

NTAP Restrictor Experiment Project Update



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Background & Objectives

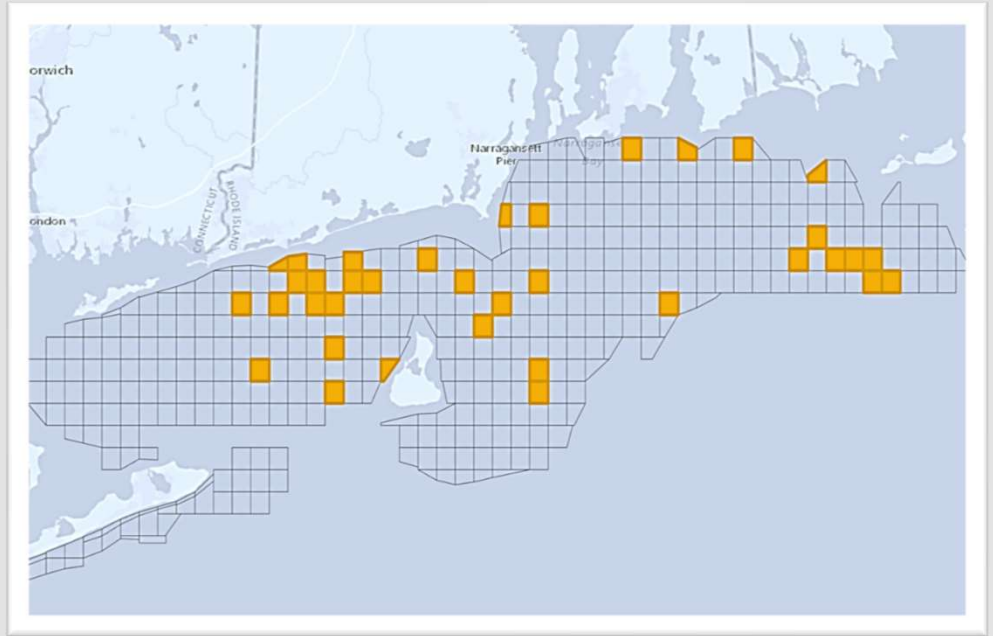
- Pursued via 2021 NTAP vote
- **Objective statement:** Implement an ABBA experimental design to evaluate possible changes in catch composition, catch rate (CPUE), and size distribution due to the addition of a restrictor rope between the doors of the 400x12cm, 3-bridle, four-seam survey trawl package used by NEAMAP SNE/MA

- Added post-NEAMAP SNE/MA
 - Maximize tow count
 - Funding channels
- 36 pairs – Each spring & fall
 - 72 pairs total
 - Sample size = Total *pair* count
- Target species



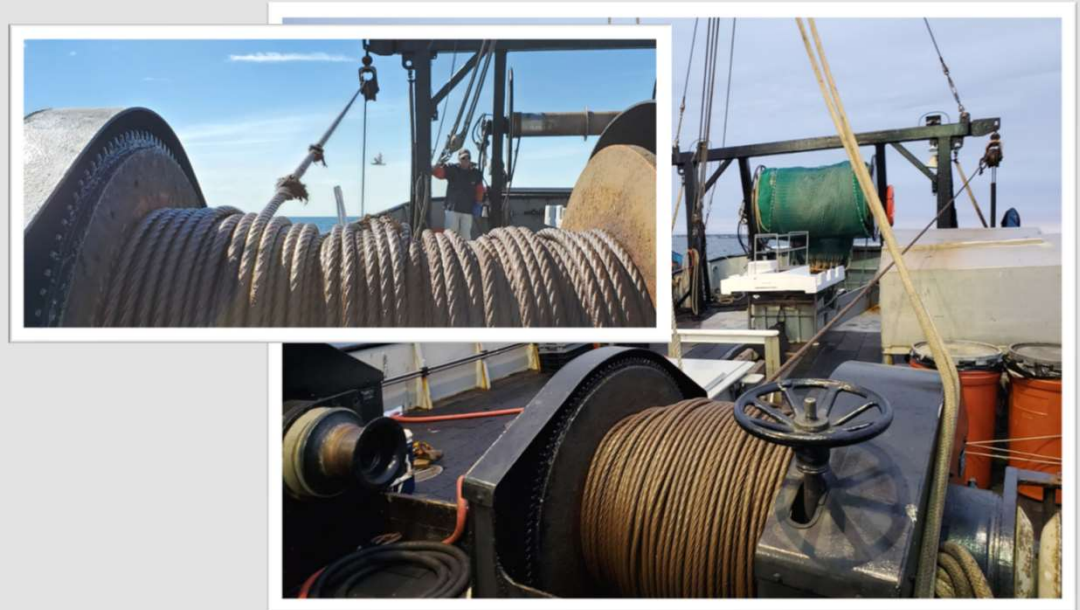
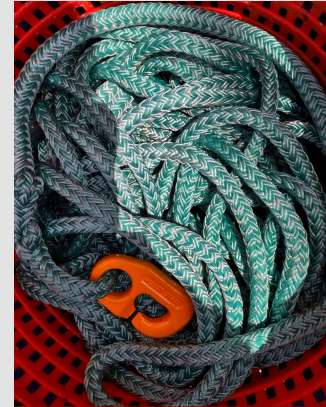
Data Elements

- Full suite of data elements Re: survey design
 - Addition of turbidity (Panel recommendation)
- Modified site selection based on survey catches
 - High catch variability (size & composition) regardless of spatial distribution
 - Increase survey progress efficiency
- Completed 40 pairs over 8 days



Restrictor Specs & Protocols

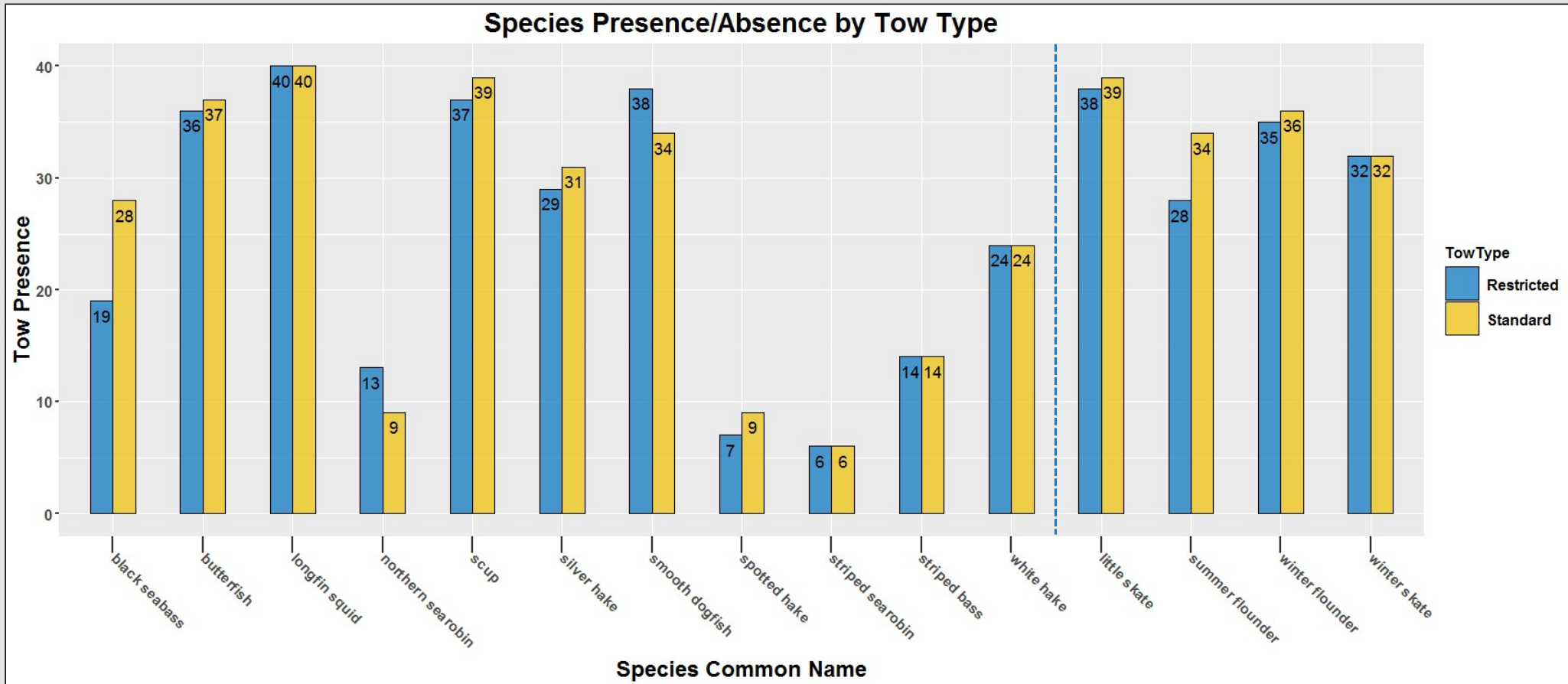
- 7/16" Tennex, 111' 6" TL w/ hookups (1.5T Viking links)
 - Lengthened from trial tows (~29m doorspread, < 12.99 wingspread)
 - Hookup – Video clip
- Warp +5fm on restricted tows
 - Ensures fully engaged restrictor
 - Marks set to winch vs block
- Tow tracks offset by ¼ mi (target)
- Haulback -> haulback offset 56 mins (avg)
 - 20 min tows



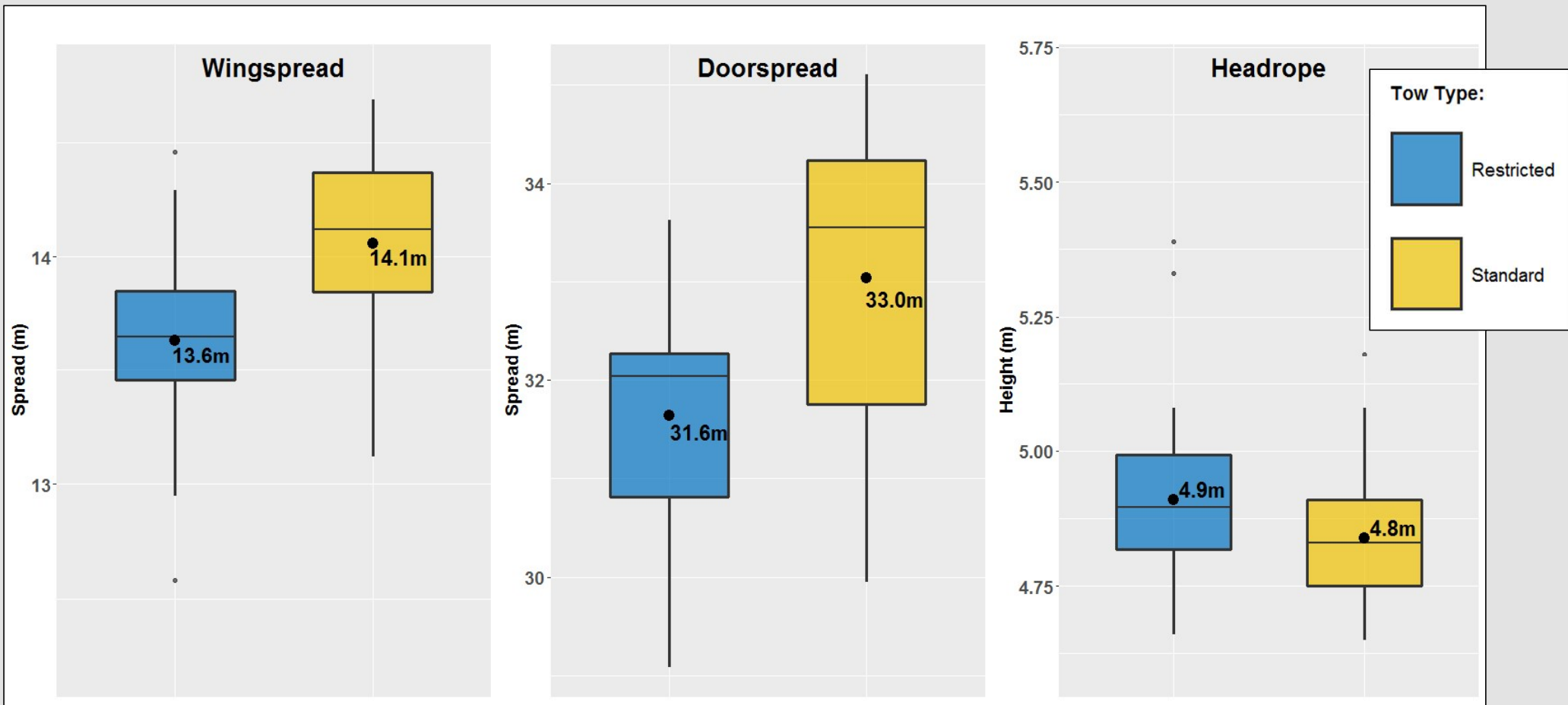
Handling Footage



Target Species



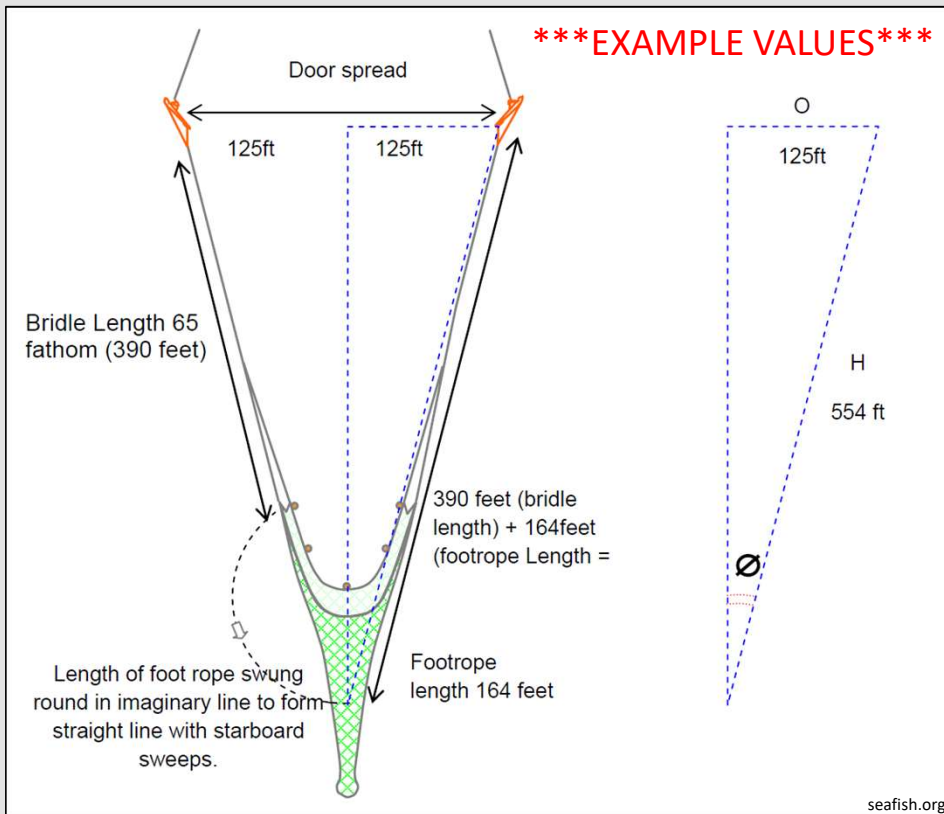
Trawl Metrics – Spread & Height



- Can/will adjust catch for area swept (tow distance, wingspread)

Trawl Metrics – Bridle Angle

Bridle Angle: Angle formed between tow direction and the trawl bridles



SIN Ø	BRIDLE ANGLE
0.13 - 0.16	8 degrees
0.15 - 0.16	9 degrees
0.16 - 0.18	10 degrees
0.18 - 0.20	11 degrees
0.20 - 0.22	12 degrees
0.22 - 0.23	13 degrees
0.23 - 0.25	14 degrees
0.25 - 0.27	15 degrees
0.27 - 0.28	16 degrees
0.28 - 0.30	17 degrees
0.30 - 0.32	18 degrees

$$\text{Sin } \emptyset = \frac{O}{H}$$

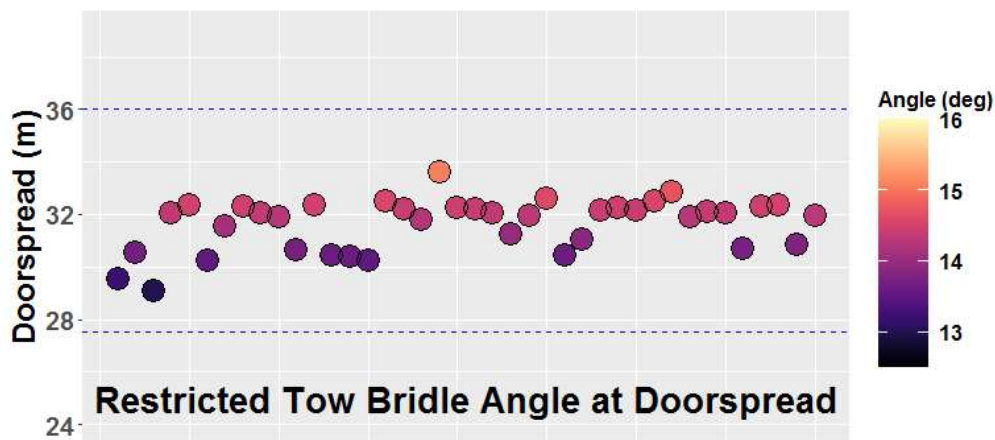
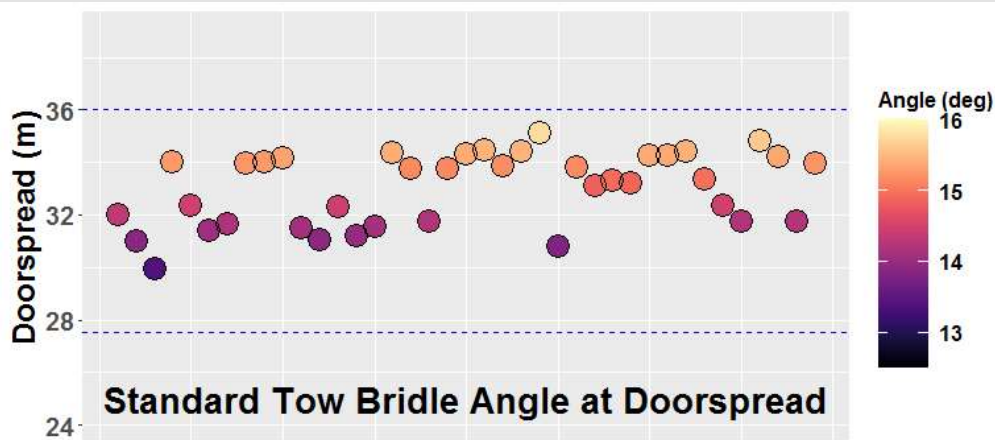
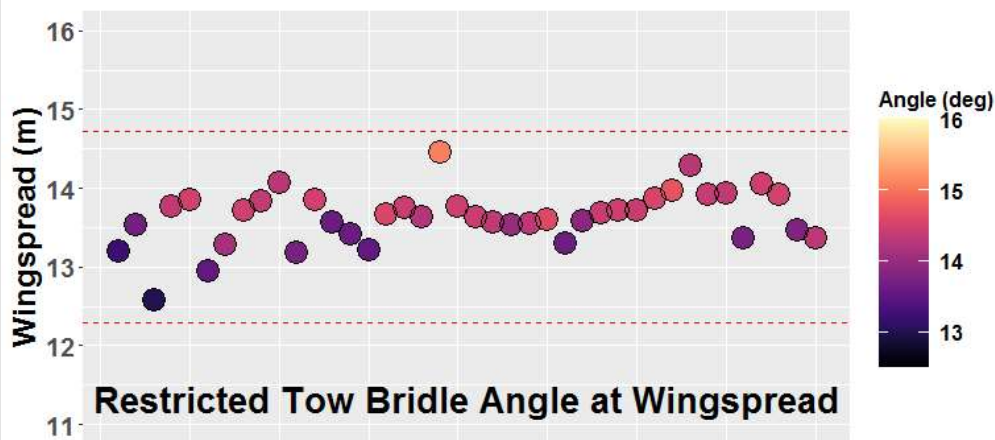
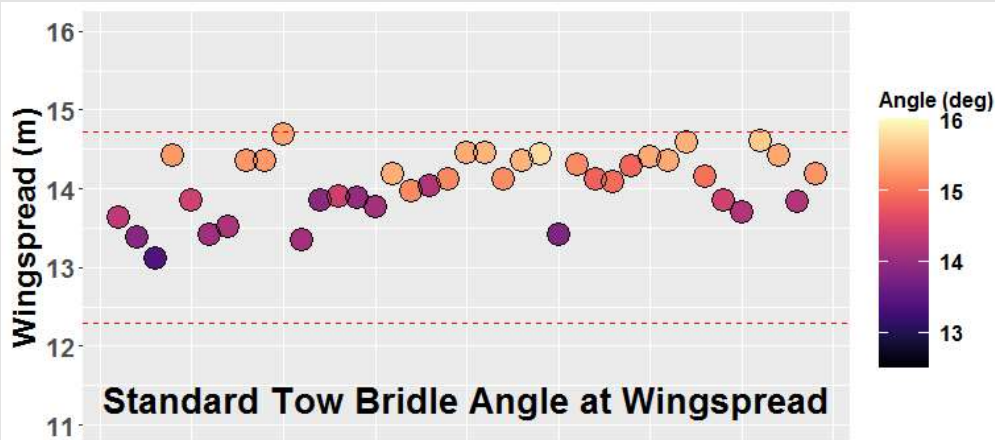
$$\text{Sin } \emptyset = \frac{125}{554}$$

$$\text{Sin } \emptyset = 0.225$$
 (or take Sin^{-1} of theta value on sci calculator)

seafish.org

one of several methods for calculating bridle angle

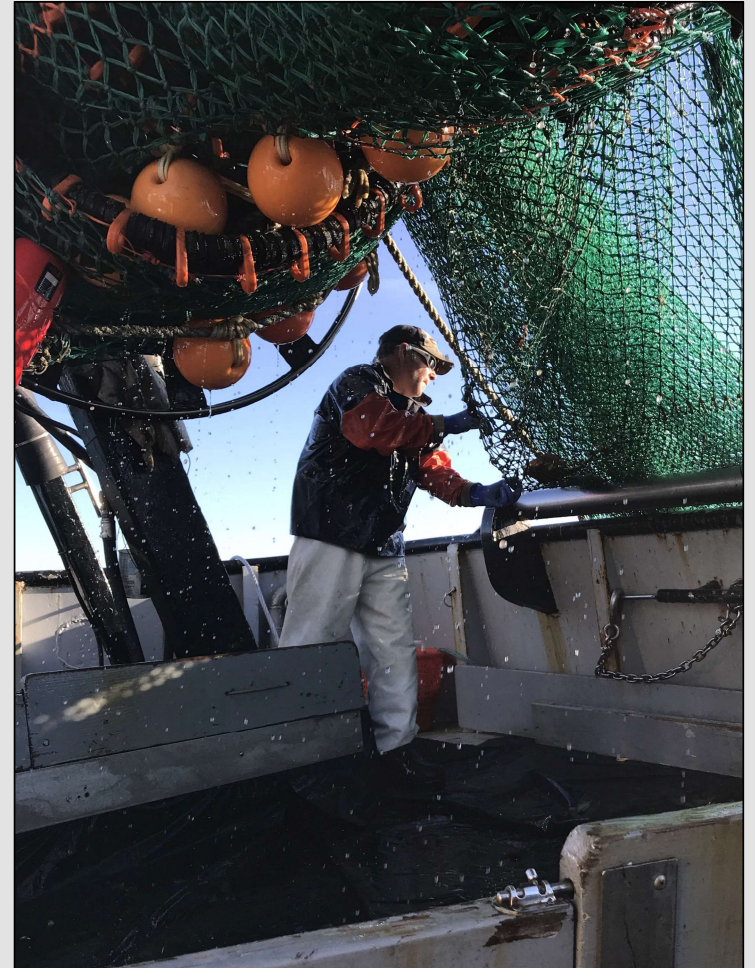
Trawl Metrics – Bridle Angle



Conclusions & Next Steps

- Exceeded spring target pair count
 - Design mod
 - Catch sizes
 - Mechanical considerations
- Respectable sample size of pairs for most target species
- Restrictor shows little/no chafe (off bottom)
- Bridle angle consistency
- GoPro footage attempted – not useful

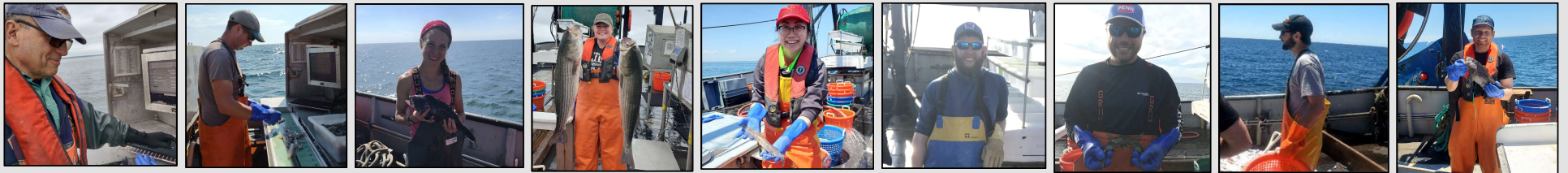
- Data exploration
- Second iteration
 - Currently scheduled prior to fall NEAMAP SNE/MA survey
- NTAP check-in's
- Analytics & manuscript prep (Nov '22 to May '23)
- Present to MAFMC/NEFMC June '23



Thanks & Recognition



- **F/V Darana R Crew:** Capt. Jimmy Ruhle, Rob Ruhle, Rigoberto Rodriguez



Scientific Crew: Mike Pol, Chris Parkins, Anna Mercer, Emma Fowler, Torri Luu, Jack Wilson, Ben Church, Dave McElroy, Andy Jones, Dustin Gregg

Photos: Dave McElroy, Anna Mercer, Emma Fowler, Mike Pol

Design, Planning, Logistics: NTAP WG, Jim Gartland, Anna Mercer, Rob Ruhle, Jameson Gregg, Chris Bonzek, Matt Farnham

Questions & Discussion



