

## Northeast Trawl Advisory Panel Working Group Meeting

Friday, November 19, 2021

9:00 - 11:00 AM

-- NOTES --

Attendees: Kathryn Ford, Bobby Ruhle, Jimmy Ruhle, Mike Pol, Jason Didden, Dan Franham, Anna Mercer, Emerson Hasbrouck, Dustin Gregg, Daniel Salerno, Terry Alexander, Tim Miller, Wes Townsend, Andrew Jones, Chris Parkins, Katie Burchard, Jim Gartland, Kelly Whitmore, Ron Larsen

Key decisions in **BOLD**

Outstanding questions/items that need follow up discussions in **RED**

### Review Goals and Objectives of NTAP 2021/22 Research

Global objective statement approved by MAFMC & NEFMC: Implement an ABBA experimental design to evaluate possible changes in catch composition, catch rate (CPUE), and size distribution due to the addition of a restrictor rope between the doors of the 400x12cm, three-bridle four-seam survey trawl package used by NEAMAP.

Reviewed Design consideration:

Location- **Agreed to focus on NEAMAP Survey Southern New England Sampling Frame; Rhode Island Sound, Block Island Sound, & Regions 1-3 on Southern Long Island.** This location was selected because NEAMAP already surveys this area and is familiar with the grounds. More importantly, the consistent depth and bottom type within this area will allow for consistent trawl performance with and without the restrictor rope, which is critical to isolating the effect of the restrictor rope and enabling NTAP to effectively evaluate the effect of the restrictor rope on catch.

### Timelines-

Research- Spring (June), Fall (Sept) of 2022; coordinated to be at end (spring) and beginning (fall) of NEAMAP survey

NTAP Working Group check-ins - July 2022 (later in month), Nov 2022 (later in month), May 2023

- One additional meeting was suggested prior to starting Spring leg in March 2022

Analytical- Nov 2022 - May 2023. NEFSC Agreement with this timeline.

- Consider doing working paper to release information sooner (implications for offshore wind).

Present to Councils - June 2023

### Effort-

Budget- Jim proposed in order to maximize the amount of tows can do with funds available (161.5K after ASMFC overhead) suggests that NEFSC lead field data collection and analysis with having VIMS support.

- **Decision: Working group agreed NEFSC/VIMS collaboration onfield work and NEFSC lead analysis was the best approach to maximize paired tows and thus statistical power of the research**
- Both VIMS and NEFSC provide staff for field work (4 field staff total)
  - Note: May need additional equipment if VIMS equipment is all in use for other surveys at the time of this field work. **Needs follow up.**
- VIMS will audit, archive, and provide data to NEFSC for analysis.
- NEFSC will lead analysis of data (similar to wingspread), with input from VIMS
- Expect 65-85 paired tows over two seasons (33-42 per season and 130-170 total tows)
  - Is there a magic number for number of paired tows need to generate valuable information?
    - No power analysis conducted
    - Power will decline with distance that tows are in space and time apart, although impact of disturbance likely will increase as spatiotemporal overlap of pairs increases
    - Depends on the impact the restrictor cable has (small impact, more tows needed to see impact)
  - Could be less (tows) if fuel prices rise
- Would VIMS provide any field staff support? Jim predicting need team of 4 where VIMS can provide some bodies- but can discuss at a later time.
- Can there be volunteers? Should be a possibility.
- Would it be possible to do all the tows in one season? Would depend on F/V Darana R and scientific crew availability.

### **Discuss Approaches for Restrictor Experiment**

1. Target species
  - Summary of NEAMAP catch data
    - i. Provided an estimate on what we should expect to see in catch total by species. Looking at Spring and Fall mean count, mean size, frequency of encounter, estimated minimum number of paired tows. Target species - greatest expected encounter in paired tows:
      1. Scup
      2. Butterfish
      3. Longfin Squid
      4. Black Seabass
      5. Silver hake
      6. N. Searobin
      7. Spotted Hake
    - ii. **Decision: Do entire work-up on all catch (total count, total weight, individual lengths, individual weights, sex when possible) - no biological data (otoliths, guts, tissue)**

- iii. Should we target a couple 'flat species' to evaluate the impact of a restrictor rope? Doable- can certainly apply the model to the two most encountered flats, little skate and summer flounder.
  - 1. Can we compare results on flatfish by using Chris Roebuck data, look at vessel differences? This might be useful to confirm.
    - a. May not be that useful. The Roebuck experiments had a restrictor rope on the twin trawl, meaning that any impact of the restrictor on species would (theoretically) be the same for both the control and experimental nets.

## 2. Site selection

- Random-stratified v. adaptive
  - i. **Decision: Follow NEAMAP random stratified site selection-** within each stratum, randomly select from all available cells. Sample primary sites (red cells) with alternate site (yellow) also selected using a stratified random design as backup in case can't tow primary site.
  - ii. Adaptive Stratified Random- target areas that have historically high diversity & abundance; restrict to primaries and alternate in those areas. This option was rejected.
  - iii. Reasoning:
    - 1. No need to adapt unless not getting the sample sizes needed with randomized stratified sampling.
    - 2. Meant to be used for survey application- so appropriate to use traditional survey site selection methodology.
    - 3. You don't want to look at just high abundance because dense groups could have schooling effects which influence how fish are caught by the net (i.e., density-dependent catchability)
    - 4. Calibration work on Albatross/Bigelow used same site selection method and ended up having to do some extra tows to get needed species coverage. May need to adjust the approach depending on actual catch to a hybrid.
- Additional Options:
  - i. Target productive areas with many tows (not random)
    - 1. Definition of "productive" when multispecies sampling
    - 2. Spacing of tows; definition of "many tows"
    - 3. Bias?
    - 4. Behavior schooling effect when target high density area can cause bias
  - ii. Sampling delineated by alternative stratification
    - 1. Benthic features, hydrographic conditions, etc.
    - 2. Need to define strata of interest
    - 3. Representativeness of current & proposed survey ops? (e.g., wind?)
  - iii. Other adaptive strategy
    - 1. Group ideas/discussion

### 3. Paired tow approach

- Identify appropriate spatial offset between paired tows
  - i. **Decision: Agreed with ABBA with  $\frac{1}{8}$  n.mi offset, towing from same direction**
- Propose using NEAMAP protocols for selecting track of the first tow in a given pair, repeat for second (w/appropriate spatial offset).
  - i. Stay parallel and as close to first track as possible
- 0.25 n.mi; match NEFSC calibration protocols & minimize disturbance
  - i.  $\frac{1}{4}$  mile is thought to be too far apart – perhaps sampling very different areas
  - ii. Can reduce to  $\frac{1}{8}$  n.mi since it is just one boat doing the work
  - iii. Note the tradeoff between the need to sample the same densities on each tow in a given pair (pairs need to be closer) vs eliminating a disturbance effect (pairs need to be farther apart) since not modelling disturbance
    - 1. **Confirm what Bigelow calibration used**
- Match the track & model disturbance- 40% AB, 40% BA, 10 % BB. Use models to assess disturbance and isolate the effect of the gear. Reference Lewy et al 2004.
  - i. What is the turn around time? 30ish minutes
  - ii. Not enough known about the Lewy work to support that method
  - iii. Staying on the exact same track would be challenging
- Both tows in the same direction
- Tows around sunset will change catch
  - i. Can account for this in the modelling - **standardize based upon light levels** (zenith angle)
- Towing protocol: NEAMAP 3.0 kts (SOG), 20 minutes. Head rope length (4.7-5.8m), Wingspread \*12.3-14.7 m). Randomized starting position (box) or direction (point).
  - i. If the restrictor cable is not pulled taught with that confound things? **Use area swept** as an offset in the modeling approach.
- Vessel has mensuration sensors to make sure the cable is actually restricting and not dragging and that the doors are spread as intended.

### 4. Reviewed Data Elements that will be collected

- Tow-level
  - i. Site ID
  - ii. Restrictor / No Restrictor
  - iii. Date & Time
  - iv. Position & Direction
  - v. Speed
  - vi. Net geometry
  - vii. Warp Lengths
  - viii. Tow Track
  - ix. Depth
- Biological
  - i. Species ID
  - ii. Aggregate Weight

- iii. Individual Length
- Hydrographic
  - i. Water Temp.
  - ii. Salinity
  - iii. Dissolved O2 Conc.
- Acoustic
  - i. Simrad ES-80
    - 1. What is used for the Bigelow survey?
  - ii. Side-scan?
    - 1. Can be used for looking at complicated gear configuration
    - 2. Would cost us tows
    - 3. Would need a second vessel
    - 4. Would cost more
    - 5. **Decision: do not pursue doing side scan work**
- Atmospheric
  - i. Air Temp.
  - ii. Wind Spd. & Dir.
  - iii. Baro. Pres.
  - iv. Sea State
  - v. General Weather
- Go-Pro Video footage-
  - i. if see an effect with restrictor cable can review behavior of fish
  - ii. Not to be analyzed
  - iii. Opportunistic- not every tow
  - iv. **Decision: use this as is feasible, extract snippets that compare restrictor rope with regular net**
- Other Considerations

#### **Develop Talking Points for Full Panel Update**

- Present Jim's presentation highlighting decisions made at WG meeting
- Next Full Panel meeting expected in January

#### **Other Business**

- Next WG Meeting
  - March Check-in prior to Spring Leg.
  - **VIMS will coordinate with NEFSC on logistics prior to March**

**Adjourn: 10:55**