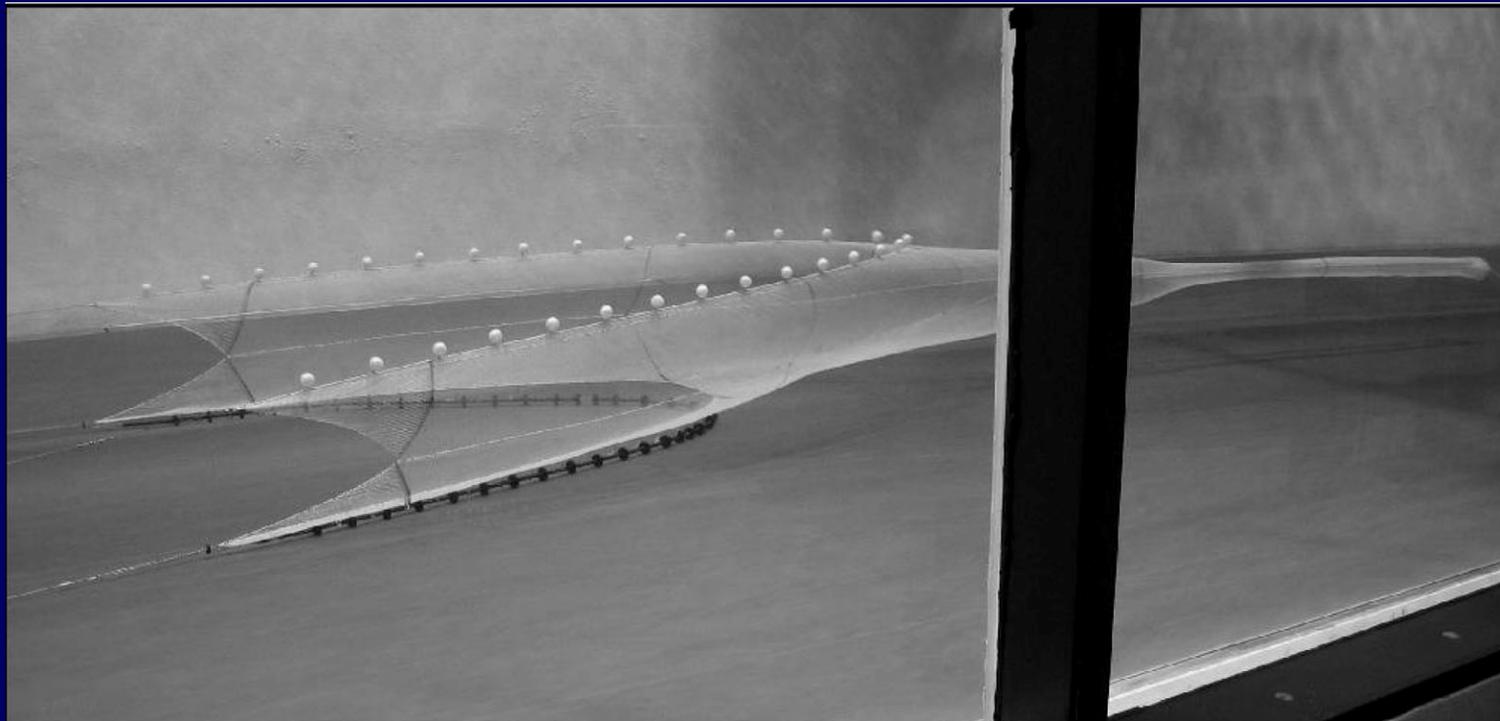


Evaluation of the Catch Efficiency of a  
Topless Trawl Net in the  
Mid-Atlantic and Southern New England  
Summer Flounder Trawl Fishery

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Chris Parkins and Joe DeAlteris  
University of Rhode Island  
Fisheries Center

# Topless Trawl



# Research Objectives



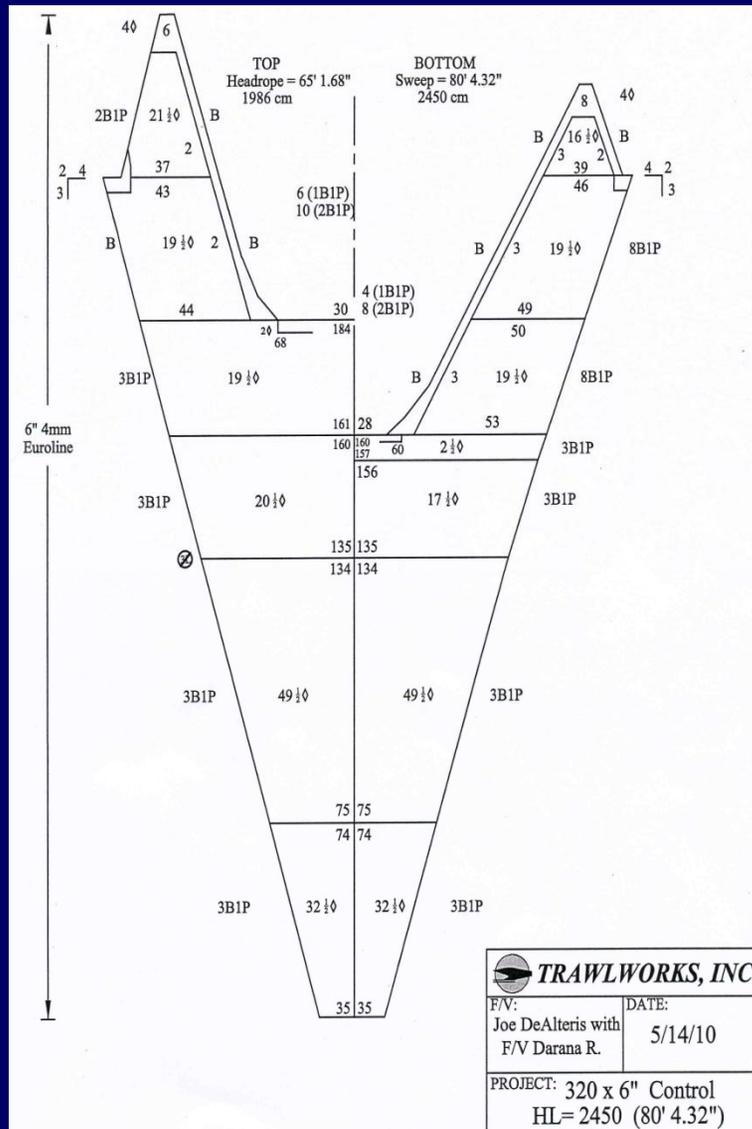
- Evaluate the effect of trawl design on catch efficiency
  - Target species catch weight
  - Target species catch size distribution
  - Bycatch rates

# Experimental Design

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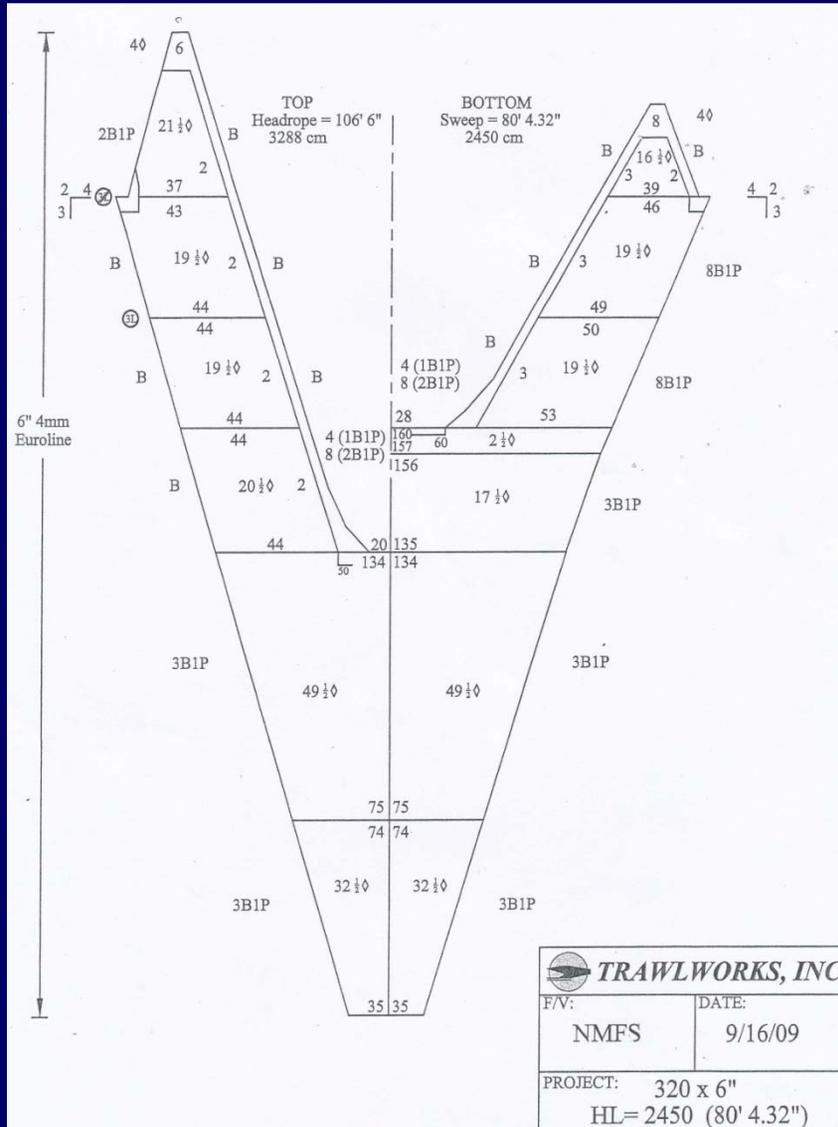
- Charter two vessels representing the mid-Atlantic and southern New England
- Paired tow design using ABBA to minimize gear handling time
- Catch weight of summer flounder and bycatch species
- Length frequency data for flounder and bycatch species

# Traditional Summer Flounder Trawl



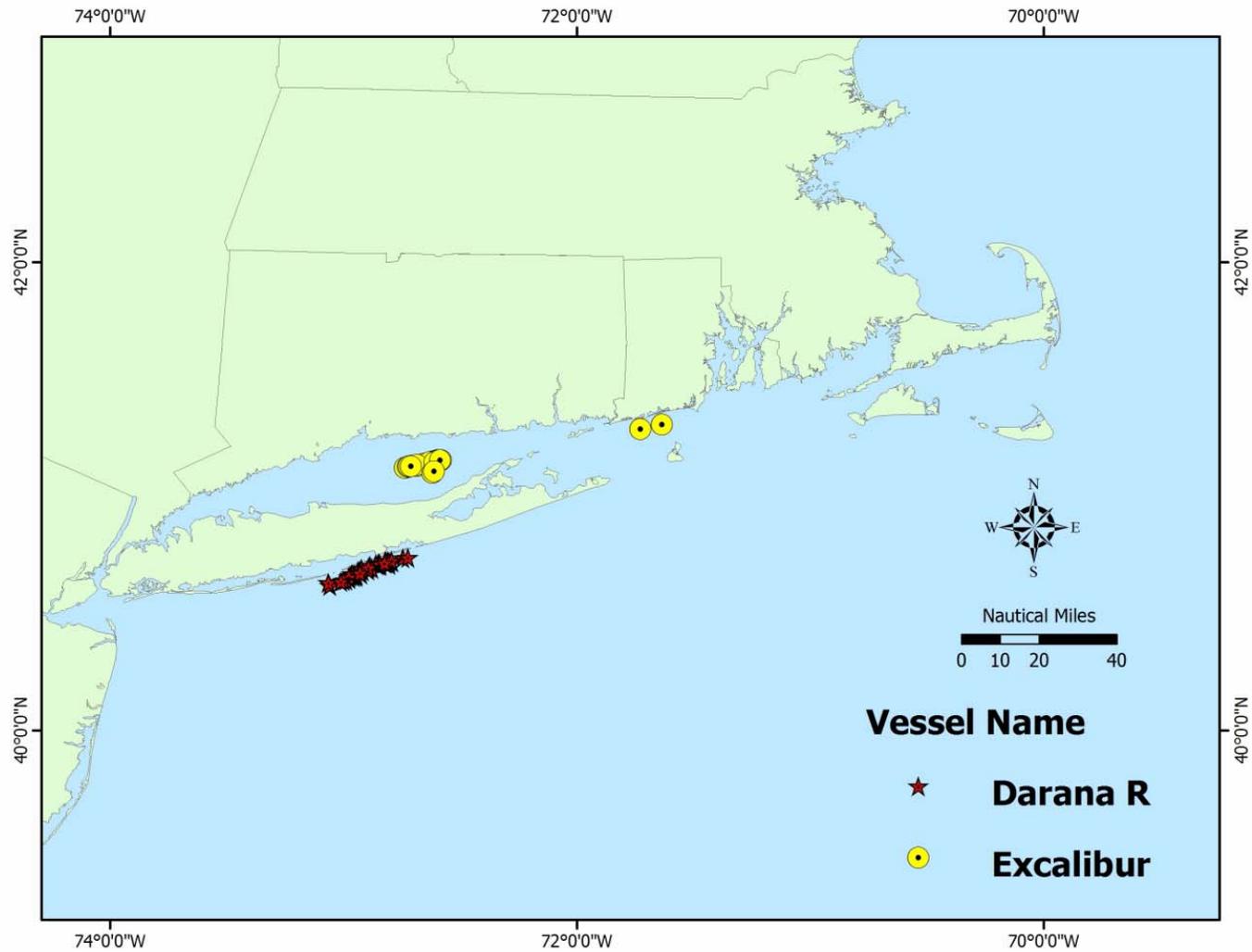
- 2-seam design
- 320 x 6 inch fishing circle
- 65 foot headrope
- 80 foot sweep
- 16 floats total
- 6" mesh in body
- 5.5" double twine codend

# Topless Trawl



- 2-seam design
- 320 x 6 inch fishing circle
- 107 foot headrope
- 80 foot sweep
- 16 floats total
- 6" mesh in body
- 5.5" double twine codend

# Tow Locations



# Topless Trawl Evaluation: FV Darana R Results

Vessel	Catch	Control Trawl Net Mean CPT	Topless Trawl Net Mean CPT	Ratio Topless/Control	Sample Size	T-test p value
FV Darana R	Total Catch	2102	2128	1.01	21	0.860
FV Darana R	Summer Flounder	273	311	1.14	21	0.111
FV Darana R	Total non-target	1829	1817	0.99	21	0.928
FV Darana R	Skate Complex	1539	1552	1.01	21	0.904
FV Darana R	Smooth Dogfish	59	71	1.19	21	0.614
FV Darana R	Spiny Dogfish	59	16	0.27	21	0.281
FV Darana R	Winter Flounder	17	24	1.38	21	0.007

**Note: about 15% target species, 85% bycatch species**

# Topless Trawl Evaluation: FV Excalibur Results

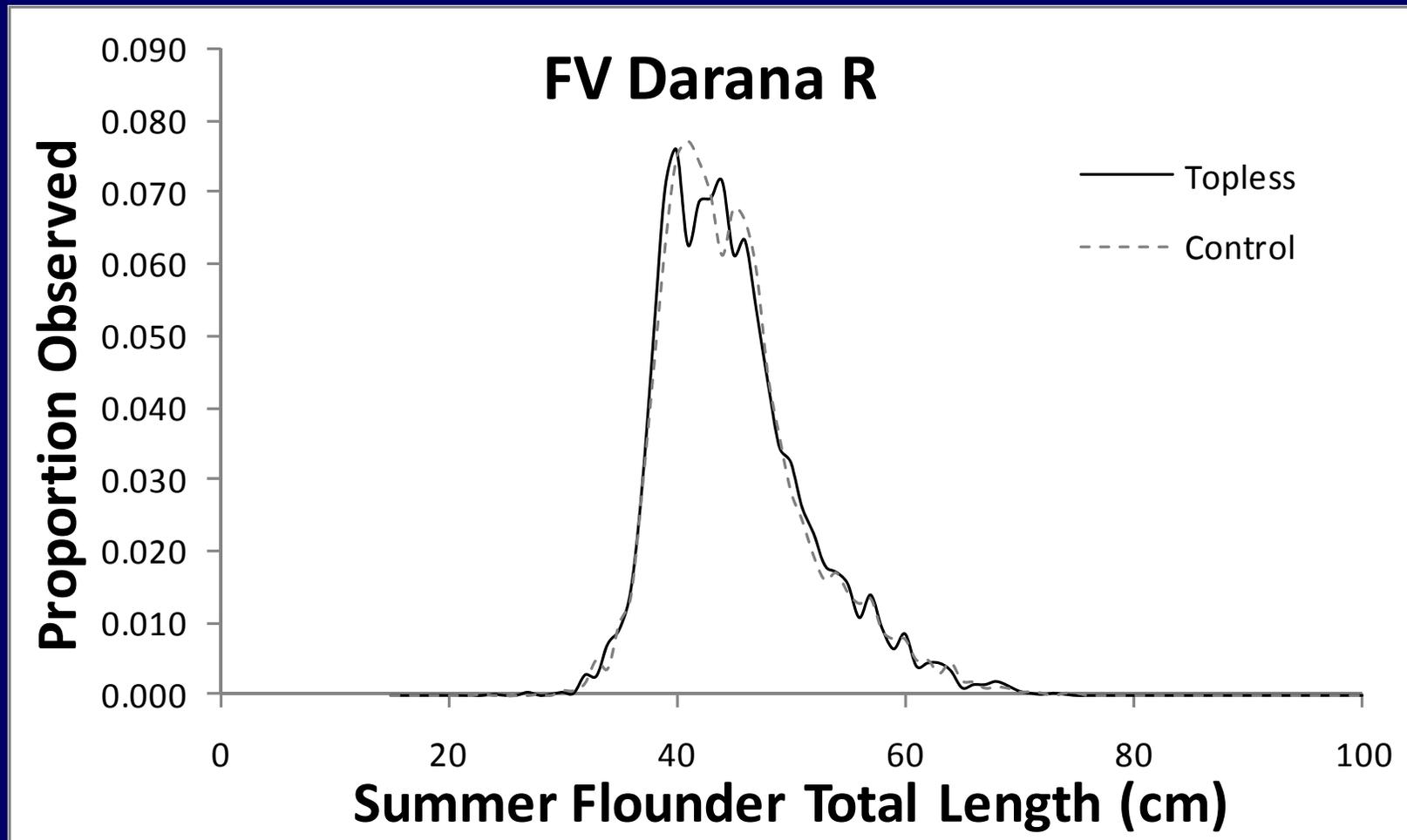
Vessel	Catch	Control Trawl Net Mean CPT	Topless Trawl Net Mean CPT	Ratio Topless/ Control	Sample Size	T-test p value
FV Excalibur	Total Catch	378	339	0.90	20	0.049
FV Excalibur	Summer Flounder	113	96	0.85	20	0.113
FV Excalibur	Total non-target	265	243	0.92	20	0.123
FV Excalibur	Skate Complex	10	16	1.53	20	0.373
FV Excalibur	Smooth Dogfish	15	5	0.34	20	0.203
FV Excalibur	Spiny Dogfish	0.2	0.15	0.75	20	0.330

Note: about 30% target species, 70% bycatch species

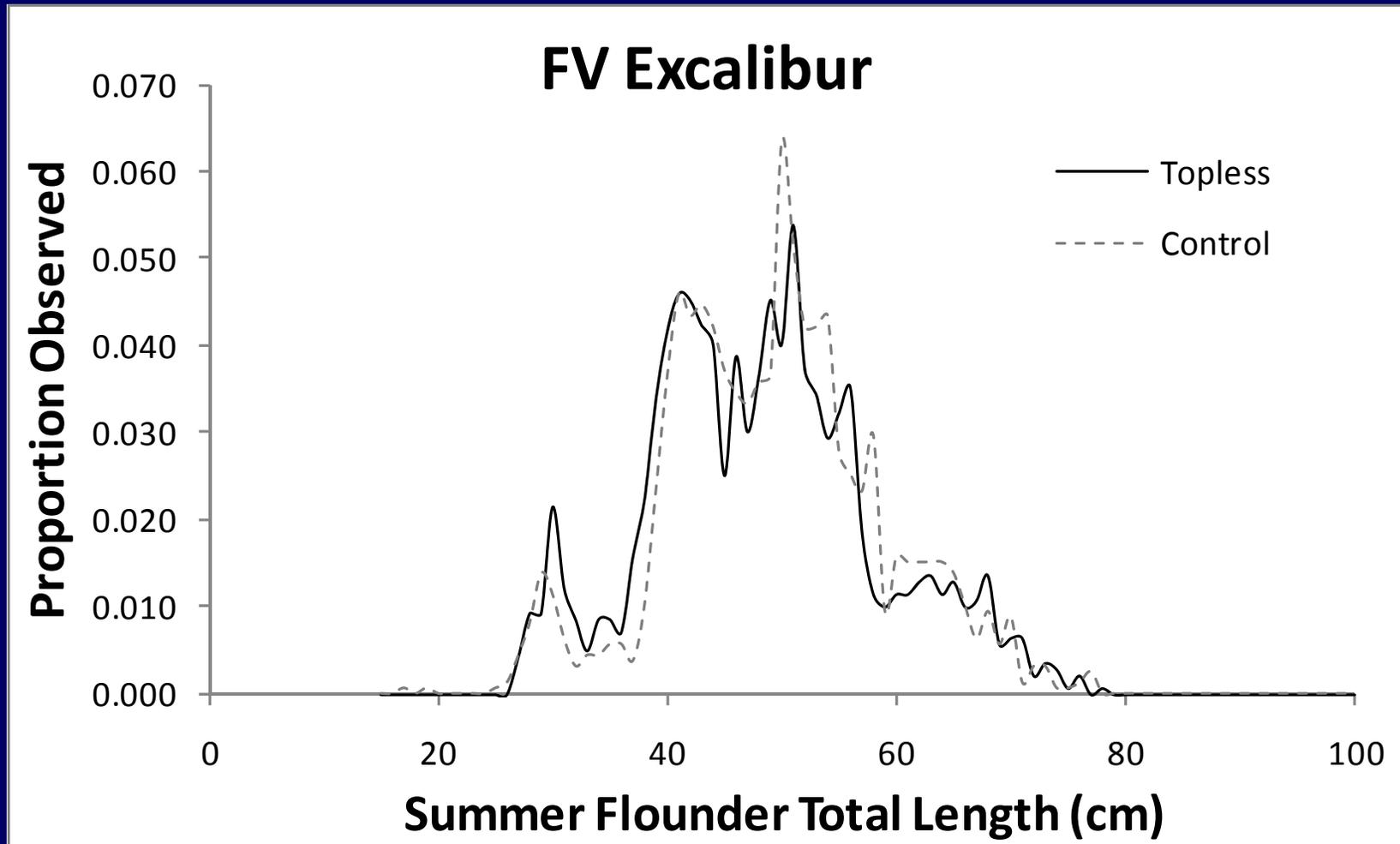
# Topless Trawl Evaluation: Combined Results

Vessel	Catch	Control Trawl Net Mean CPT	Topless Trawl Net Mean CPT	Ratio Topless /Control	Sample Size	T-test p value
Combined	Total Catch	1261	1256	1.00	41	0.946
Combined	Summer Flounder	195	206	1.06	41	0.391
Combined	Total Catch	1066	1049	0.98	41	0.802
Combined	Skate Complex	793	803	1.01	41	0.865
Combined	Smooth Dogfish	38	39	1.02	41	0.946
Combined	Spiny Dogfish	30	8	0.27	41	0.275

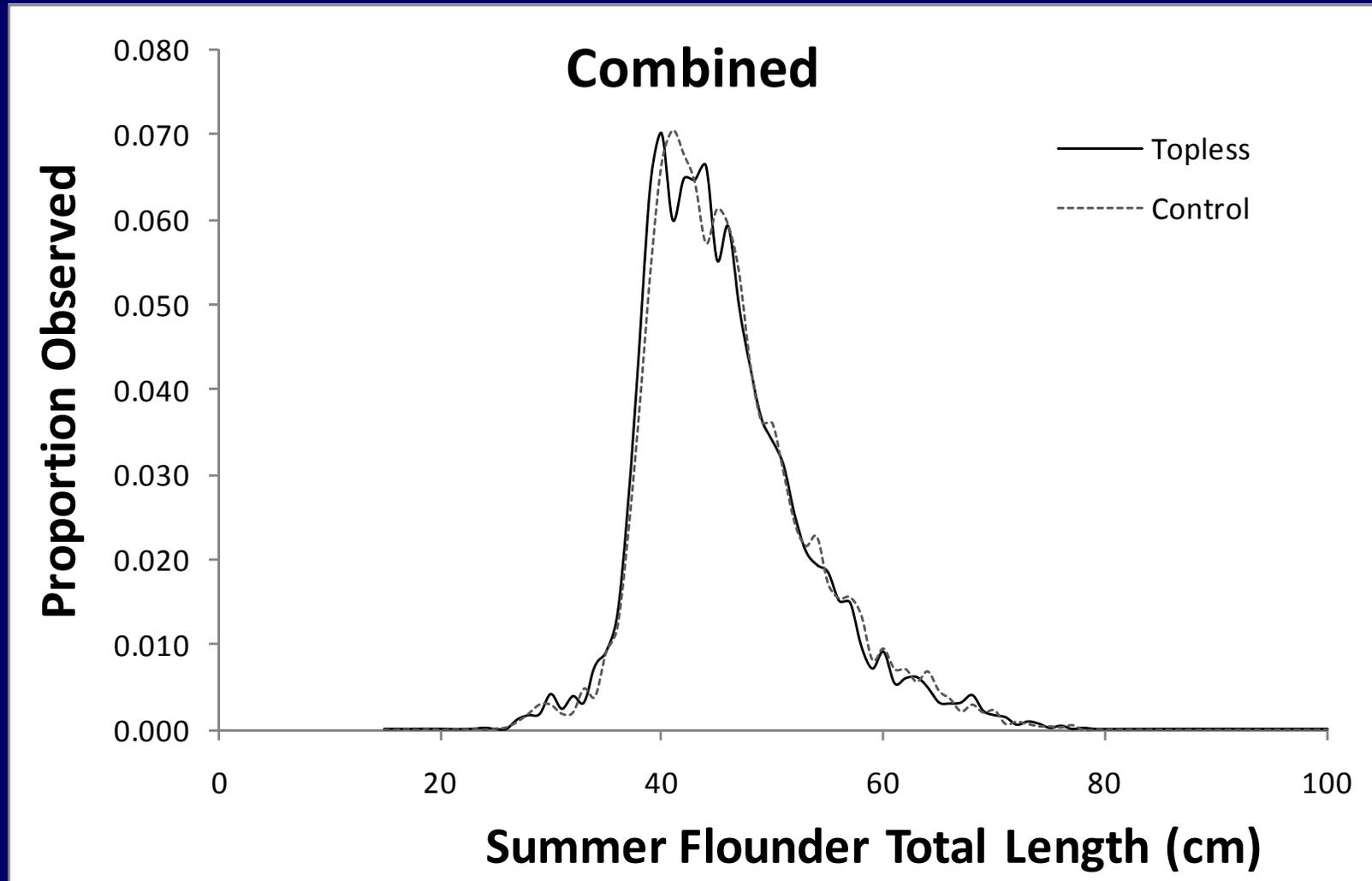
# Topless Trawl: Results



# Topless Trawl: Results



# Topless Trawl: Results



# Topless Trawl: Results



# Topless Trawl: Results



# Topless Trawl: Conclusions

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- 41 paired tows
- Overall, the topless trawl caught 6% more than the standard trawl, but not a significant difference from zero. A high bycatch fishery.
- There is a significant difference in the length frequency distributions, but it is minimal.
- A wild turtle test should be performed to determine if the topless trawl can effectively replace the fixed grid TEDs used to mitigate sea turtle interactions in the summer flounder fishery

# Topless Trawl: Funding

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- This project was another excellent example of real collaborative and cooperative research between the fishing industry, NMFS, and URI scientists.
- Project was funded from NMFS, NEFSC to DeAlteris Associates Inc.