“Mapping and characterizing fish habitats in Rhode Island and Block Island Sounds.”

Lead PI: Dr. Jeremy Collie—University of Rhode Island

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

The match between the work actually accomplished and the planned scope of work is remarkably close given all the uncertainties associated with a multi-faceted field study like this one. Apparently the only significant point of departure is the delay in deployment of the video camera which resulted in video surveys only being conducted in summer 2012 rather than summer, fall, and spring of 2010-2011 and summer and fall of 2011-2012. Nevertheless, the total number of stations surveyed with the video gear was 106, compared to 120 planned. So, although the seasonal contrast in the original design was lost, they were able to make up much of the total sample size.

Some of the analysis of field data has not yet been completed. For example, the benthic habitat parameters have not yet been derived from analysis of the side scan sonar data. Although it’s not entirely clear from the description on the bottom of page 11, it sounds like the analysis of the still photos and videos has not yet been completed either. This is not unexpected given that it is less than one year since some of these data were collected and the delay in gathering the video data also delayed the analysis.

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

The final report does address the delay in configuring the video sampling gear which caused the video sampling to differ from the original schedule and seasonal coverage. This delay was unfortunate, but not at all uncommon when using new equipment.

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

Yes, nearly all of the descriptive questions were answered by the research results. The bigger questions about abiotic environmental controls on abundance and community composition and potential shifts in species and communities in relation to climate change are still only partly answered. This is to be expected given the limited temporal and geographic scope of the project.
4. Were analytical techniques appropriately used? Was the experimental methodology statistically sound and supportive of the conclusions drawn?

Yes, it appears that the analysis was conducted using appropriate descriptive multivariate statistical methods.

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

Unless I missed some additional component of the appendix, there were no “raw data” included in the report. There are four supplementary figures showing various tow level statistics (e.g., total biomass and species evenness), but there is no raw data. I wouldn’t expect to find raw data in an appendix of a project report unless it was specifically requested. If the CFRF requires investigators to provide raw data (which is unusual, but not a bad idea), I would suggest that they request it in some more useable form (e.g., MS Excel file or MS Access database) than a printed table in an appendix.

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

Yes, this was a very clearly written report with many supporting graphics that were all well-integrated into the text.

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 section is pretty brief and doesn’t offer as much commentary on these subjects as might be desired. For example, there is no discussion of “next steps” for future research. Many of the conclusions are also pretty basic (e.g., “Underwater video and photographic surveys can be used to ground truth acoustic data, assess habitat type, and examine fine-scale variability in seafloor features.”) and unsurprising.

Still, this project was clearly billed as a descriptive study of a defined area of Block Island Sound and Rhode Island Sound. The PIs accomplished nearly everything they promised and the results are likely to be very relevant to spatial management decisions in this region.
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1. How closely did the research team follow the original planned scope of work?

The collection of data followed the proposal fairly closely though fewer samples were collected for photographic surveys (proposed 120, collected 106) and beam trawling (proposed 80, collected 52). The PIs fell far short of the stated objectives of analyzing the acoustic survey data and photographic/video transect data that was collected. No results from those two surveys were presented other than that shown in Figure 4 of the Final Report. In the proposal, that PIs planned to create a GIS layer of detailed habitat types found in RIS/BIS and would also quantify percent cover of colonial epifauna in the region. These data were not presented or included in the Final Report.

However, the PIs did collect additional diet and stable isotope data than was proposed (proposed 12 species for diet and tissue collection and 2 species for tissue collection only; collected diet and tissue samples from 22 species and tissues from an additional 4 species).

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

The project team addressed the delay in collecting photographic/video surveys due to a design and construction issue with the camera operating system. The PIs did not discuss any other difference between the proposed work and what was collected (e.g., beam trawling 52 stations instead of the 80 proposed stations). Nor was there a timeline supplied for when to expect completion of the acoustic GIS layer or photographic/video transect. The PIs do state that these are preliminary results leaving me wonder if additional work is scheduled.

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

The original research objective was to “…classify and map fisheries habitats, based on benthic habitat characteristics and site-specific fisheries data...” and I do not believe this has been accomplished.

There remains a large portion of the proposed work to be completed. The Acoustic survey results and video/photographic results were not completed and therefore could not be compared with the fish collections or diet data. The relationship between the differing habitats found in the RIS/BIS region and the fish community composition, species abundance, and diet data was the important part of the project. We have a pretty good idea of what the major species found in the study eat prior to this project, it was the linkage to habitat that was unique and interesting.
Results of the diet analyses and stable isotope work have been summarized and comparison of catches between beam trawls and the NEAMAP survey gear have been completed as well. There has been some comparison of fish data with habitat data using multidimensional analyses that identify community structure in the survey region.

4. Were analytical techniques appropriately used? Was the experimental methodology statistically sound and supportive of the conclusions drawn?
The use of multivariate analysis is appropriate for these types of data. I think the PIs were careful in their comparison between trawl gear types and based conclusions appropriately. However, the PIs did not perform size spectra analysis of the data and I did not see a comparison with historic GSO fish trawl data as proposed. It is unclear how the diet data were analyzed and if a cluster estimator was used (or needed) to account for the non-independence of fishes collected in the same tow.

5. Was the raw data included in the appendix complete?
Raw data was not included in the appendix. It would have been helpful to have a species list and number of individuals captured for each of the trawl gears. Additionally, a summary of the water quality data from each tow would have been informative and helped describe the abiotic characteristics of the study area. Furthermore, a summary of the acoustic survey and photographic/video transect data are lacking.

6. Was the information clearly presented? Were figures and tables appropriately used?
The figures were informative though did not include water quality data or habitat data in such a way that I feel I understand the RIS/BIS system. The ordination figures could have had vectors showing the direction of change for significant drivers in this system that would have helped interpretation of the results.

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 section was very weak for a final report and did not include 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 was a series of general statements and did not sufficiently address the study results or significance to RIS/BIS. My overall conclusion is that this study is not complete. The samples have been collected, but results, analyses, and interpretation of findings remains unfinished.