

## Northeast Trawl Advisory Panel Meeting

-Webinar-

January 31, 2020, 9:00 a.m. - 1:00 p.m.

This document summarizes the discussions of the Northeast Trawl Advisory Panel (NTAP) which convened via webinar on January 31, 2020. A summary of key discussion points, recommendations, and action items is included. This summary does not capture every comment or discussion point, and included comments may not represent consensus. Relevant comments from follow-up correspondence between panel members post-meeting have been included.

### I. Participants

#### A. NTAP Members

Name	Affiliation
Terry Alexander	NEFMC Member
Tony DiLernia	MAFMC Member
Vincent Balzano	NEFMC Member
Wendy Gabriel	NEFSC
William Gerencer	MAFMC Stakeholder
Dustin Gregg	MAFMC Scientist
Anna Mercer	NEFSC
Timothy Miller	NEFSC
Frank Mirarchi	NEFMS Stakeholder
Christopher Parkins	ASMFC Representative
Michael Pol	NEFMC Scientist
Robert Ruhle	ASMFC Representative
Michael Sissenwine	NEFMC Scientist
James Gartland	MAFMC Scientist
Michael Luisi	MAFMC Member
Pingguo He	NEFMC Scientist

#### B. Other Participants:

Name	Affiliation
Paul Rago	MAFMC SSC
Matt Seeley	MAFMC Staff
Tyler Pavlowich	NEFSC Scientist
Andy Jones	NEFSC Scientist
Dominique St Amand	NEFSC Scientist

## II. Summary Discussion Points by Agenda Topic:

### A. Wingspread Experiment Analysis -Presentation of analysis - Andy Jones [[Slides available on MAFMC NTAP webpage](#)]

#### Motivation:

The Bigelow net is underspread and overspread in different conditions; spread may vary with depth. Optimal wingspread is 13 meters, but the net fishes at wingspreads from 9-16 meters (narrower in shallow sites and wider in deeper sites). There is concern from stakeholders that this may impact the efficiency of the Henry B. Bigelow bottom trawl survey net. The focus research question was: does wingspread (opening size) impact catch efficiency of flatfish species?

#### Approach:

The twin trawl F/V Karen Elizabeth rig was used to conduct paired tows with one net with wingspread maintained at 13m (control) and one net with wingspread varying between 9 and 16 meters (treatment). Net mensuration equipment was used to measure achieved wingspread. The experiment consisted of 170 paired tows over 14 days that targeted 4 species: winter flounder, witch flounder, windowpane flounder, and American plaice.

#### Data Processing:

Paired tows where the control net was <0.5m from optimal (13 meters) were used for this analysis. Actual wingspread widths of treatment net were used in analyses, rather than targeted width

#### Sample Size Summaries:

On average, there were eight stations (paired tows) per treatment net width. Some species were not caught in the widest net widths, which is expected due to depth preference of the species.

#### Exploratory Analysis Results:

The experiment from fall 2019 indicated that the effect of wing spread on catch of the four target species was limited. Correcting for area swept removed any trend in efficiency (although not significant) for all species.

#### Results for Mean Catch at Length:

Patterns in mean catch at length were very similar between treatment and controls for the four target flatfish species. Winter flounder showed the greatest difference in catch efficiency at each net width, but it was not significant. The treatment net caught more winter flounder at all sizes in under-spread conditions. The control net caught more winter flounder at all sizes in overspread conditions

#### GAM Explanation:

To explicitly test for a relationship between wingspread and catch at size, generalized additive models (GAM)s were used similar to those used in previous sweep comparisons. Using a GAM allows relationships to be nonlinear without specifying a specific function from the start. This approach compared different models with different parameters which built complexity as components were added. AIC was used to identify models with combined best fit and least complexity. and

Length Based model components:

- Random variation in catch efficiency between stations
- Size effect on mean relative efficiency
- Random variation in size effect on relative catch efficiency between stations
- Size effect on overdispersion parameter
- Wingspread effect on overall global mean relative efficiency
- Day/night effect on mean relative efficiency

Length-based model results:

None of the best models included the effect of wingspread, which suggests that wingspread does not have a significant impact on catch efficiency for any of these species (based upon this experiment). Generally, (3/4) the models included random variation in catch efficiency between stations and 2/4 included a size effect on the over dispersion parameter.

Experiment Conclusions:

Results from exploratory and length based analyses were similar and indicated limited effect of wingspread on catch efficiency. There was an effect of swept area on catch, but once that was taken into account, the change in wingspread did not affect the catch efficiency. The fall 2019 experiment suggested limited evidence for the hypothesized unimodal relationship between catch efficiency and net wingspread.

The results from the wingspread experiment suggest that incorporating observed area swept on a tow-by-tow basis should improve the quality of the data by correcting trends in catch rates across wingspread. There was consensus among the panel that because the Bigelow survey is an independent time series, indices of abundance should be based on tow-specific measured swept area, rather than on an assumed mean swept area. The effect of assuming a mean area swept for all tows in the Albatross series could be evaluated by comparing the mean area swept based on individual Bigelow tows compared to the assumed mean area swept by Bigelow gear.

Panel Conclusions:

1. Data suggested that there is an effect of area swept, on catch, especially at smaller widths. Scientists should pursue incorporating actual observed swept-area into Bigelow time series indices and biomass estimates

**Action:**

- 1) *NTAP will recommend to the Council that observed area swept be used for the Bigelow catch or biomass per tow time series in n applicable assessments*
- 2) *NTAP recommends that protocols be revised to calculate trawl survey area swept and that the Population Dynamics ADIOS package be adapted to incorporate observed area swept into Bigelow survey indices.*

**B. FY2020 Research Plans-** Review of research options/field experiments for NTAP in 2020 – Led by Wendy Gabriel. [\[Slides available on MAFMC NTAP website\]](#)

The wingspread experiment suggests that there is not a significant effect of wingspread on catch efficiency. The panel discussed whether they were satisfied with this result and willing to move onto another research question or not satisfied and needing to determine what additional research is warranted. All past research priority ideas as well as those listed in the Moulton Groundfish Trawl Task Force Report were presented.

Some panel members expressed that they were not satisfied with the results of the twin trawl wingspread experiment and conveyed that it would be hard to convince anyone in Industry that wingspread has insignificant impact on efficiency. It was speculated that it is possible that we didn't see an impact of wingspread due to the low catchability and efficiency of a rockhopper in general and that we might expect to see more of an effect if we used traditional commercial gear. It was proposed to do a similar study using a chainsweep. However, it was realized that the applicability of results of such an experiment to Bigelow bottom trawl survey data was uncertain. It was also discussed that chainsweep efficiency would be more sensitive to wingspread than rockhopper gear, and likely to introduce more uncertainty. It was suggested to conduct a paired chainsweep/rockhopper experiment to produce a series of efficiency estimates for Bigelow.

Other panel members stressed that even small differences in efficiency can have a big impact on certain fisheries and we should do all that we can do minimize any uncertainty. One potential approach would be to conduct a wingspread study with more tows. There was whether using a twin trawl masks any effect of wingspread on efficiency because having two nets side-by-side causes them to fish differently than in a single trawl operation such as survey. There were concerns among panel members about the impact of the clump on a twin trawl operation on overspread conditions. However, it was also discussed that paired trawls not using a twin trawl approach will be much more difficult to compare and will encounter more variability.

There was some interest in exploring the effects of wingspread on different species. No panel members expressed interest in adding any of the Moulton Groundfish Trawl Task Force Report research ideas to a priorities list.

Some panel members expressed that the efficiency work regarding the rockhopper sweep was done to the best of ability by all involved ability, may not be lacking in any way and although the results were noisy the trends were clear (for target flatfish species). It was proposed that we look at the bigger picture and think long term of where we want to be in 10 years. It was expressed that the over spreading in deepwater needs further investigation and it was suggested that we do side-by-side tows of NEAMAP and the NOAA Ship Henry B. Bigelow during routine survey operations in deep water stations.

Panel Conclusions: The panel collectively came up with a short list of research priorities for 2020. Panel members will individually rank each of the priorities and email them to Matt Seeley.

Short List of 2020 NTAP Research Priorities (for vote):

- Paired chainsweep/rockhopper wingspread experiment
  - Understand if wingspread has impact on catch efficiency when using a chainsweep
  - Standardize Bigelow data to a 13m chainsweep (assumed efficiency of 1)
- Single trawl, ABBA wingspread experiment
  - Understand whether twin trawl distorts how under/overspread nets perform
- Wingspread research for additional species
  - Understand impact of wingspread on catch efficiency for other species
- Restrictor cable research
  - Understand if restrictor cable impacts catch/efficiency
- Side-by-side tows of NEAMAP and the NOAA Ship Henry B. Bigelow during routine survey operations.
  - Provide insight on the performance of the Bigelow trawl system
  - Develop a calibration between the two surveys
  - Develop a calibration of the acoustic systems used on both surveys
- Consistency of bottom contact along the Bigelow rockhopper sweep as it relates to depth and wingspread

**Action:**

- 1) *Email NTAP Panel shortlist of Research priorities to rank individually.*
  - *Email sent 2/4 to panel with list of research priorities for individual ranking*
- 2) *Panel members will email ranking to Matt Seeley by COB Friday February 7th.*
  - *Completed and results emailed with webinar summary*

**C. Door Testing on NOAA Ship Henry B. Bigelow:** Update provided by Wendy Gabriel

The performance of different types of doors were evaluated on NOAA Ship Henry B. Bigelow in August of 2019. The goal was to find a door that achieves the target net spread of 13m over the range of depths sampled in the survey. Both the Bison 9 and Thyboron Type IV doors achieved stable target spread in shallow water however, no door was able to consistently achieve the target spread in deep water. The Panel agreed to move forward with trying to test two more door types, Thyboron Tyson and Bison 8.

There are currently 5 days scheduled prior to the fall survey for calibration/gear testing, where we can hopefully spend two days testing doors. Phil Politis is getting loaned bison doors refurbished and is looking into renting Thyson doors pending funding.

**D. Other Business, Adjourn**

Panel members expressed concern over NOAA ship Henry B. Bigelow not being able to survey where wind farms are being built. It was explained that wind farm related research was not currently within the scope of the NTAP charter.