effects.
 - GAMs: Some hints at non-linearity, but difficult to assess. Potential effect of depth and order in silver hake.
 - No consistent effects across GAMs and GLMMs.
 - Suggest limited effect of the restrictor on catches for the species captured in this experiment.

Discussion and questions

Assess any other species that were well represented in fair numbers, focus on aggregate weights. It was noted that the project was limited in spatial scope and that the area was strategically chosen to assure species density, consistent depth and enable isolation of the effect of rope itself. Panelists remarked how this study is definitely a good starting point for helping with standardizing regional trawl surveys. Panel members discussed interest in expanding to the Gulf of Maine.

Subtle effect on how gear performs could be due to very limited range of trawl performance without the restrictor rope (18 inches, 9 inches on each side). Restrictor rope tows have a hard cut-off on net width and regardless of wing spread, getting a more consistent shape.

Panel recommended not eliminating the outliers. Catching big tows of menhaden, as a schooling fish, might be considered a candidate for disruption by the restrictor, so catching them was reassuring/surprising. Keeping in outliers strengthens the data. Plotting the catches did not see large differences in roundfish. Very impressed with the tightness of the graph. Keeping bridle angle consistent overcomes any noise because the gear is performing consistently. Restrictor rope keeping bridle angles more consistent.

Tow parameters are also used to reject tows that fall outside of appropriate range. Usually when outside of parameters re-tow- usually due to tide. **How many Bigelow or NEAMAP tows are not valid, resulting in retowing the station?** (see [this document](#)).

Discussion about applying results: work should be peer-reviewed, but working group should meet again to discuss application of results outside of the more formal scientific process, such as creating guidelines for offshore wind developer studies and think about the process for bringing this information/ communicating this research results to the region on a wide scale. Key discussion points:

- Some surveys are already happening in wind areas - as long as the survey starts with one way of gear configuration and stays with that configuration you are building a consistent time series.
- Stabilized gear packages applied to other vessels is a huge step. Come up with a standardized gear platform that can be used for any survey conducted in the area.
- Create guidelines for surveys.
- Cannot apply results from this study to the Bigelow, because the specific Bigelow net configuration was not used in this study. Would need to conduct tows in varying depth involving many more species.
- Over-dooring and holding the net tight with restrictor rope was suggested as a good approach. If used industry sized doors would have less variation because larger doors stabilize the geometry. Depends on the platform being used. Would need recommendations tailored to horsepower. Mud cloud is also a concern - NEAMAP VIMS uses minimal bridle length needed to keep consistent spread to reduce mud cloud.

Panel complimented both the vessel crew and analyst on a job well done on this true cooperative research project.

LUNCH

Offshore wind (K.Ford, A. Lipsky)

Presentation: 18 million acres being considered for offshore wind.

Current activities

Gulf of Maine Call areas- planning process has kicked off.

Cable prep and construction has started for two projects.

SSEEP Year 1 final Report expected soon.

Survey mitigation implementation strategy finalized.

RODA, BOEM, NMFS Synthesis of Science expected to be published by the end of January.

Paper listed 'Science Priorities for Offshore Wind and Fisheries Research in the Greater Atlantic Region.'

NEFSC submitted three proposals to BOEM Environmental Studies.
ROSA released research priorities database.

Presentation included overview of offshore wind construction, provided links to resources.

[Siemens Gamesa video](#) 4:05

[North Sea Documentary](#) 14:15

BOEM Vineyard Wind [Construction and Operations Plan](#)

Boulder plow video in slideshow

Overview of Fisheries Surveys being done at Vineyard Wind and South Fork

Discussion of NTAP role in offshore wind

Survey specific mitigation plans (Written by NEFSC).

Fisheries surveys within farms.

Regional monitoring (being discussed at ROSA).

Development of new monitoring tools (acoustics, trawls that can go inside wind farms, fixed gear, autonomous vehicles, eDNA).

Discussion points:

- Currently there is no standardization required, the developer proposes methods.
- Dissatisfaction with process - NMFS is being ignored as much as industry partners. How many suggestions in comment letters have been adopted?
- Can NTAP as an advisory board under the Council influence BOEM to revise guidelines. Might be able to provide input to Council comment letters.
- Can't assume areas will still be fishable.
- Concern about loss of livelihood.
- Concern about impacts in export cable routes, especially boulder plows.
- Unprecedented opportunity to rethink our surveys and monitoring in reducing uncertainty and understanding the ecosystem.
- Congressional traction may be all that can help us.
- Are there ways we can leverage the fisheries research being done by developers and can we provide guidelines. Directed at specific issues/problems we see coming.
- How can we use the plans to influence BOEM/developers.
- What are we going to do about the cold pool? No telling what the cumulative impact is going to be.
- The social economic information they have on what the fleet does in the area is not very good. Were not planned to be used for offshore wind development.
- Get companies to standardize their approach. Concerned about the "NEAMAP" brand being misused without NEAMAP approval, ROSA is working on creating a document of guidance after reaching out to BOEM asking what they can do. **NEAMAP survey definition documentation being worked on to be distributed.**
- SSEEP project is developing models to simulate changes in abundance in those development areas.
- We are looking at alternative ways to survey. Mitigation strategies so sampling we are doing is robust enough to simulate the changes.

- Developer survey data needs to be available to the public. ROSA has done some work in this area. Not all projects are the same nor have the same willingness to share.
- **Dive deeper into the mitigation plan at an upcoming meeting.**
- The scallop survey working group- NE council body- providing recommendations to the Science Center. With BOEM- how can we hold them accountable for things they have said they would do.

Intro to priority research breakout session (K.Ford)

Description of connection to Charter objectives and action plan.

Recap of discussion from March and July

- March 2022 full panel meeting:
 - list of study ideas & discussion about how to make recommendations.
 - account for progress that has been made by NTAP and beyond; consider ranking the priority of each based on our ability to address that problem.
 - wind is a priority of NTAP, as it is a priority of the Councils.
 - Co-chairs will determine how to proceed.
- July 2022 survey more focused on what does NTAP want to accomplish.
 - Understanding the trawl gear performance and methodology -
 - no consensus on relative importance of availability over catch efficiency over survey operational performance.
 - Evaluate the potential to complement or supplement current NEFSC surveys -
 - consensus that the goal here is to have intercomparable data between different surveys that are currently operating (e.g., NEAMAP and Bigelow); strong support for developing new surveys.
 - Improving understanding and acceptance of NEFSC trawl survey data quality and results -
 - consensus that goal is to understand how assessments use trawl survey data (and ultimately how to make assessments better).

Summarizing information related to priorities

Developed a description of all previous research done by NTAP and/or related to NTAP priorities (draft - part of orientation document drafting, will be part of appendix).

- Review of past NTAP meetings to create a priorities spreadsheet.
 - Includes previous votes on research priorities.
- Review of MAFMC and NEFMC priorities (these were added to the priorities spreadsheet).
- Started to examine Research Track priorities for 2022 RTs (Am. plaice, haddock, spiny dogfish).
- Developed a list of previous research ideas discussed by NTAP (handout for breakout sessions).

Break and set up breakout groups (K. Ford, H. Hart)

GOAL: 3-5 titles of research projects NTAP would like to see funded.

Breakout Session: defining a research project (W.Townsend, D. Salerno)

Two groups, each discuss one theme - breakout groups took notes that are incorporated below. Two handouts provided. Handout 1 had previous NTAP priorities and work done; Handout 2 had Council priorities (culled to focus on NTAP-relevant priorities).

Break

Group discussion (Wes Townsend)

Breakout group report out.

Group 1: Understanding the trawl gear performance and methodology Kathryn Ford, Mike Pol, Tim Miller, Peter Whelan, Pingguo He, Emerson Hasbrouk, Dustin Gregg, Vito Giacalone, Hannah Hart white board, and Andy Jones - Note taker.

- It was noted that changes to tow time or tow length were missing from the priorities list; shouldn't be prioritized though, because a change would be too upsetting to existing studies. Tow time is not a priority. We have looked at it. Maybe missing some large cod but would be tough to change at this point. Trade off with the number of tows and the total time. More pressing things to do.
- Door testing was discussed.
- Wind energy got the most attention - is this indication that this topic is less important than the Group 2 topic? Impact of artificial reef effect. Could lead to the need to re-stratify by proximity to wind farms.
- Lots to be gained in understanding fine scale distribution of fishes around the wind energy areas. Note: Bigelow survey not designed to address that question.
- We understand trawl performance well. We don't know what losing 30% of the area from the sampling scheme will mean.
- A lot of catch efficiency work is working around the margins, when a larger change to the survey is needed.
- Extend or match data between state surveys and wind energy area surveys to the Bigelow data.
- Needing to change trawl design for offshore wind.
- All surveys should have acoustic data collection.

Group discussion on Breakout Group 1

- Acoustic instruments (e.g., echo sounders - single split or multi beam) are used on the major survey already.
- Evaluate fishability of offshore wind farms.
- Understand distribution changes of fish in/near wind farms. Could use cameras.
- Can we better match the timing of surveys for comparison purposes. Something similar to what was done in the most recent summer flounder stock assessment.
- Test doors to identify potential operational solutions. There was a survey done that did not find an ideal door size for all depths. Is there more that can be done? NEFSC uses net spread in abundance estimates - new last year. This is a major improvement that should go a long way to addressing this concern since the net spread study showed no change in catch efficiency at the spreads allowed in the survey.

Group2: Evaluate the potential to complement or supplement current NEFSC surveys Dan Salerno - *facilitator*, Terry Alexander, Dan Farnham, Jim Gartland, David Goethel, Anna Mercer- *white board*, Bobby Ruhle, Katie Burchard - *note taker*, Phillip Politis

- Calibrate NEAMAP and Bigelow.
- Supplement Bigelow by extending ME/NH and NEAMAP survey.

- Fill in inshore strata where Bigelow can't fish.
- Supplement BTS with Acoustic data, rod reel, gillnet, BLL, pot surveys.
- Expanding industry-based survey fleet of vessels.
- Restrictor Rope research on Bigelow.
- Common database needed. Find out what the universal standard standardization is, and make sure data is collected in that format.

Questions to be answered/discussed:

1. How is NEAMAP used in stock assessments? As well as the ME/NH survey?
2. How does the northwest use data from multiple vessels? Do they evaluate the vessel effect of industry -based bottom trawl survey?

Whole Group Discussion

Expanding surveys

- GOM BLL? - hasn't been seriously considered, only in respect to better capturing halibut.
- ME/NH and NEAMAP - fill in inshore strata, not sure how much you can gain. Would need sustained funding rather than a one- or two-year NTAP project.
- Need clearer understanding of connection to stock assessments.

Establish research array - explore Fishability of vineyard wind farm development area once turbines are in fall of 2024.

- Test fixed gear and ventless gear types in the wind area to see what will work. Start with everything and whittle down (acoustics, rod and reel, trap, gillnet).
- Identify potential biases by gear type.
- Combine this simulation work being done currently. See if simulations will work to give a realistic picture of what will work. In the event simulation modeling does not produce a method for replacing lost survey stations or strata, begin testing alternative gears that can be fished in or near wind farms.
- SMAST doing surveys (trawl, drop camera) in vineyard wind awaiting permits to do surveys on others. Need to investigate how to incorporate this data into the assessment process.
- Do we create a working group to scope out resources for wind farm exploration with alternative survey options.

Desire to standardize how industry vessels are used in wind surveys.

- Each wind developer has their own method for surveying and vessel requirements.
- Rules for industry vessels to participate in developer research use IMO regulations - serious problem.

Discussion about alternative modeling methods:

- Space-based models, VAST etc. Alternative ways to model the information.
- Do you need to calibrate to integrate multiple surveys? Usually calibrate vessels when new vessels are integrated with long-time series. Such as the retirement of F/V Albatross.

Central data management and public availability:

- Create a universal database format for reported information so the information will have utility.

- Advocate for what we need: Make some sort of public statement that NTAP supports work towards transparency with wind farm surveys, including data auditing/management and analysis.
- NEFSC is exploring how to do this for acoustic, optical, eDNA data. Insufficient resources to support that kind of data right now and planning to include in future budgets.

Catch efficiency studies:

- Some members think catch efficiency work that has been done is sufficient, others think more is needed. Consensus that higher priority is adapting the survey to offshore wind.
- NEFSC not anticipating funding for studies to modify existing gear, funds more focused on survey mitigation.

Action items

- Address questions raised above (moving fixed gear, number of invalid tows).
- Distribute NEAMAP definition document.
- Plan restrictor rope research working group meeting to further discuss data, drafting a paper for peer review, future studies, and application of knowledge.
- Use breakout group results and discussion to draft a memo to present to Councils on priority concerns/research recommendations of NTAP.
- Release 2nd draft of the Operations Manual for review.

Wrap up & adjourn (W. Townsend)

Next meeting dive deeper into wind farm monitoring plans.

It was proposed to get a representative from one of the wind farm developers at our next meeting.

Exact timing of next meeting to be determined. Panel did highly recommend another in-person meeting where the meeting place isn't too far from the airport.

Provide better support for hybrid participants, encourage in-person participation.
