“An industry-based survey for winter flounder in Southern New England.”

Lead PI: Dr. Gerg DeCelles—University of Massachusetts Dartmouth/SMAST

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

Based on the survey design and number of anticipated tows (200), the research team followed the planned scope fairly closely. For example, out of the 200 proposed tows, 160 were completed. The team also modified their study accordingly, (i.e maximize study area by focusing on relevant flounder habitat) to ensure the optimal results were generated from their study.

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

Yes (see above for example). In addition, they also needed to make a change in personal which was explained thoroughly.

3. In the results, analysis, and discussion sections of the report, did the team answer their original research question(s)?
4. Were analytical techniques appropriately used? Was the experimental methodology statistically sound and supportive of the conclusions drawn?

This was a major strength of the proposal (no doubt due to Dr. Cadrin). Not only were the stats sound, they PI attempted to account for various unknowns such as vessel effects on the data.

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

Not that I found

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

Yes

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?

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

Reasonably well. The changes to the original survey design were all logical, reasonable, and well documented in the report.

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

Yes – as noted in the above response, the changes to the original design, the need to change vessels for one survey leg, etc. were all explained and seem reasonable.

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

Yes. The survey clearly addressed the goals. See comment below on tagging.

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

Yes. The analysis appears to be fairly sound, although I am not an expert in evaluating GAM models. I was a little confused by the treatment of depth as an explanatory model. It was excluded in the analysis of all surveys combined because including it produced unrealistic results. Yet it was the only explanatory variable included in the final model for trip 1. I think some elaboration of the treatment of depth is required.

(Fishing only in daylight hours, mentioned on page 21, should be included in the description of survey methods.)

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

There is plenty of summarized data in Table 1 to 8 of the report. I am not sure if the authors were meant to include all tow by tow data as an appendix – that would be unusual for a manuscript, but maybe required.
6. Was the information clearly presented? Were figures and tables appropriately used?

I think there could be some improvement here. Nothing major perhaps, but here are some suggestions/questions.

a) Put columns 3 and 4 of Table 8 in Table 2, eliminating Table 8.

b) Table 4 – Why are there small differences in the biomass in kg and biomass in mt, apart from the units? For example trip 1 biomass of 241,065 kg should be 241.07 mt, not 237.21. This level of difference exists for all data in this table. It is maybe just rounding of summed data, but all differences are in the same direction.

c) The final row in Tables 6 and 7 should be Survey mean, not Total.

d) Fig 1 printed very small in my version – these Figs should be larger in the final report.

e) Fig 4 – net diagram – perhaps would be better either as Fig 1 or Fig 8, thus keeping all the survey maps as consecutive Figs.

f) Fig 13 has depth and wire-out in m, yet much of the paper talks about depth in fathoms.

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?

Fig 11 – Some comment on the clear shift in the LFs to smaller fish in 2012 would be useful. Anything from other sources to confirm if this is a population effect, or possible a gear/vessel effect?

Fig 13 suggests that “wire-out” on the fourth trip was much greater on average than in the first 3. Total biomass on trip 4 was also much higher than trips 1-3. Was there a difference in mean depth towed on trip 4, and if not, could the wire-out have affected catches of winter flounder? Also, trip 4 appeared to catch a much higher proportion/number of small fish than the other 3 (comparing ratios of total and exploitable biomass in Tables 4 and 5. Should that be reflected in Fig 10, or do we need to see absolute numbers in that figure?

Comments on tagging. In the SNECRI final panel summary, concerns with the tagging component of the project were raised, which turned out to be correct. The authors state on page 19 that it is unclear why so few tagged fish have been recaptured, yet they go on to say that possession of winter flounder in the fishery is prohibited. It seems logical that they should not expect many returns under those circumstances. They also did not do any experiments to estimate survival of tagged fish, although it is recognized that facilities and time on board the vessels to do this were very limited. Finally, they estimate that the probability of capturing 1 of the 7845 tagged fish during the survey was likely very low. They could provide abundance estimates (calculated from numbers of fish caught, same way the biomass estimates were calculated from kg caught) to indicate what the population abundance may have been from the surveys, to put the probability of recapture in some context. Or compare with any recent estimates of fishing mortality on the stock.
Overall, the paper was well written and quite thorough. Could be shortened in a few places perhaps (if publication is important), but for a detailed report such as this, I found it quite acceptable. A good example of a successful science-industry collaboration on a survey.

Some minor editorial comments/suggestions on the paper in general:

Page 7, 3rd last line – should be 3258 square km.

Page 17, first line of Presentations should read: The design and results of the survey … (some of the meetings listed were pre-survey)

Page 18, Discussion, last line para 2: 30m fathoms – should be 30 fathoms? (I would prefer to see all depths given in m, but recognize that fm is likely the working unit of depth for the survey/industry)

Page 22 – last Summary bullet should note that 407.5 mt is the average biomass from the 4 surveys.
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1. How closely did the research team follow the original planned scope of work?

The research team followed the original proposal and original planned scope of work very closely. The project outlined an ambitious plan for surveying southern New England winter flounder aboard industry vessels over a period of five months (April to July 2012). The survey was successfully completed between April 28th 2012 and July 25 2012. The proposal also specified quick analysis of the data and dissemination of results. It appears full data analysis was completed by the Fall of 2012 with results presented at an international conference.

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

The research team did encounter some unforeseen problems prior to starting their survey and during the survey process. These issues resulted in slight deviations from the proposed work. However, the team did a good job addressing the issues while maintaining the overall goal of the project. The main issue was a change to the planned study area based on feedback from industry representatives. Based on this feedback the study area was changed to better match the goal of sampling winter flounder during the months of study. This change was documented and a “sampling modification” letter was sent to CFRF. A second issue involved originally planned fishermen selected tows. It was determined by assessment scientists that such tows would not be usable so the survey format was changed to 100% randomly selected tows. In addition to these two study design issues, there was an issue with one of the industry participants. The original work agreement for the third survey trip was terminated and re-assigned to a boat from an earlier survey leg.

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

The overall research goals of this project were to investigate the seasonal distribution of winter flounder off southern New England and provide a short-term index of relative abundance. The researchers hoped to gather information that could be used to inform the stock-assessment of southern New England winter flounder during a period a low sampling intensity (low commercial catch). The final report does a good job detailing how these goals were met through multiple different analyses of the data. The research team were
able to answer their original questions and provide updated information on the spatial distributions of the stock as well as useful metrics that could be used to help inform the assessment of southern New England winter flounder.

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

The report is very detailed about how the data were analyzed. Much of the analyses consisted of basic calculations and simple models (GAMS), which are appropriate for these types of data. More complex methods could be explored, but the methods used were successful at providing important information on the stock dynamics and status of southern New England winter flounder.

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

There was no appendix in the report and the data were only presented in tables and figures.

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

Yes, the tables and figures were clearly presented and did a good job complementing the survey design and the data that were collected. I would have liked to see larger versions of many of the maps as opposed to multiple maps that are neatly tiled to fit on one page.

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 discussion is very thorough and does a good job explaining the results and their significance as well as describing some of the weaknesses of the project. For example, the researchers explain that if they were to sample again it would have been more appropriate to shift their sampling window from April-July to May-August. Industry captains that participated in the survey indicated August was a good month for catching winter flounder and surveying during this time would have added much to the study. Another weak point of the study (hinted at by the review panel of the proposal) is the lack of tag returns for winter flounder. The project tagged almost 8000 fish and to date no tag returns have been reported. The discussion addresses this and offers multiple plausible explanations that could explain the lack of recaptures.

The discussion also captures the importance of this research and its relevance to assessment and management of southern New England winter flounder. The current management of this stock is contentious, with fishermen at odds with the survey data that are input into the assessment. The researchers detail how the collection and analyses of fishery independent data (separate from the NEFSC survey) is important to developing a better understanding of the current stock status leading to more informed management into the future.
The discussion did not seem to include any proposal to continue this type of research. A long-term industry based survey that is not linked to the NEFSC survey could have long lasting benefits to the management of southern New England winter flounder.