



**“A method to reduce winter flounder retention through the use of an avoidance gear adaptation in the small mesh trawl fishery within the Southern New England/Mid-Atlantic winter flounder stock area.”**

**Lead PI: Emerson Hasbrouck—Cornell University**

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1. How closely did the research team follow the original planned scope of work?

The project followed the scope of work as modified by proposal reviewers' comments, specifically removing the 'drop-chain' aspect of the work and focusing on the large mesh panel work. This change was ultimately beneficial to the project, as retention of the original budget and number of trips allowed for more than a doubling of the proposed experimental and control tows for the large mesh panel experiment. This increased sample size increased the power of the statistical tests of the project's hypothesis that the large mesh panel would effectively reduce winter flounder catch while not reducing the target catch of squid.

2. If there were differences between scheduled and completed tasks, did the project team address these and explain why there were differences?

See above – otherwise, the field work and data compilation and analysis were completed as proposed. Unfortunately, the video work did not provide a useful product, but this appears to be due to environmental/field factors beyond the investigator's control.

3. In the results, analysis, and discussion sections of the report, did the team answer their original research question(s)?

The research team did respond to the original question, and the data collected and subsequent statistical analysis confirmed their hypothesis that the large mesh panel would be effective in reducing winter flounder bycatch while not significantly reducing squid catch.

4. Were analytical techniques appropriately used? Was the experimental methodology statistically sound and supportive of the conclusions drawn?

Appropriate analytical techniques were applied, and the results support the report's conclusion that the large mesh belly panel was effective in reducing winter flounder bycatch while allowing high retention of the targeted squid.

5. Was the raw data included in the appendix complete?

The complete raw data were not included in the material I received for review.

6. Was the information clearly presented? Were figures and tables appropriately used?

The background information and analysis were clearly presented, mainly in the figures and text, in the report. Some of the trip catch totals for winter flounder, squid, and sometimes whiting (silver hake) were usually reported in the summary Trip Reports provided at the end of the report.

A complete tabulation and some summary figures in the body of the report of the catches (e.g., trip ID, tow ID catch in lbs of each species caught/recorded) would be a valuable addition to help illustrate that magnitude of the biomass that moved across the deck in this project.

7. In the discussion section, did the team offer comments on results including observations made while conducting the research; explanations of why a particular gear, sampling strategy, or laboratory technique may or may not have worked as anticipated; how project research results may have advanced the knowledge base about the research topic area; and ideas about follow up research?

The report noted that the experimental gear worked as expected and was successful in achieving the conversation engineering goal of reducing winter flounder bycatch by ~88% while not reducing the catch of squid. The report suggests that future research might include testing the experimental gear in other small mesh fisheries that encounter species with low or prohibited possession levels.



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1. How closely did the research team follow the original planned scope of work?

The research team did follow the original planned study very closely. However, the proposed statistical analysis of using GLM and GAM regression approaches was not done. Perhaps a GLM approach could provide some insight on whether catches in the second tow were influenced by a possible disturbance effect of the first tow. This would not change the conclusion of the study but would be interesting if an effect was detected.

2. If there were differences between scheduled and completed tasks, did the project team address these and explain why there were differences?

Reasons for why the GLM and GAM regression analysis was not done were not explained in the report. However, an explanation for why the video work was not fruitful was given in the report.

3. In the results, analysis, and discussion sections of the report, did the team answer their original research question(s)?

Yes, the original question was answered by the study. The study found a statistically significant and substantial reduction of winter flounder bycatch while maintaining high catches of loligo. The strong effect of the gear tested made this a successful study. The gear effect results found in this study should make this an important study for fishermen and managers to consider.

4. Were analytical techniques appropriately used? Was the experimental methodology statistically sound and supportive of the conclusions drawn?

The study found a substantial effect in reducing winter flounder bycatch. The experimental methodology was statistically sound and supportive of the conclusions. However a more in depth analysis could have been done. A GLM analysis was not performed. The effect of a disturbance effect of the first tow was not investigated. Statistical significance on total numbers of fish rather than biomass was not reported. This could be important since length frequencies differed. Further investigation on other commercial important species specific effects could be done (windowpane, summer flounder, skates, dogfish, scup, sea bass and monkfish)? An analysis breakup of round fish verse flatfish could also be useful. The focus of this study was on winter flounder but further investigations on other species could be important especially since a substantial gear effect was found.

5. Was the raw data included in the appendix complete?

No, I did not see an appendix of the raw data. In addition a table which summarized the catch by species for each trip and tow would be valuable and could help in the interpretation of other species specific effects.

6. Was the information clearly presented? Were figures and tables appropriately used?

Overall the information was clearly presented. Figure 1 and 2 would convey more information on distributions if they were plotted as box plots like in figure 3. A table summary of the catch by species on each tow would be useful.

7. In the discussion section, did the team offer comments on results including observations made while conducting the research; explanations of why a particular gear, sampling strategy, or laboratory technique may or may not have worked as anticipated; how project research results may have advanced the knowledge base about the research topic area; and ideas about follow up research?

The findings of this study are important because of the magnitude of the gear effect in reducing bycatch with no loss of the target species. There could have been more discussion on fishing efficiency benefits of using this gear for fishermen (cleaner catches which results in less labor/time in sorting the catch) along with important bycatch benefits for other species.