Appendix I: NEFMC RSA Review Panel

Name	Affiliation
Dr. Michael Sissenwine	Chair of RSA Review Panel New England Fishery Management Council member, MA
Ms. Deirdre Boelke	New England Fishery Management Council, Newburyport, MA Fishery Analyst
Ms. Cheryl Corbett	Northeast Fisheries Science Center, NMFS, Woods Hole, MA Federal Program Officer
Dr. Daniel Hennen	Northeast Fisheries Science Center, NMFS, Woods Hole, MA Operations Research Analyst
Ms. Susan Olsen	Greater Atlantic Regional Fisheries Office, Gloucester MA Fisheries Biologist
Mr. Ryan Silva	Greater Atlantic Regional Fisheries Office, Gloucester MA Cooperative Research Liaison

Mr. Brandon Muffley, MAFMC staff participated as an observer.

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

Research Set-Aside Program

Review Guidance

2/22/2018

The New England Fishery Management Council uses research set-aside (RSA) programs in three fisheries (Sea Scallops, Monkfish, and Atlantic Herring). The programs use a set-aside of fishery resources (quota or days-at-sea) to generate revenue that is used to conduct needed research. While the programs are generally viewed as successful, the Council is interested in examining the programs in order to identify potential improvements.

The review will be conducted by a panel of six members: two each from the New England Fishery Management Council (NEFMC), Greater Atlantic Regional Office (GARFO) and the Northeast Fisheries Science Center (NEFSC). The panel will work via correspondence, conference calls, webinars, or meetings at the discretion of the panel members. One of the NEFMC representatives will organize and chair any meetings, webinars, or conference calls of the panel.

The panel, working under the direction of the Executive Committee, will prepare a written report that addresses the questions identified by the Executive Committee (see below) or identified by the panel. All questions should be addressed for each RSA program. The panel may also address other RSA issues after conferring with the Monkfish, Herring, or Sea Scallop Committees. The report should delineate the existing processes and recommend any changes. The panel should identify those changes that may take a management action and those that can be implemented without an action. The report should be completed by May 15. If possible, the draft report will be discussed with the Sea Scallop, Monkfish, and Herring Committees prior to presentation to the Council at the June 2018 Council meeting. This target date was chosen so that improvements can be considered for the next RSA cycle.

Program Administration

- What are the roles of the NEFMC, GARFO, and the NEFSC? Are these appropriate?
- How are research priorities determined for each program?
- How are technical reviewers identified?
- How are management reviewers identified?

- How are technical and management evaluations combined to select grant award recipients? What is the process used to make awards?
- Is conflict of interest an issue in the review process; can improvements be made?
- Can the award decision process be improved from the perspective of awarding the highest quality science best linked to program priorities?
- Are measures in place to ensure financial accountability of award recipients? Are financial requirements of the program being met? Is required financial documentation submitted? Are audits of the grantees institutions required or desirable?
    - Does the public understand how the program works? Is the process transparent? What improvements could be made?
- What problems or difficulties are experienced by the program administrators? What improvements could be made?

Program Structure

- Are projects used for research or for routine fishery science and management purposes (i.e. is the RSA program used for research or to supplement agency funding)?
- What factors limit or promote the interest of industry in participating in the RSA Program?
- Is it possible to extend the period funding for proposals in general and survey proposals specifically?
- Are sufficient resources set aside to provide meaningful grant opportunities?
- Currently the program is run as a competitive grant program. Are there alternatives that could be used? Is there a way to use contracts within the RSA program? If a grant must be use, can the RFP be written more narrowly to accomplish specifically designed tasks?
- Is there sufficient funding to support the administration of RSA programs, which have grown over the years? Is there a way to use RSA awards to support program administration, potentially including the staff support with review and selection of proposals, follow-up with recipients, dissemination of research results, education and outreach for new participants?
- Are state requirements and management objectives taken into account in the awards?
- Are there ways to increase the value of RSA compensation fishing so that more dollars are provided for research?
- Is compensation fishing consistent with the goals and objectives of the respective FMPs and the RSA programs?

Results

- How are completed projects evaluated to make sure goals of the program are achieved?
- For the last five years, what projects have been completed? How many of these projects were used in the assessment or management of the fishery?

- What is the breakdown on the number and amount of awards to each recipient? Is participation in the program (number of applicants, number of successful applicants, etc.) changing?
- Are the results of the programs meaningful to the fisheries?
- Is there a way to determine whether the research projects have been cost effective and if so, what are the findings for recent awards?
- What metrics are used to evaluate the performance of award recipients? Is past performance considered when making future awards?

Appendix III: RSA Survey Results

Introduction

The RSA Review Committee designed a survey to elicit feedback from users of the NEFMC RSA programs for scallops, Atlantic herring and monkfish. The purpose of the survey was to better understand perceptions of RSA performance among the various stakeholders, administrators and other interested parties who work with RSA. The survey was distributed online and potential respondents were notified by email and sent a link to the survey. The survey consisted of 42 total questions and contained both pre-defined and open-ended type response options. The survey had eight sections, each concerned with a different aspect of the RSA program. The sections were: 1) General RSA Feedback, 2) RSA Priority Setting, 3) RSA Proposal Solicitation, 4) RSA Proposal Review, 5) RSA Proposal Selection, 6) RSA Science and Research, 7) Monetizing RSA Awards, and 9) Closing Thoughts.

The survey went live on August 15 and closed on September 17. There were 55 total respondents. The response rate was highest during the first week of the survey and responses rapidly tailed off until there were no further responses in the final week of the survey (Figure 3-1). Respondents to the survey represented a broad range of interested parties. These included members of the Mid Atlantic and New England Fisheries Management Council, members of Advisory Panels, Plan Development Teams, non-governmental organizations and other committees, as well as RSA grant applicants, recipients, fishermen and NOAA Fisheries employees (Figure 3-2).

Results

A1. General RSA Feedback

Q2: The General feedback section asked respondents which RSA programs they were familiar with. Only 3.7% of respondents (2 individuals) were not directly familiar with any of the three RSA programs (Figure 3-3). 54 individuals answered this question and 1 person skipped it.

Q3: Respondents were asked to describe the primary purpose of the RSA program. 52 respondents answered and 3 did not. Answers were open ended and somewhat difficult to fully categorize. In general, responses aligned with several broad themes (Figure 3-4). In some cases one response fell into several categories.

Q4: Respondents were asked if the RSA program effectively met its intended purpose and goal. This question followed Q2 in which respondents were asked to define the goal of RSA, so the response here probably reflects how well RSA meets its intended goals as each respondent understood them. In general, the respondents believed RSA was meeting its goals (Figure 3-5). 1 individual skipped this question and the rest responded. 42 respondents added additional comments on this question, which asked respondents to mention the specific program they

were referring to. Of the 9 respondents who selected either “Disagree” or “Strongly disagree” (see Figure 3-5), 3 specified the monkfish program and 2 the herring program. The remaining 4 negative responses were not specific to a particular species program, but 2 did mention abuses by fishermen in implementing the awarded fishing opportunities. Of the 38 respondents who selected either “Agree” or “Strongly agree”, 14 referred to the scallop program only, 1 referred to the monkfish program only, 0 referred to the herring program only, 10 referred to either all or some combination of programs and 13 did not specify a program.

Q5: Respondents were asked if the resources used by NOAA and NEFMC to implement the RSA programs were sufficient. Approximately 28% of respondents did not believe there were adequate resources devoted to RSA, while about 26% of respondents believed resources were adequate (Figure 3-6). This question included an open ended solicitation for suggestions for improving support, which provoked 27 responses. Among the 15 who responded with “Strongly disagree” or “Disagree”, there were 10 suggestions. 7 respondents called for more staff from either NOAA or NEFMC dedicated to RSA, 1 called for more data management resources, 1 called for better valuation of a day at sea, 2 specifically cited NOAA for not dedicating more resources to RSA and 2 believed that NEFMC should take on a larger role in RSA.

Q6: Asked whether respondents were adequately informed about how RSA programs are managed. Approximately 54% of 54 total respondents selected “Strongly agree” or “Agree”, while about 26% of respondents selected “Strongly disagree” or “Disagree” (Figure 3-7). This question included an open-ended question about what aspects of the program respondents would like to be better informed on, which provoked 24 comments. Of the 14 who responded negatively (“Strongly disagree” or “Disagree”), there were 5 responses. 2 of these called for greater transparency, 1 called for a detailed synopsis of the program and one called for a description of the precautions taken to avoid abuses by fishermen.

Q7: Asked if respondents had visited the RSA website. 74% of the 54 total respondents had visited, while 22% had not (Figure 3-8). This question included an open ended response request for suggestions on how the website could be improved and 14 respondents included suggestions. Of these, 3 were requests to simplify the site and 7 requested better access to completed project reports.

RSA Priority Setting

Q8: Asked how well communication about the RSA priority setting process works. 30 of 48 (63%) respondents felt they were adequately informed, while 8 of 48 (17%) felt they were not. This question included an open ended request for suggestions to improve the priority setting process, which prompted 21 responses. Suggestions from those who felt they were adequately informed included 3 desirous of more input from more diverse stakeholders, including industry and 3 who wanted a more efficient process with fewer people involved. Only one respondent who felt they were not adequately informed included a comment, but they did not provide any suggestions for improvement.

Q9: Asked whether respondents had sufficient opportunities for input as priorities are developed. 23 of 48 (48%) felt that they did, while 17 (35%) felt that they did not (Figure 3-10).

Q10: Asked if there is sufficient deliberation and planning as priorities are set and if those priorities are integrated with an overall strategic plan. 15 of 46 (33%) felt that there was sufficient deliberation and linkage to an overall plan, while 12 (26%) felt that there was not (Figure 3-11). This question included an open ended request for suggestions to improve the overall strategic plan for RSA research, which drew 18 comments. Of the respondents who felt that there was not sufficient deliberation, or adherence to a strategic plan, 7 provided suggestions. Of these, 5 were not aware of, or did not believe there was a strategic plan. Others suggested reviewing the plan with a wider audience.

Q11: Asked if the number of priorities is correct for RSA programs. 18 of 48 (38%) felt the number of priorities to be correct and 12 of 48 (25%) felt they were not (Figure 3-12). This question included an open ended request to explain why the number of priorities was incorrect and which program the respondent was referring to. There 13 responses to the open ended component. Of these only 4 mentioned a particular program (2 scallop only and 2 scallop and herring). 7 respondents felt there were too many priorities and none specifically cited too many priorities in a particular program as being a problem, though 2 mentioned there may be too few priorities in "some" programs.

Q12: Was a question regarding how priorities work in terms of applicants being able to address the issue at hand. 4 of 45 (9%) respondents felt the priorities are "too specific" in terms of enabling applicants to address the issue, while 10 of 45 (22%) felt the priorities were "not specific enough", and 31 of 45 (69%) felt the priorities were "about right" (Figure 3-13).

RSA Proposal Solicitation

Q13: Was a question about the communication of the funding opportunities to prospective applicants for funding. 28 of 46 (61%) respondents thought that communication was sufficient, while 6 of 46 (11%) thought that it was not (Figure 3-14). This question asked for suggestions for additional outreach methods and 9 respondents provided comments although none of these were specific suggestions.

Q14: Asked whether announcements of opportunities provided enough information. 29 of 46 (63%) of respondents agreed that announcements provided sufficient information, while 8 of 46 (14%) felt that they did not (Figure 3-15). This question asked for suggestions for improvements, and 8 respondents provided comments. These suggestions included: maintaining a stronger link between the priorities and the management, providing sample of budgets to help applicants figure out how to determine the value of fishing opportunities, and better descriptions of how the reviews are weighted relative to the overall costs in the evaluation process.

Q15: Asked respondents if they thought competition between grant applicants enhanced results. 17 of 46 (37%) agreed that it did, while 13 of 46 (28%) felt that it did not (Figure 3-16).

Respondents were asked to explain their answer and 24 did so. Four individuals who agreed with the premise in Q15 submitted explanations and three of these felt that having to compete for RSA money improved the quality RSA funded projects. Nine of those submitting explanations disagreed with the premise in Q15 and generally felt that competition reduced collaboration (5) or felt that there was no real competition as the same groups were funded year after year regardless of the quality of their proposals and results (3).

Q16: Asked if RSA projects would be more useful if NEFSC scientists were more involved. 15 of 46 (33%) thought that RSA projects would be more useful if NEFSC scientists were more involved and 14 (30%) felt they would not (Figure 3-17). Respondents were asked to explain their answer and 27 did so. Of these, 3 respondents did not support more NEFSC involvement because they valued the independence of RSA projects and 4 respondents did not support more involvement because they did not trust NEFSC scientists, and 1 perceived a conflict of interest in allowing more involvement. 3 respondents supported more involvement because it would build trust between industry and NEFSC, 4 cited good existing relationships between the scallop scientists and RSA (though 1 cited the scallop scientists as obstructionist), 1 suggested sampling design would benefit from more NEFSC involvement, and 2 qualified their support as dependent on the project and program involved.

RSA Proposal Review

Q17: Asked if respondents had participated in an RSA review. 13 of 44 respondents had participated in a technical review and 12 of 44 respondents had participated in a management review (Figure 3-18). Respondents were asked to characterize their experience and 17 did so. 8 participants characterized their experience as positive and 3 negative.

Q18: Asked if technical reviews were sufficient to assure the scientific quality of RSA supported research. 17 of 44 (39%) felt the reviews were sufficient and 7 (16%) felt they were not (Figure 3-19). This question asked for suggestions to improve the technical review process and 18 respondents provided comments. Of these, 3 respondents perceived bias in reviews, 2 called for additional peer review, and 1 called for better continuity from year to year.

Q19: Asked if management reviews were sufficient to assure the RSA research is useful for fishery management and adequately considers industry interests. 16 of 44 (36%) thought the reviews were sufficient and 10 (23%) thought they were not (Figure 3-20). This question asked for suggestions to improve the management review process and 16 respondents provided comments. Of these, 2 called for more industry involvement, 3 called for greater transparency and 1 called for better tracking of fulfillment.

Q20: Asked if respondents had concerns over conflicts of interest in the technical or management review process. 16 of 43 (37%) said “yes” they had concerns and 19 (44%) said “no” (Figure 3-21). This question asked respondents to explain their answer and 20 provided comments. Of these, 3 cited rumors of conflict of interest but did not provide specific examples, 2 noted that often applicants are also reviewers (management reviews), 1 noted that the same

organizations seem to get funded every year, 1 suggested instituting blind reviews, and 1 suggested better enforcement of conflict of interest rules.

RSA Proposal Selection

Q21: Asked if the current review process enables NOAA fisheries to select the most useful RSA projects. 24 of 44 (55%) answered “usually” or “always” and 12 (27%) answered “sometimes” (Figure 3-22). This question also asked respondents to explain their answer and 20 provided comments. These were indicative of the general support the statement in Q21 received from respondents (no one responded with “rarely” or “never”). Some individuals pointed out that only a few of the RSA projects seem like a waste of money and others felt unable to give specific answers due to a lack of knowledge regarding unfunded projects.

Q22: Asked if NOAA fisheries provides enough information regarding selection decisions. 16 of 44 (37%) felt that NOAA fisheries provides enough information and 12 (27%) felt that they do not (Figure 3-23). This question asked for suggestions to improving the way selection decisions are communicated and 14 respondents provided comments. Of these, 4 felt that funding decisions were not well justified in the feedback they received and 3 felt that all reviews should be made public to increase the transparency of decisions.

RSA Science and Research

Q23: Asked if there is sufficient transparency and accountability related to RSA research reporting, oversight and follow through. 14 of 43 (33%) thought there was sufficient reporting, oversight, and follow through, while 19 (44%) felt there was not (Figure 3-24). This question also asked for suggestions to improve transparency, accountability, and follow through of RSA results, and 19 respondents provided comments. Of these, 8 called for greater access to RSA project materials, including final and interim reports (3 respondents), technical and management reviews (2) detailed financial accounting (2) and better status reports, perhaps through “share days”, or presentations to Councils (2). 3 other respondents were unhappy with the failure of some award recipients to complete their projects and suggested that future submissions by those individuals should be docked points. 1 respondent called for better descriptions of how RSA projects were subsequently used in management and 1 respondent called for better data archiving.

Q24: Asked if research results were available in a timely manner. 17 of 43 (40%) thought results were available in a timely manner and 11 (26%) felt they were not (Figure 3-25).

Q25: Asked if RSA programs effectively produce information used in fishery management and/or stock assessments. 22 of 43 (51%) thought that RSA effectively produced information used and 6 (14%) did not (Figure 3-26). This question also asked respondents to identify which programs their answer referred to and if they had ideas to enhance the utility of RSA information, which provoked 26 responses. Of those who thought RSA information was effectively used, 15 were referring to scallops, 5 to monkfish and 3 to herring. Of those who

thought RSA information was not effectively used, 1 was referring to scallops, 1 to monkfish, and 2 to herring. Suggestions for enhancing the utility of RSA information included more industry input (1 respondent), adding flexibility to the way RSA quota is utilized (1), establishing clear pathways for RSA information to be used in stock assessments (1), and better explaining research needs (1).

Monetizing RSA Awards

Q26: Asked if the process of monetizing fishing opportunities to fund RSA research is effective. 22 of 40 (45%) said that it was effective, while 8 (20%) said it was not (Figure 3-27). This question included a request for why or why not and which program was being referred to, which provoked 23 responses. Among those with positive ("Strongly agree" or "Agree") responses and comments, 5 were referring to the scallop program and 1 to the monkfish program. Among those with negative responses ("Disagree" or "Strongly disagree") 3 were referring to the herring program and 1 to the monkfish program. Supportive comments generally lauded the process for the way it brings science and industry together. Negative comments were focused on the administrative burden, and the difference between estimated and actual prices.

Q27: Was an open ended question asking for ideas to increase the monetized value of RSA fishing opportunities in order to support more research. 26 respondents provided comments (Table 3-1).

Q28: Asked if the amount of RSA fishing access should be increased, decreased, or maintained as is. 11 of 34 (32%) thought fishing access should be increased, 4 (12%) thought is should be decreased, and 19 (56%) thought it should be maintained (Figure 3-28). This question also asked respondents to identify the program their answer referred to, which provoked 21 comments. Of those who provided comments, 4 thought scallop access should be increased, 1 thought scallop access should be decreased and 5 thought it should be maintained, for monkfish 2 wanted to increase access, 1 decrease and 2 maintain, while for herring, 1 wanted to increase access, 1 decrease and 4 maintain.

Q29: Asked if respondents would favor an increase in RSA access, even if it meant a reduction in non-RSA access. 8 of 37 (22%) said "Yes", and 16 (43%) said "No" (Figure 3-29). This question asked respondents to explain their answer and 22 provided comments. Among those who said "yes" to increasing access for RSA and provided comments, all pointed out that industry should support own research and development (or management) to a larger extent. Among those who answered "no" and provided comments, 4 pointed out perceived unfairness of the distribution of current funds, to either particular researchers or fishermen. 2 others would support increases if industry wanted them, but suspect that they do not.

Q30: Asked if respondents would favor a decrease in RSA access, even if it meant a reduction in research. 5 of 39 (13%) said "Yes" and 24 (62%) said "No" (Figure 3-30).

Q31: Asked if the requirement to monetize fishing opportunities affects the quality of applications submitted to RSA. 18 of 49 (47%) said “Yes”, while 12 (31%) said “No” (Figure 3-31). This question also asked respondents to explain their answers and 17 provided comments. Many comments in both the “No” and “Yes” categories pointed out that this requirement is key to maintaining the connection between fishermen and scientists and should not be changed even if it does affect the number of applicants.

Q32: Asked if the uncertainty in the monetized value of fishing opportunities affect the applicant's ability to complete their work. 24 of 40 (60%) said “Yes”, and 6 (15%) said “No”. This question also asked respondents who selected “Yes” to explain their answers and provide suggestions for reducing this risk, and 21 provided comments (including 3 who answered “No” and 1 who answered “Don’t know/unsure”). Suggestions for reducing risk included allowing for alterations in work plans, and a pre-research auction.

Q33: Asked if having grant recipients be responsible for monetizing RSA fishing opportunities was beneficial or detrimental to the success of RSA. 7 of 40 (18%) believed it was beneficial, 6 (15%) thought it was detrimental, 17 (43%) thought it was both beneficial and detrimental and 5 (13%) thought it had no effect (Figure 3-33). This question also asked respondents to explain their answer and 18 provided comments. In general, most commenters thought that having grant recipients be responsible for monetizing RSA fishing opportunities was beneficial because of the relationships generated between scientists and fishermen and detrimental because of the overhead associated with it.

Q34: Asked if the estimated value of RSA fishing opportunities have been accurate when awards have been given. 8 of 39 (21%) thought that they had been, while 11 (28%) thought that they had not (Figure 3-34). This question also asked which program the respondents answer referred to and if they had any suggestions, which provoked 20 comments. Among positive responders (“Agree” or “Strongly Agree”) 1 identified the scallop program. Among negative responders (“Disagree” or “Strongly disagree”), 5 identified scallops, 4 identified monkfish and 1 identified herring. Suggestions included having applicants propose a flat rate, having a small reserve to make up short falls, or having grant applicants assume the risk and live with the results.

Q35: Asks if there is sufficient program flexibility to respond when the estimated value of RSA fishing opportunities is substantially different than expected. 7 of 39 (18%) thought there was sufficient flexibility, while 12 (31%) thought there was not (Figure 3-36). Respondents were also asked to provide examples, which provoked 15 responses. Among these were examples of insufficient flexibility in fishing regulations, but no specific examples of inflexibility in RSA programs.

Q36: Asked if respondents were directly involved in compensation fishing. 13 of 40 (33%) said “Yes”, while 27 (68%) said “No” (Figure 3-36). Respondents were also asked to describe their experience, which provoked 12 comments. Among commenters were 3 grant recipients, 4 fishermen, 1 researcher who had been on compensation trips and 1 administrator.

Q37: Asked if there are adequate controls, transparency, and accountability for the use of compensation fishing. 11 of 39 (28%) agreed that there were, while 11 (28%) felt that there were not (Figure 3-37). This question asked respondents to explain their answer, which provoked 14 responses. Among these were several calls for better reporting and a suggestion that RSA trips should be declared so that commercial fishing cannot take place on the same trip.

Closing Thoughts

Q38: Asked about the importance of the scallop RSA program in terms of supporting management and enhancing scallop research. 31 of 41 (76%) said the scallop RSA was either "Extremely important" or "Very important", while 0 (0%) said scallop RSA was either "Not so important" or "Not at all important" (Figure 3-38). Respondents were also asked to identify the greatest strengths and weaknesses of the scallop RSA program (Table 3-2).

Q39: Asked about the importance of the herring RSA program in terms of supporting management and enhancing herring research. 2 of 40 (5%) said the herring RSA was either "Extremely important" or "Very important", while 5 (13%) said herring RSA was either "Not so important" or "Not at all important" (Figure 3-39). Respondents were also asked to identify the greatest strengths and weaknesses of the herring RSA program (Table 3-3).

Q40: Asked about the importance of the monkfish RSA program in terms of supporting management and enhancing monkfish research. 8 of 40 (20%) said the monkfish RSA was either "Extremely important" or "Very important", while 4 (10%) said monkfish RSA was either "Not so important" or "Not at all important" (Figure 3-40). Respondents were also asked to identify the greatest strengths and weaknesses of the monkfish RSA program (Table 3-4).

Q41: Was an open ended question asking if there was anything else respondents would like communicated to the RSA Review Panel. This question provoked 8 substantive responses (Table 3-5).

Q42: Was a question asking if respondents would be interested in discussing their responses in more detail. 25 of 39 (64%) answered "Yes" and 14 (36%) answered "No" (Figure 3-41).

Discussion

Response rate declined over the course of the survey indicating some degree of attrition among respondents and perhaps indicating the survey should have been shorter in order to maximize responses (Figure 3-42). Some questions had fewer total respondents than others, making conclusions regarding outcome somewhat dependent on response rate.

Based on the answers to Q1 and Q2 there were, at best, limited sample sizes with expertise in specific overlapping areas. For example, the affiliation with the highest response rate,

“Fisherman or fishing industry representative”, was 16. Of these, only 3 were familiar with the herring RSA program. It would be difficult to conclude that the survey provided sufficient sample size to fully characterize the opinions of this particular combination of affiliation and program (Table 3-6). Sample sizes were larger for other combinations of affiliations and programs, for example there were 10 advisory panel members that were familiar with the scallop RSA program. Dividing the survey responses by affiliation and/or program familiarity may be of further interest, but should be approached with caution as the relevance and generalizability of conclusions drawn from these samples will depend on the sample size.

Respondents were most familiar with the scallop RSA program (Figure 3-3) and responses were probably biased towards scallop specific issues. Fishermen and fishing industry representatives were the most frequent affiliation cited (Figure 3-2), so responses may be somewhat biased toward their perspective. Respondents were least familiar with the herring RSA program, so responses may not reflect complete working knowledge of herring related RSA issues. MAFMC council members were the least represented affiliation in the survey and their perspective may not be adequately represented. Interpretation of responses by program, however, is difficult because of small sample sizes (Figures 3-43-3-44).

Tables

Q 27: Do you have ideas to increase the monetized value of RSA quota and days at sea (DAS) so that more research can be supported? Can you identify the primary benefits and costs of these approaches?
A trustworthy independent method to auction off quota would help.
An option is to auction RSA fishing opportunities separate from the projects that are funded by RSA. Conceptually, I would expect an auction to generate more net revenues after transaction costs that are real no matter how RSA fishing opportunities are monetized. These costs are real and they reduce the amount of funding for research regardless of how the monetizing is done. The transaction costs are more visible with a third party auction, which is probably a reason some people are against an auctions. Aside from the amount of net revenue a third party auction might generate, it has the advantage of greater transparency and accountability if managed properly. It would also give greater flexibility in what projects are supported by RSA and it would attract for scientists with broader expertise.
ask dealers about market conditions
consider incorporating the ongoing work of the trawl advisory panel to the
for lower value species maybe exemptions from regulations would be more effective than additional catch (i.e. access to closed areas, higher possession limits)
Herring rsa should be a percentage of landings, so all vessels contribute.
Just don't create an auction. Maintain engagement of industry directly with the researcher.
Make compensation a function of current dockside value
More lbs for less $$$. We also need the ability to switch from regular DAS to RSA while at sea
quite the opposite, the monetized value of RSA day for monkfish has decreased over the years. In the first years, it was about 28 percent of landings. Recently this has been more around 14 percent due to fishermen’s profit margins being very slim. The ability to access EFPs to convert days to quota was very helpful.
RSA DAS should be sold according to market value of the fishery.
RSA quota, basically our R&D program, is too low compared to other industries.
Scallop seems to be working although overhead rates could be restricted. herring is a challenge given high volume - low value nature of product. not sure if there has been any examination of patterns within monkfish rsa.
the crew has to be able to make some money maybe look at expenses versus actual crew payouts
The value of RSA days or quota will have to "float" with market conditions.

Table 3-1. Responses to an open ended question calling for ideas to increase the monetized value of RSA fishing opportunities to increase research support. Responses were filtered to remove those without ideas presented, as well as to remove personal information.

Strengths	Weaknesses
Ability to detect strong recruitment and cover more area than federal survey is critical for area rotation. Has supported strong collaboration and partnership. Industry trusts the science because they collect it.	Resources used to crank program out annually are very high. Need to reach out to new partners.
ability to involve commercial scallop fishermen in research - providing them the opportunity for input.	The inability to distribute the "funds" to a broader scope.
Before RSA there was no funding for research and virtually nothing got accomplished. Scallop RSA financially supports the management system we chose- compare to groundfish management	Lots of funds.....too much funds
has enabled the resource and fishery to be the success that is today as well as allowed for public/industry support for scientific credibility of data by directly involving industry in the data collection	Negotiations awards can be problematic but may be necessary
Helps to address research priorities and provide survey data.	Weakness: lack of coordination on scallop surveys. It seems this is something that could be organized better (such as by knowing in advance what NMFS will survey).
In particular, the area rotation management approach requires fine spatial scale surveys than traditional NMFS surveys provide.	
It is the primary source of funding for scallop resource surveys.	
It's how the majority of data is collected and contributed to the specifications assessment.	
Many fisheries would benefit from the attention that scallop RSA provides.	
Scallop fishery management benefits from RSA research. The scallop stock assessment is overly dependent on RSA surveys and biological studies that should be funded by NMFS, rather than the industry.	
scientists working with fishermen is the greatest strength of RSA program.	

the diversity of surveys has reinforced industry support for rotational management and the stock estimates. probably one of the most successful coop res program in the nation. politically challenging but clearly a huge benefit to all.	
The greatest strength of the Scallop RSA program is funding annual resource assessments that are the basis for spatial management decisions.	
The greatest strength of the scallop RSA program is it's survey coverage. The government survey is inadequate and getting worse. The other aspects of the program are a close second. The scallop resource is the most valuable in the US and most likely the most sustainable. I believe these feats are a direct result of the industry funded RSA program	
The scallop industry is very engage and proactive in the RSA program. Not so with all other RSA industry members.	
the survey work is essential.	
The surveys funded through the RSA program allow for the data intensive rotational management strategy utilized. Without it, NMFS would not be able to provide adequate data to truly run this system the way it is now. This goes to my earlier point about surveys being monitoring not research. To keep the fishery-dependent monitoring parallel; you can monitor discards with 10% or 90% observer coverage, but the uncertainty and data utility are completely different.	
They need those surveys, I think.	
Too much to write about here. Talk to me later. The scallop RSA program is a singular contributor to the success of the scallop fishery.	

Table 3-2. Strengths and weaknesses of the scallop RSA program as identified by respondents to the RSA survey.

Strengths	Weaknesses
Broad participation	Hard to access funds
Some partnerships have been built	It's limited in its offering of additional data.
States are benefiting from shore-side monitoring. I perceive this as mostly a financially beneficial program for State agencies.	RSA value from herring is very low and not sufficient to provide as much management input or overall research.
Support for on shore monitoring is potentially valuable and necessary.	Managers not using results directly. Incentives are not there to participate.
The bycatch avoidance program has helped industry avoid river herring and manage their bycatch caps. Portside sampling also provides a lot of data on a once data poor subject and continues to be used in management.	There really isn't room for many projects, so it's unlikely anything but the highest priory will have a chance of being addressed.
The improvements in monitoring and bycatch avoidance have benefited stock assessment and fishery management.	There have been some issues with use of results in assessments.
Recent investments in dockside monitoring are very important.	to date, only dockside monitoring has supported management. That may change with new Herring stock assessment

Table 3-3. Strengths and weaknesses of the herring RSA program as identified by respondents to the RSA survey.

Strengths	Weaknesses
It has increased fishing opportunities for fishermen while allowing them to be intimately involved in the research itself.	Could be a lot better.
Monkfish life history studies have identified problems in the monkfish stock assessment and promise to improve future assessments and fishery management.	It has not solved the monkfish aging problem.
Monkfish RSA has provided significant management and biological information.	Monetizing monkfish RSA is dependent on international market demand.
	Projects seem to be redundant. need to better define research needs in RFP
	The fishery has no agreed upon objective among the participants so it is difficult to have a good program.
From a biological standpoint, age and growth has somewhat benefited, but it has not necessarily translated into improvement in stock assessments or greater understanding of resource biology. Genetic studies are interesting, but I haven't been tracking outcomes from that research to provide a knowledgeable response.	
I don't know how important monkfish RSA has been in the past, but I do not think the most recent funded projects are valuable for management. They may have inherit scientific value separate from their use for fishery management.	

Table 3-4. Strengths and weaknesses of the monkfish RSA program as identified by respondents to the RSA survey.

Is there anything else you want to communicate to the review panel?
Don’t fix it if there is nothing broken.
Explore alternative models for acquisitions, networks, and collaborations such as NASA, National Park Service, U.S. Forest Service and the National Agricultural Research Service. They have developed "out of the box" networks/partnerships/collaborative contractual scenarios that RSA should consider.
If there is a way to reduce paperwork requirements that should be explored.
Industry should be involved in oversight and management of these programs. Industry has the greatest incentive to maximize effectiveness of the programs.
It is critically important that the review process be streamlined. It is unacceptable to receive a funding decision after a season has begun. For example, this year for monkfish, decisions weren't announced until July, fully 2 months after the start of season and effectively about half or more of the available opportunity for one of two fishing years. Decisions need to be made so that researchers can line up vessels and write contracts for day one of the fishing season.
rsa trips need to be equal to all fisherman
stop making a small group of owners get all of the lbs. it needs to be more fair i know some donate a lot but others are willing to help too
this survey was very long..

Table 3-5. Substantive responses to an open ended question asking if there is anything else respondents wanted to communicate to the RSA Review Panel.

	FMP		
Affiliation	Scallop	Herring	Monkfish
NEFMC Member	6	5	5
MAFMC Member	2	1	1
Committee Member	11	10	8
Advisory Panel Member	9	7	4
Plan Development Team Member	9	4	5
NOAA Fisheries staff	6	5	5
RSA grant recipient	12	11	5
RSA grant applicant	12	9	5
Fisherman or fishing industry representative	8	10	2
Non-government organization	7	6	3
Client	20	20	7
User	22	15	16

Table 3-6. Survey respondents by affiliation (“Clients” are RSA applicants, RSA recipients and fishermen, while “Users” are MAFMC, NEFMC, PDT or NOAA affiliates) and the FMP they are most familiar with.

Figures

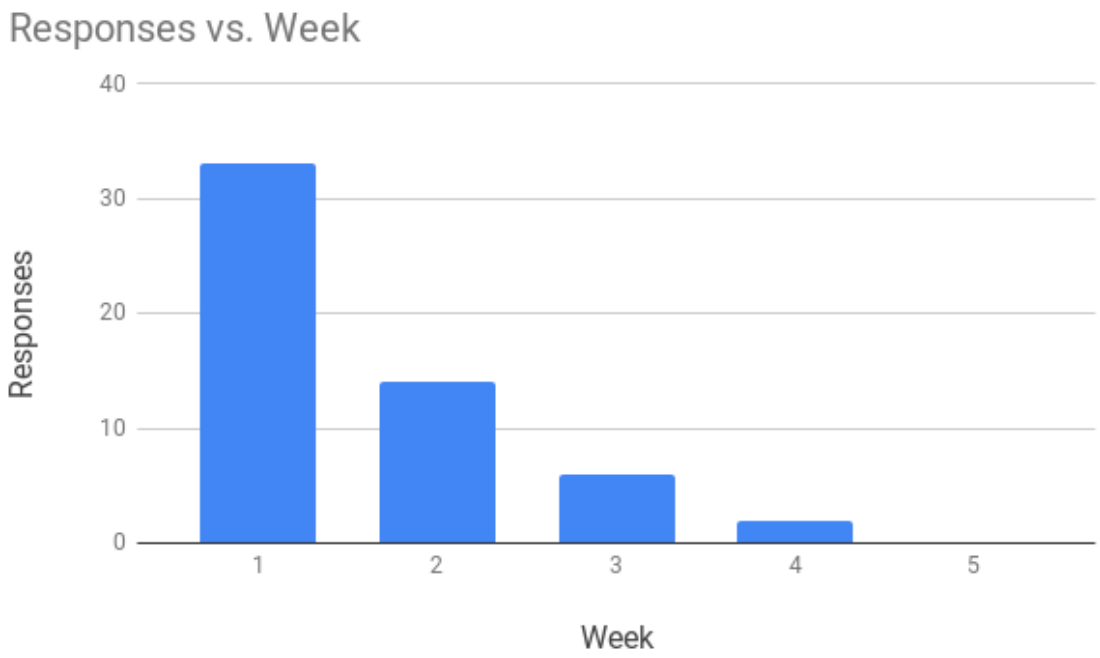


Figure 3-1. Responses by week the RSA survey was available.

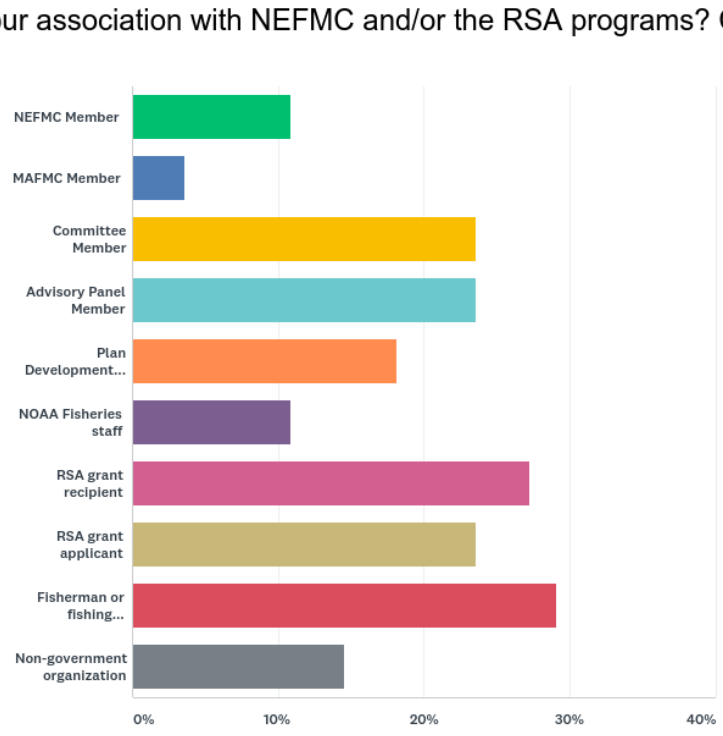


Figure 3-2. Respondents to the RSA survey by affiliation.

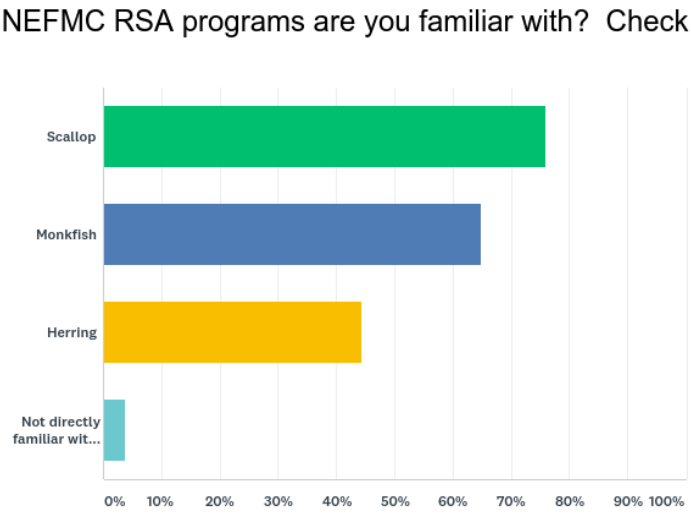


Figure 3-3. Responses to a question regarding familiarity with particular RSA programs.

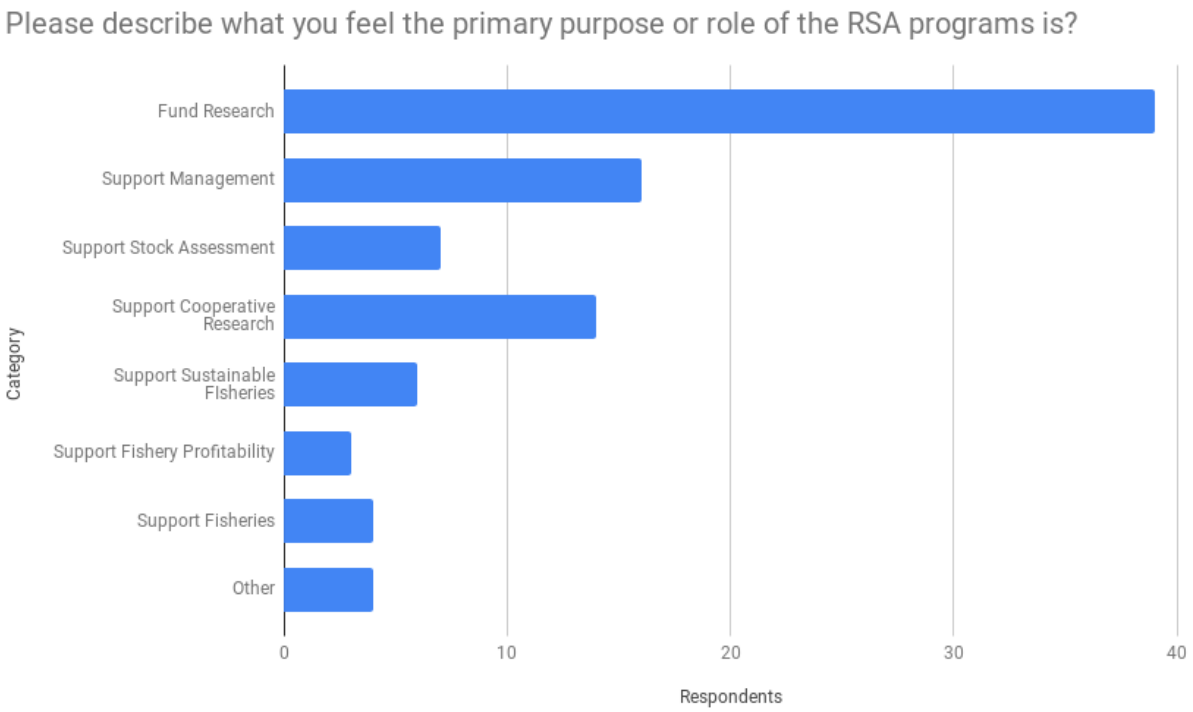


Figure 3-4. Responses to a question regarding the primary purpose of RSA. Some responses fell into multiple categories.

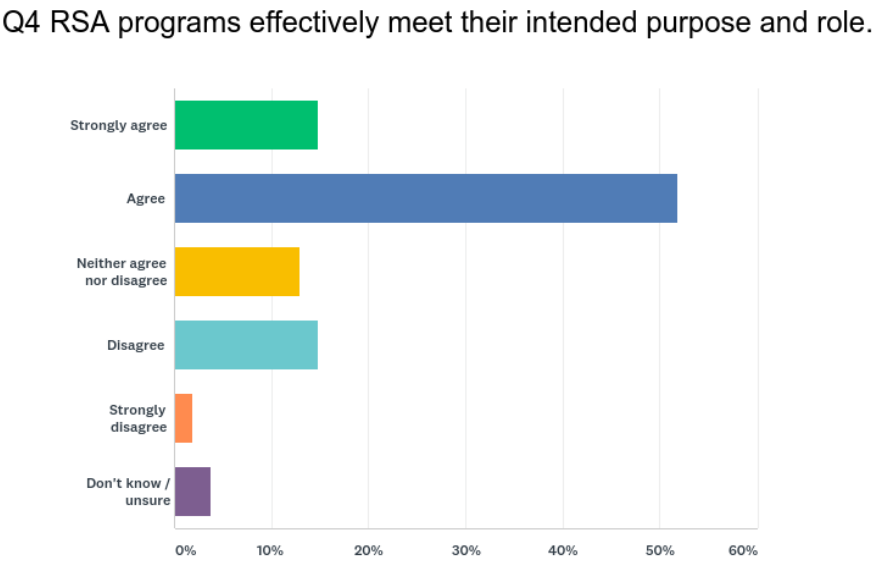


Figure 3-5. Responses to a question regarding the effectiveness of RSA programs.

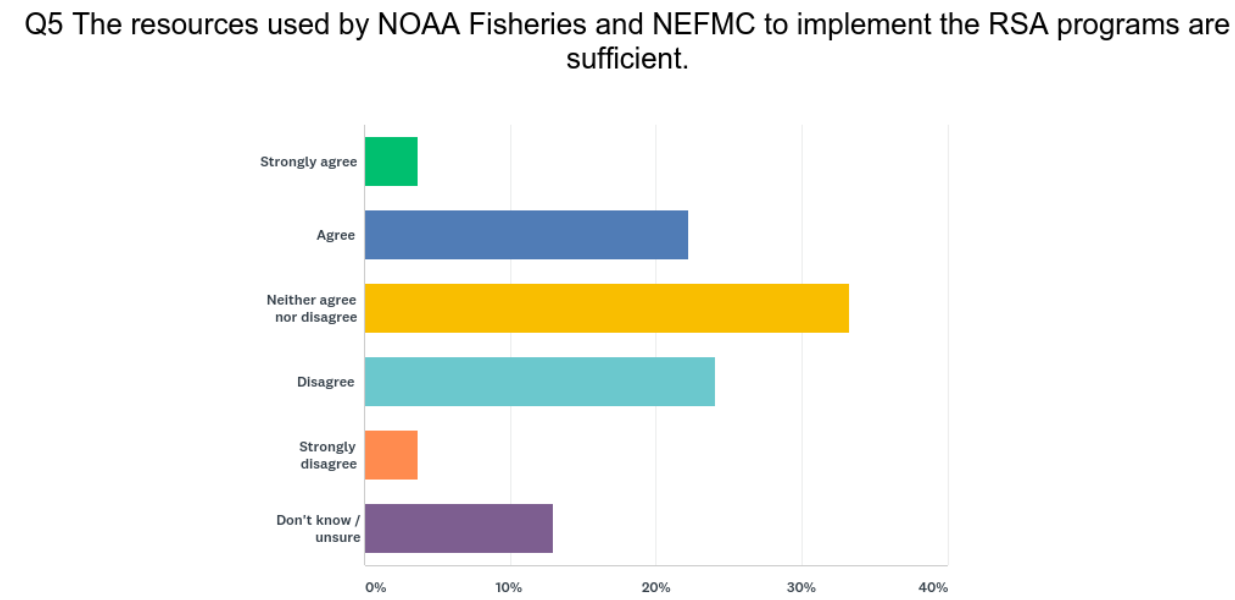


Figure 3-6. Responses to a question regarding the allocation of resources to RSA programs.

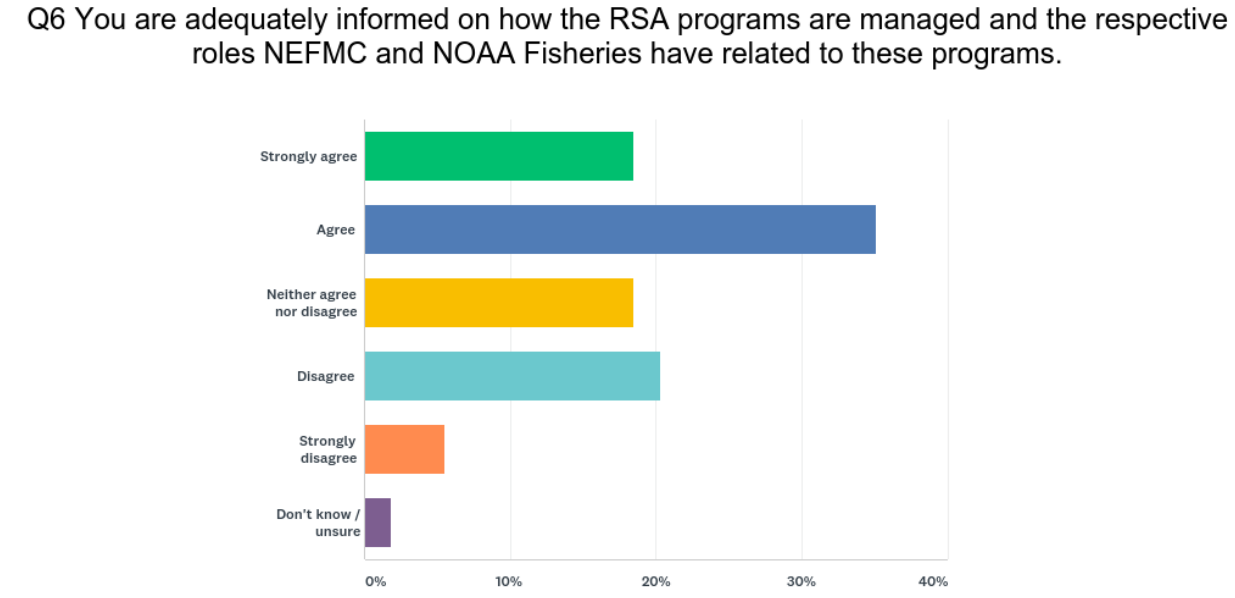


Figure 3-7. Responses to a question regarding respondents awareness of how RSA programs are managed.

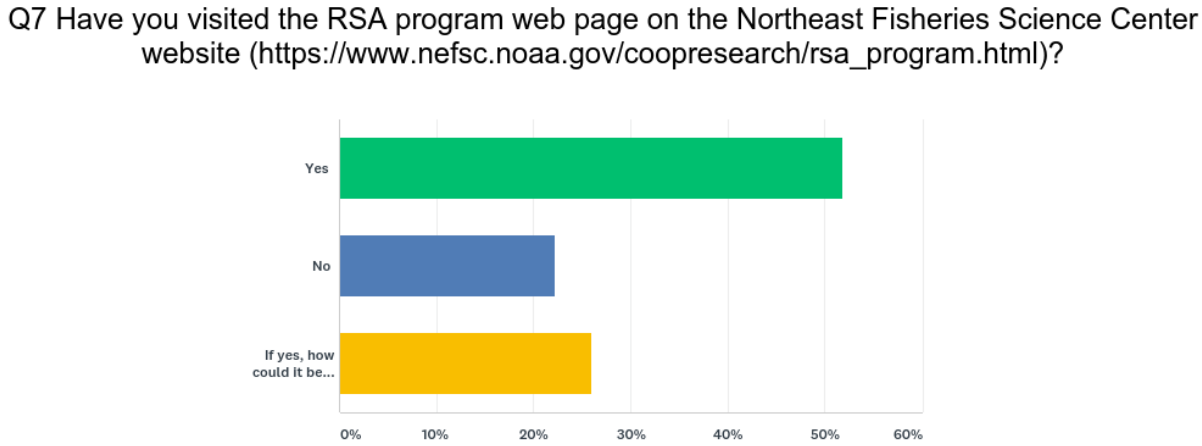


Figure 3-8. Responses to a question about visitation to the RSA website.

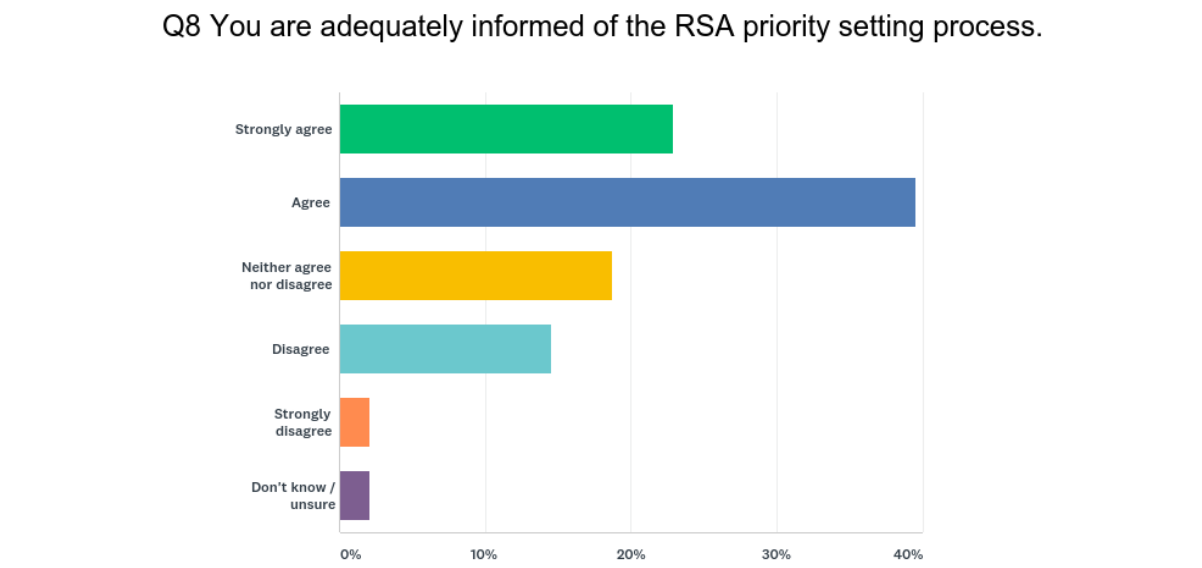


Figure 3-9. Responses to a question regarding how well communication on the process of RSA priority setting functions.

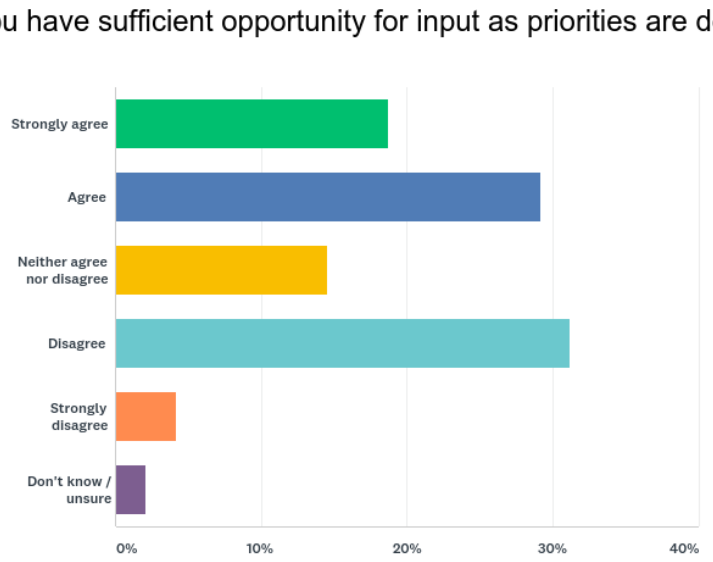


Figure 3-10. Responses to a question asking if respondents had sufficient input as RSA priorities are developed.

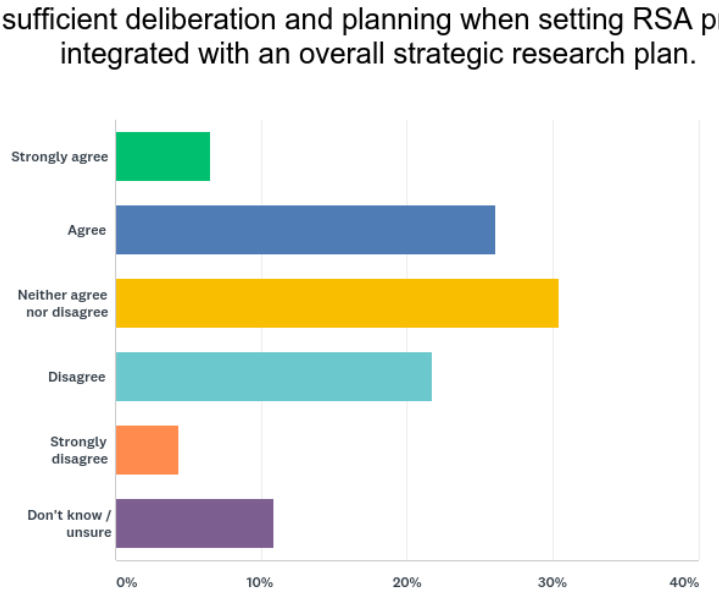


Figure 3-11. Responses to a question about the level of deliberation and adherence to a strategic plan in RSA priority setting.

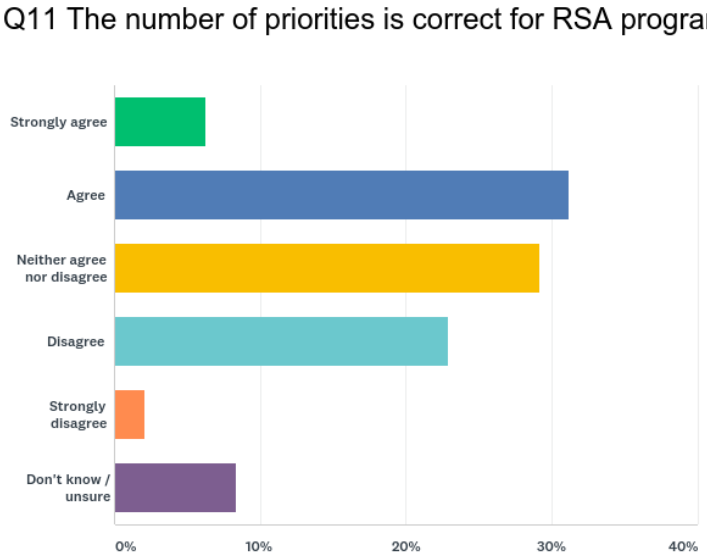


Figure 3-12. Responses to a question about the number of priorities for RSA programs.

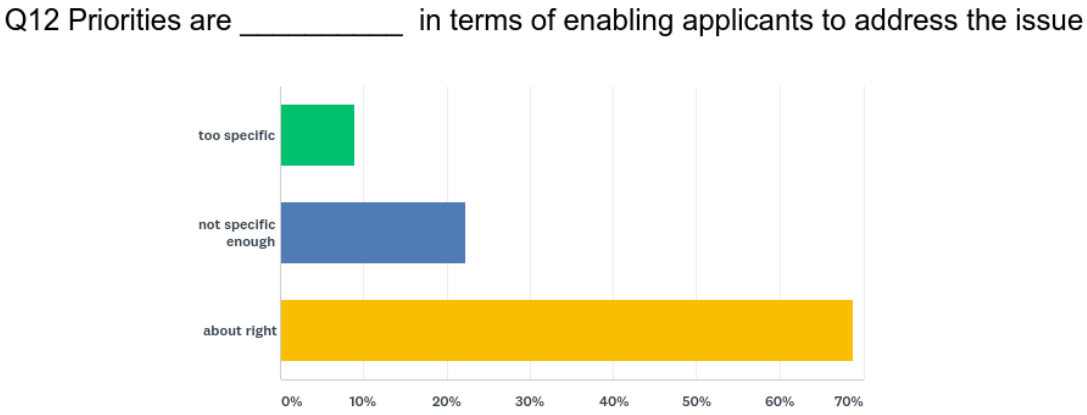


Figure 3-13. Responses to a question about the specificity of priorities.

Q13 Funding opportunity announcements are sufficiently circulated to prospective applicants.

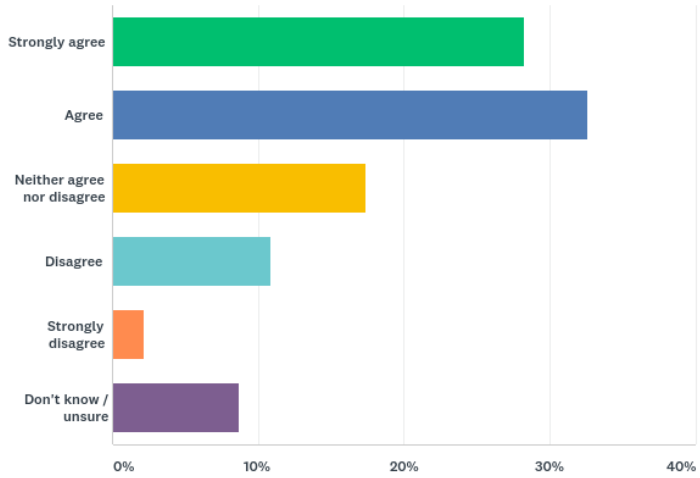


Figure 3-14. Responses to a question regarding the communication of funding opportunities for prospective RSA applicants.

Q14 Announcements of opportunity provide sufficient information (for example, on program priorities, evaluation, and funding mechanisms).

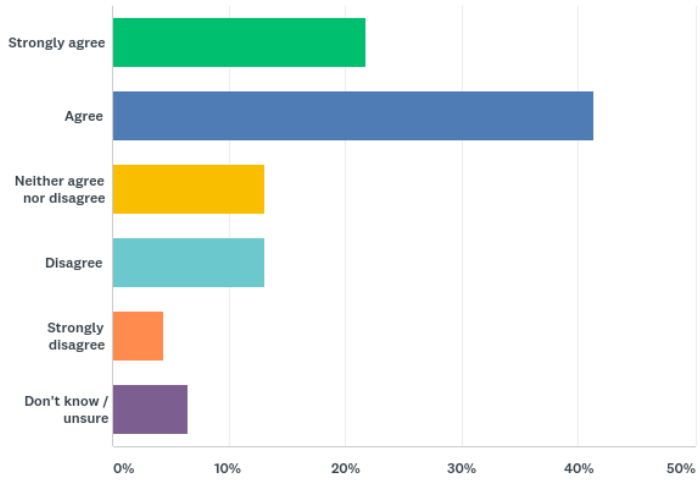


Figure 3-15. Responses to a question about the content of communications regarding announcements of opportunities for funding.

Q15 Competition between RSA grant applicants enhances the utilityof RSA project results.

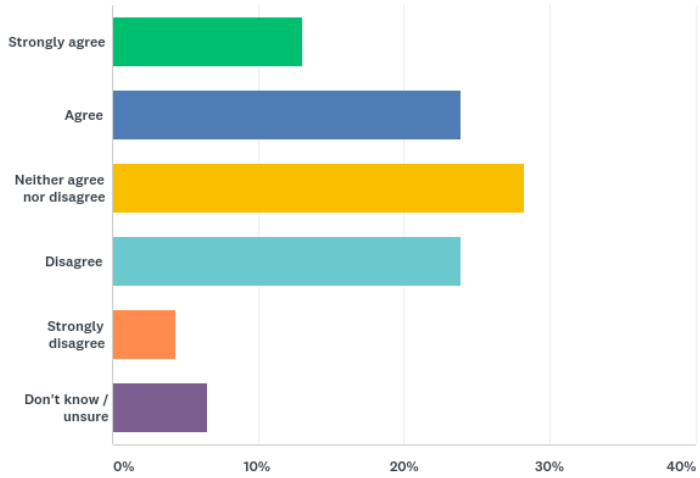


Figure 3-16. Responses to a question about competition between RSA grant applicants.

Q16 RSA projects would be more useful if NOAA Fisheries scientists were more involved.

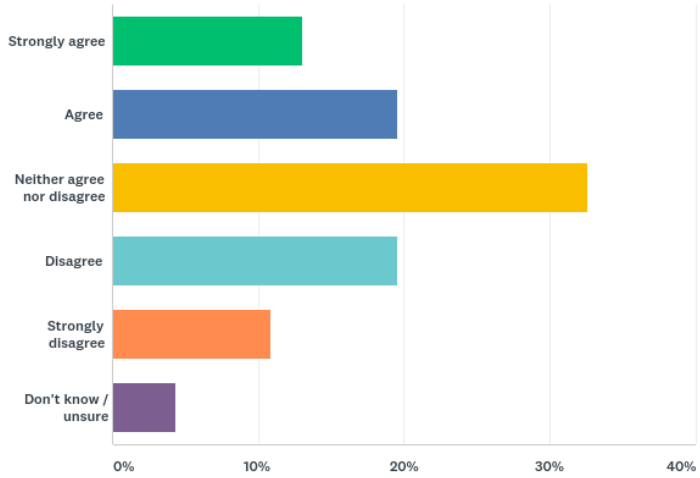


Figure 3-17. Responses to a question about the involvement of NOAA fisheries scientists in RSA funded projects.

Q17 Have you participated in the NEFMC RSA technical review and/or RSA management reviews?

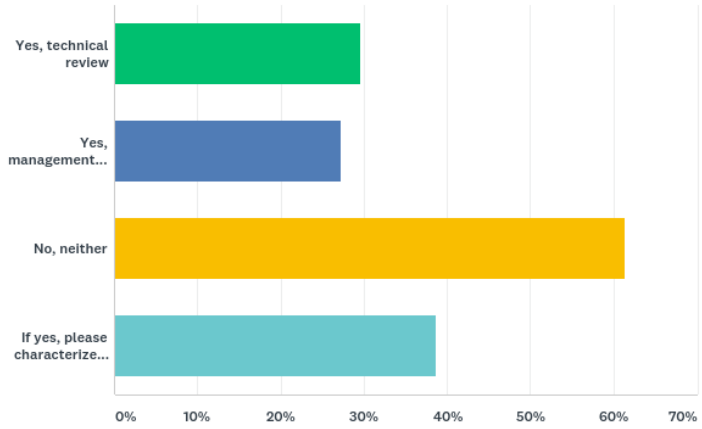


Figure 3-18. Responses to a question about participation in RSA reviews

Q18 Technical reviews are sufficient to assure the scientific quality of supported research.

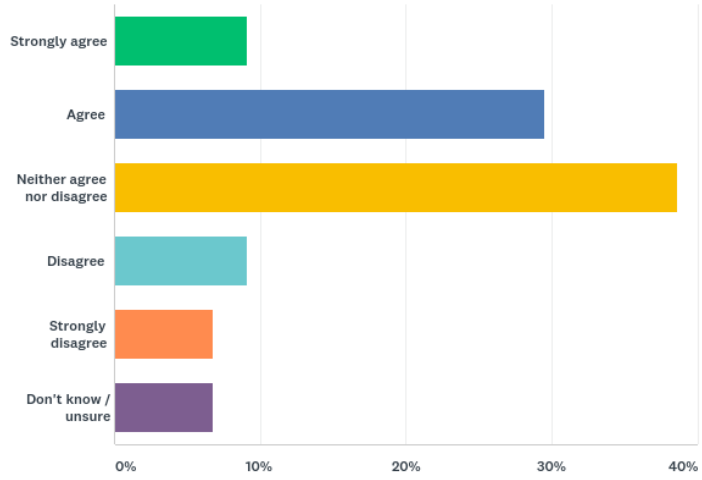


Figure 3-19. Responses to a question about the quality of technical reviews of RSA projects.

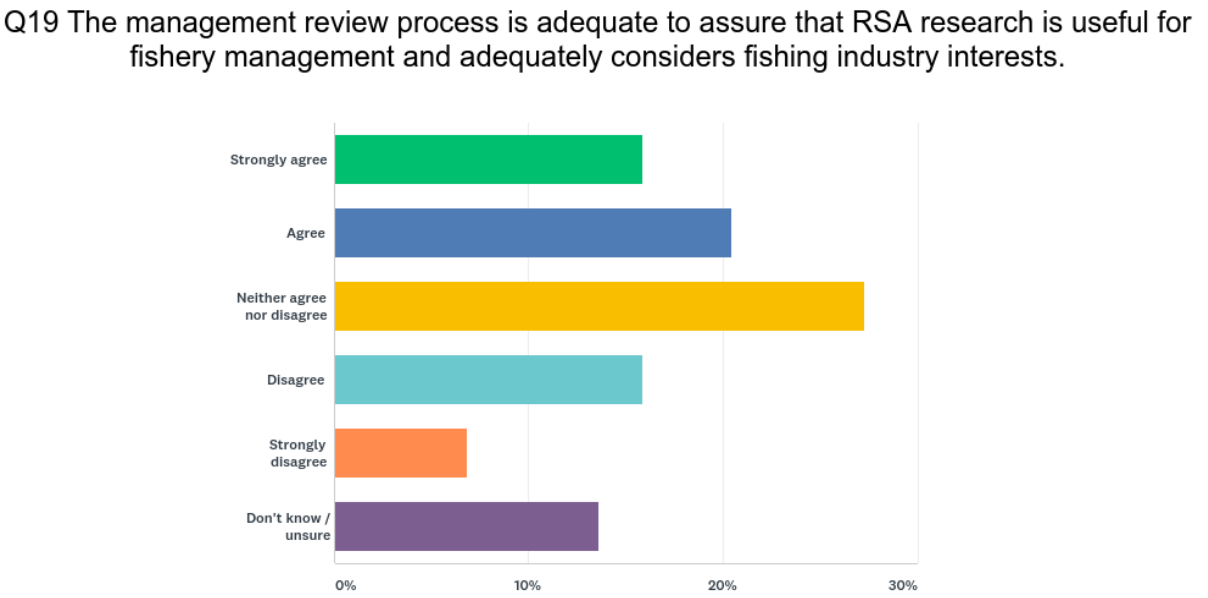


Figure 3-20. Responses to a question about the quality of management review of RSA projects.

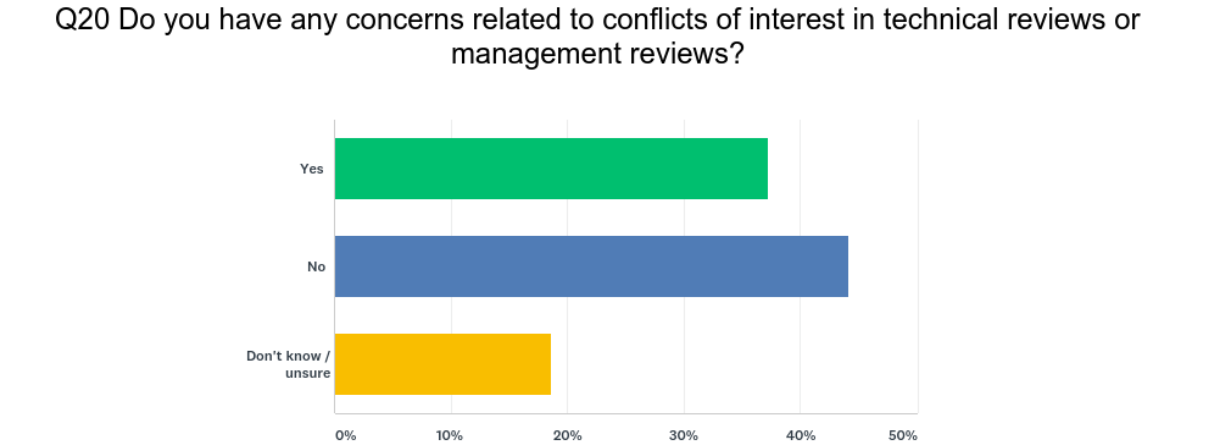


Figure 3-21. Responses to a question about concerns over conflict of interest.

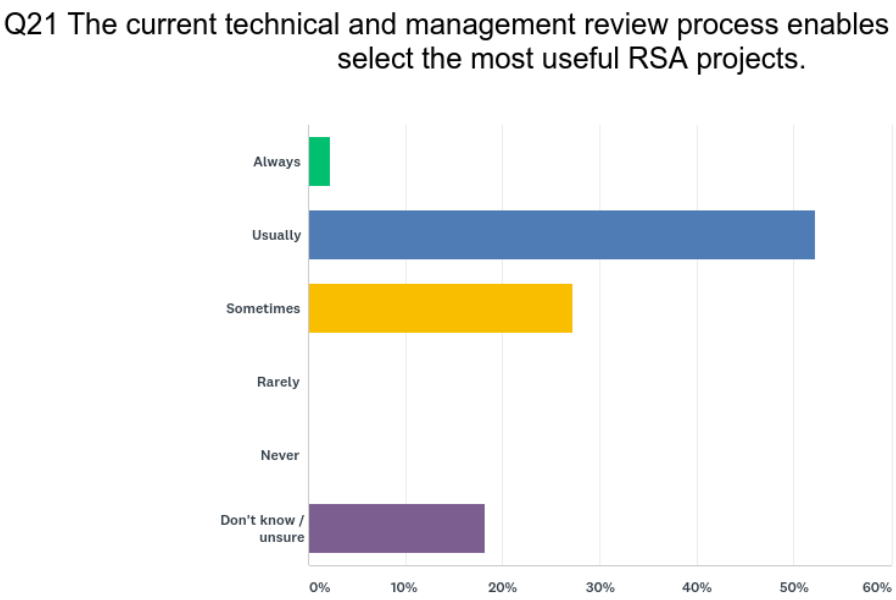


Figure 3-22. Responses to a question about reviews relative to the selection of RSA projects.

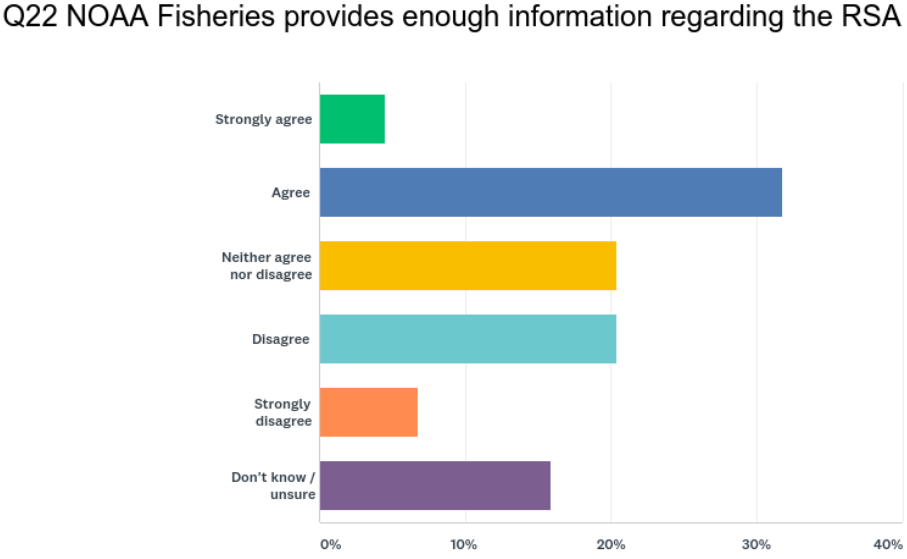


Figure 3-23. Responses to a question about communication of the RSA selection decisions.

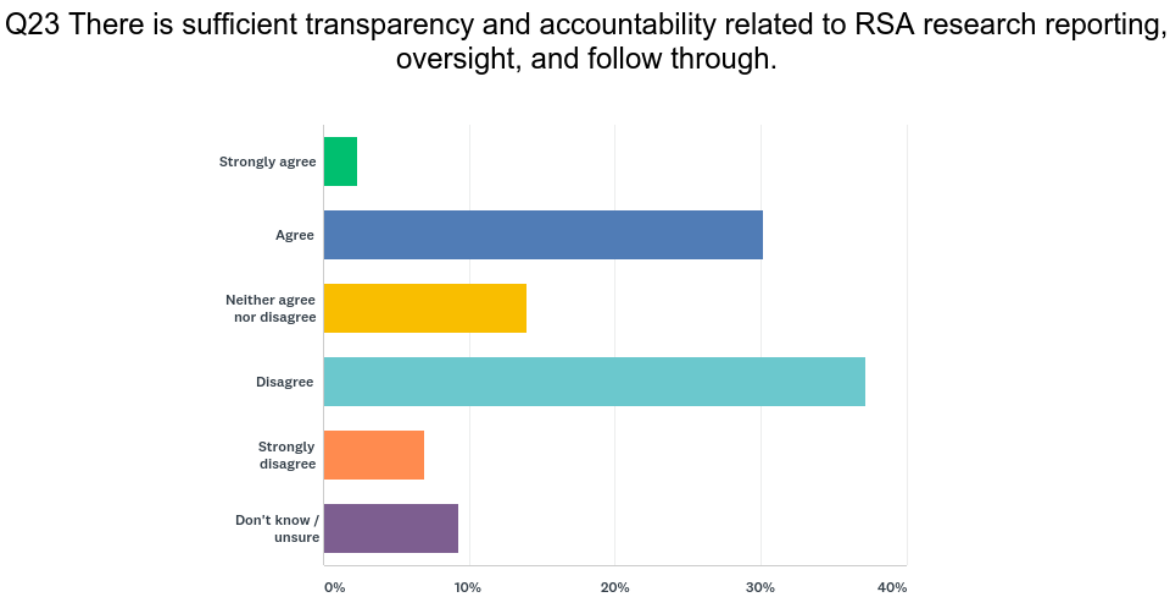


Figure 3-24. Responses to a question about transparency and accountability in RSA project oversight.

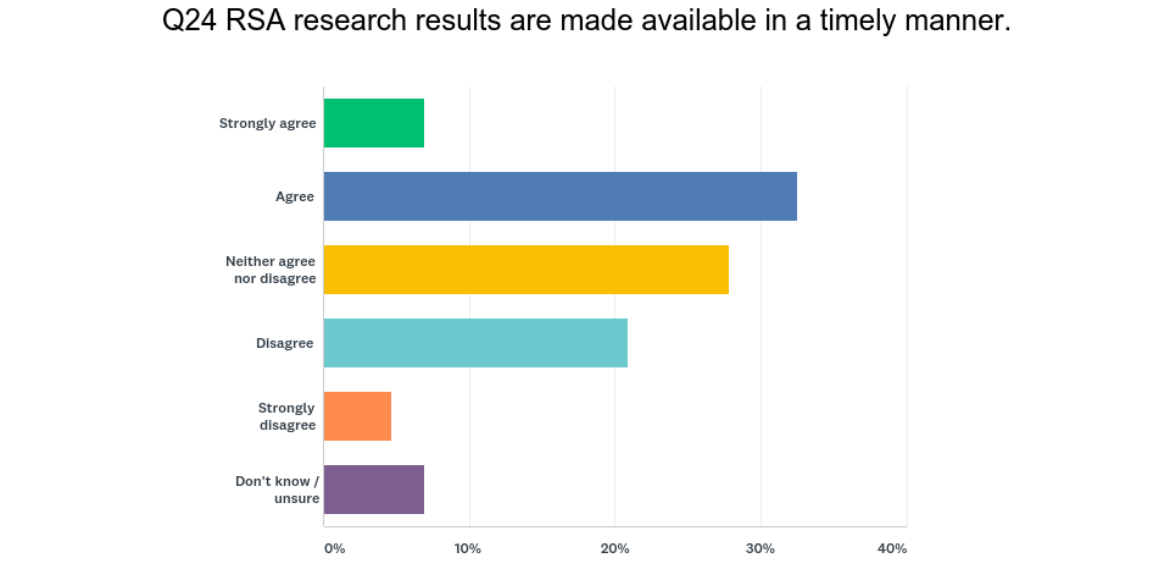


Figure 3-25. Responses to a question about the timeliness of RSA research results.

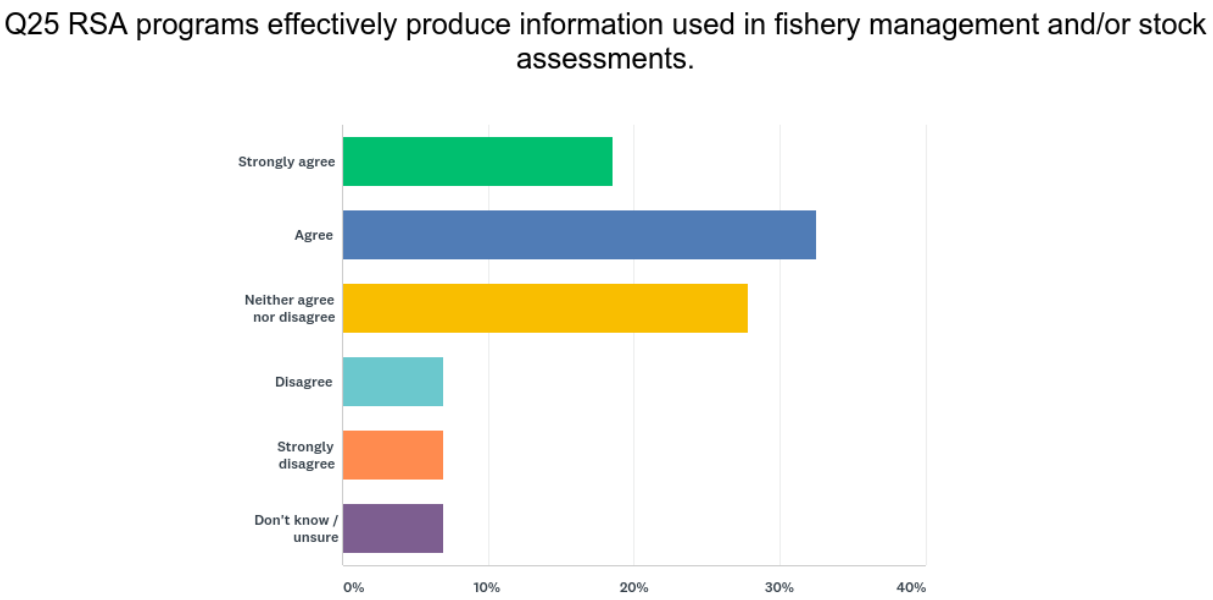


Figure 3-26. Responses to a question about the effectiveness of RSA research projects relative to their use in fishery management and stock assessment.

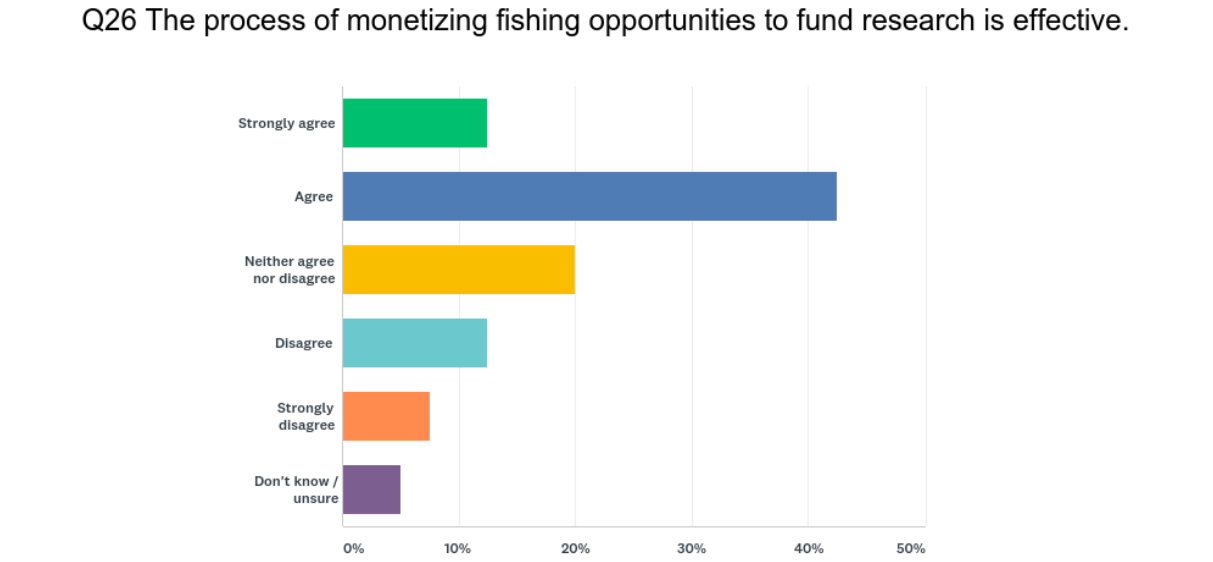


Figure 3-27. Responses to a question regarding the effectiveness of monetizing RSA fishing opportunities.

Q28 The amount of fishing access (in pounds or DAS) set aside to support research should be _____

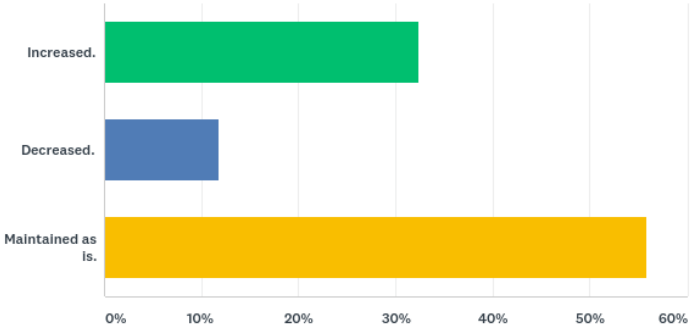


Figure 3-28. Responses to a question asking whether RSA fishing access should be increased or decreased.

Q29 Would you favor an increase in RSA access even if it means a reduction in non-RSA fishing opportunities?

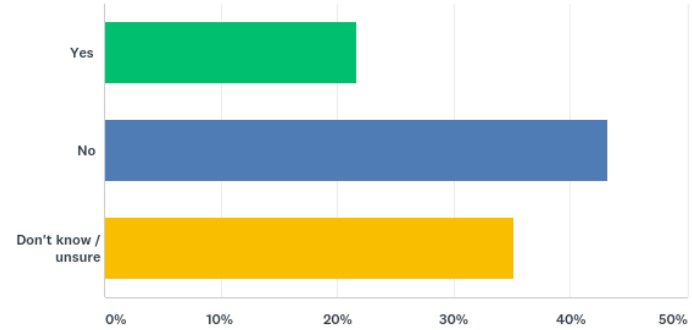


Figure 3-29. Responses to a question asking if respondents favor increasing RSA access.

Q30 Would you favor a reduction in RSA access even if it means reducing the amount of research that can be supported?

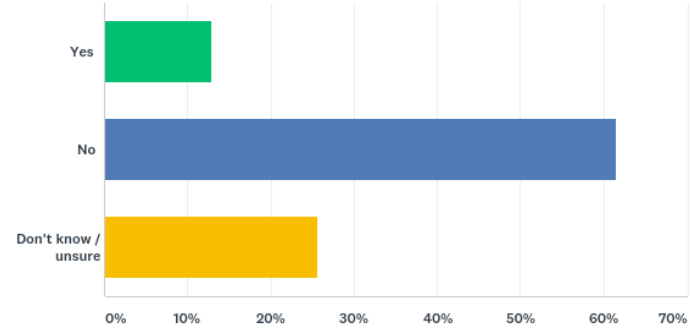


Figure 3-30. Responses to a question asking if respondents favor reducing RSA access.

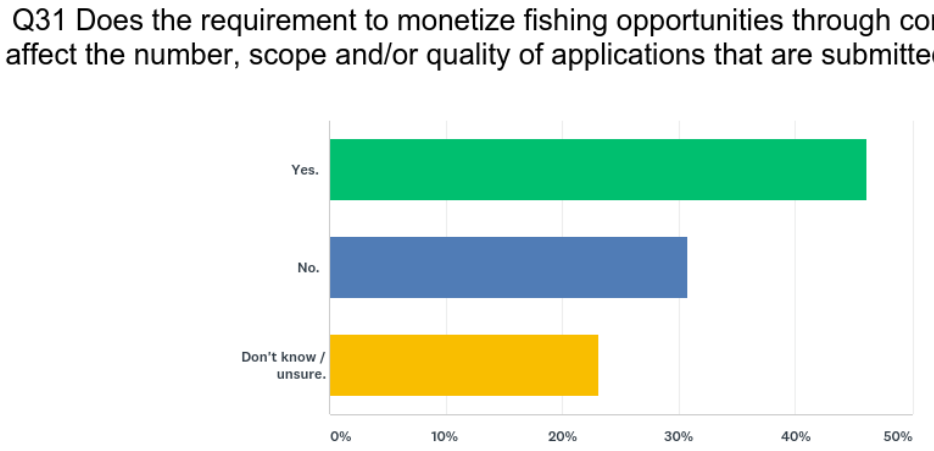


Figure 3-31. Responses to a question regarding the effect of the requirement to monetize RSA compensation fishing.

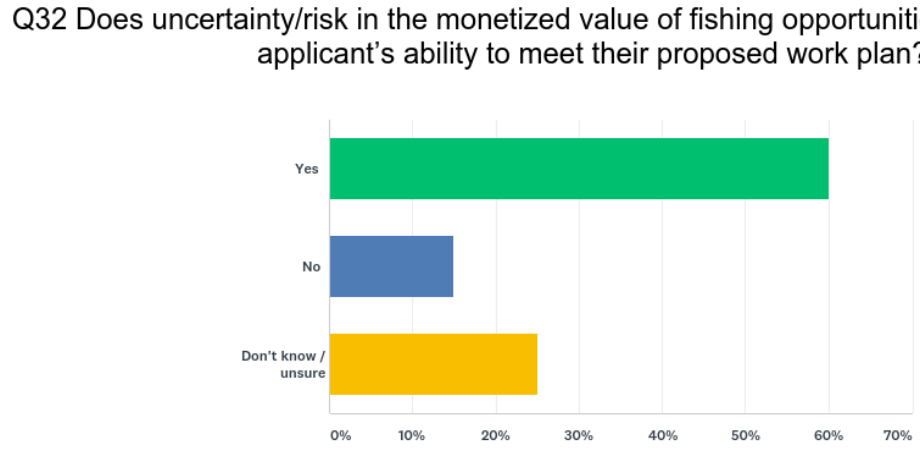


Figure 3-32. Responses to a question regarding the effects of the risk in the monetized value of RSA fishing opportunities.

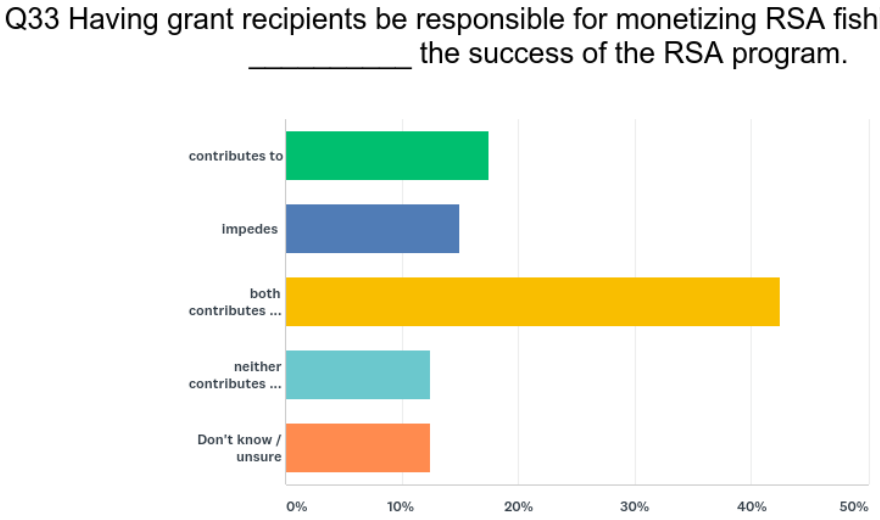


Figure 3-33. Responses to a question regarding the success of having RSA grant recipients be responsible for monetizing RSA fishing opportunities.

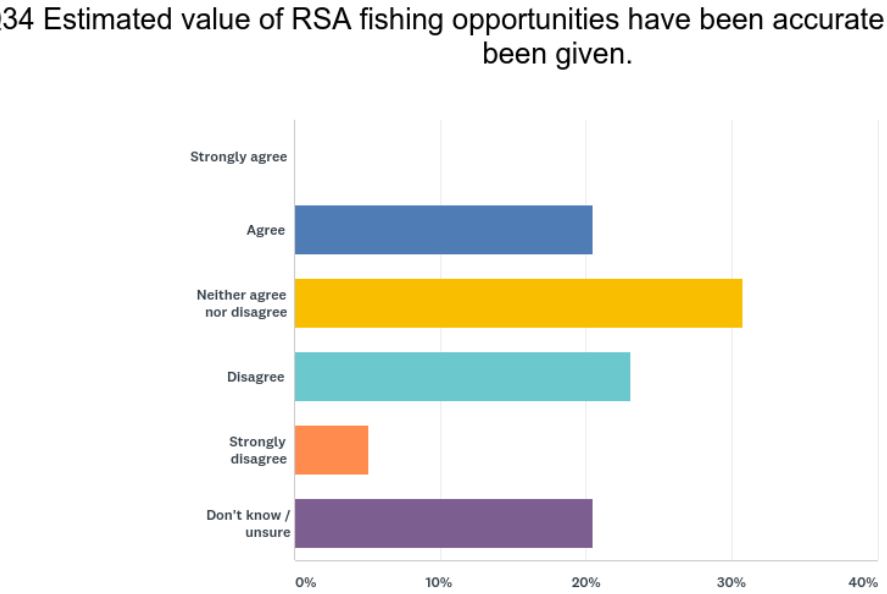


Figure 3-34. Responses to a question about the accuracy of estimated RSA fishing values.

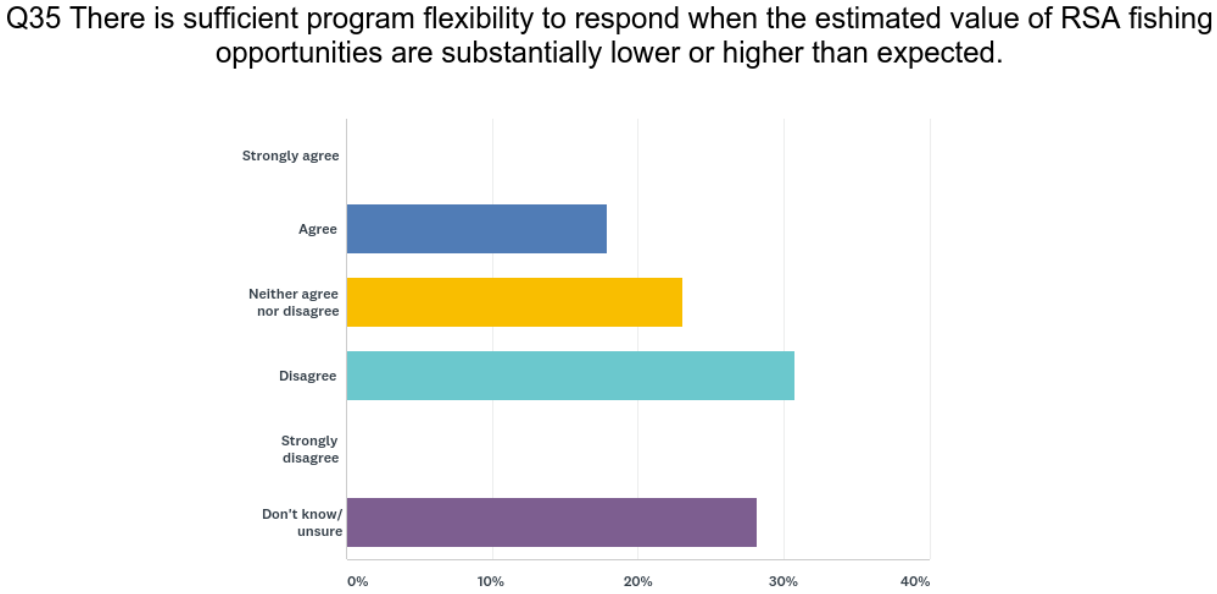


Figure 3-35. Responses to a question regarding the flexibility to respond to differences between the estimated and actual value of RSA fishing opportunities.

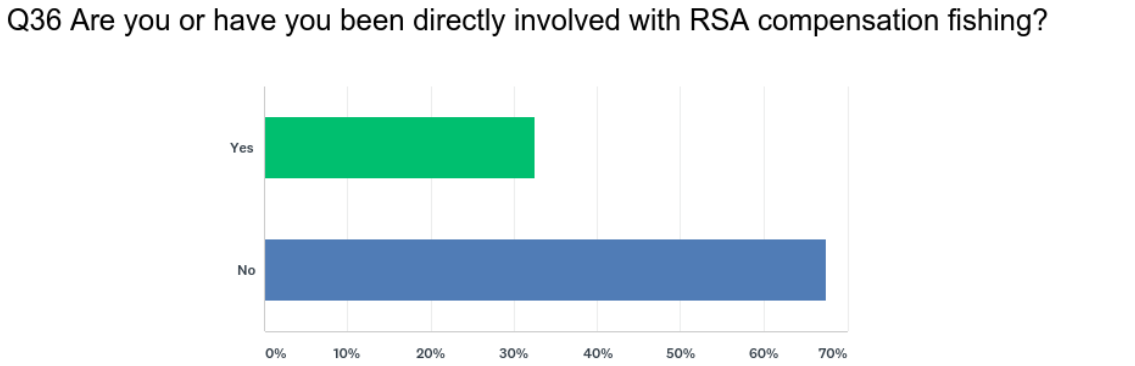


Figure 3-36. Responses to a question asking if respondents have been involved in compensation fishing.

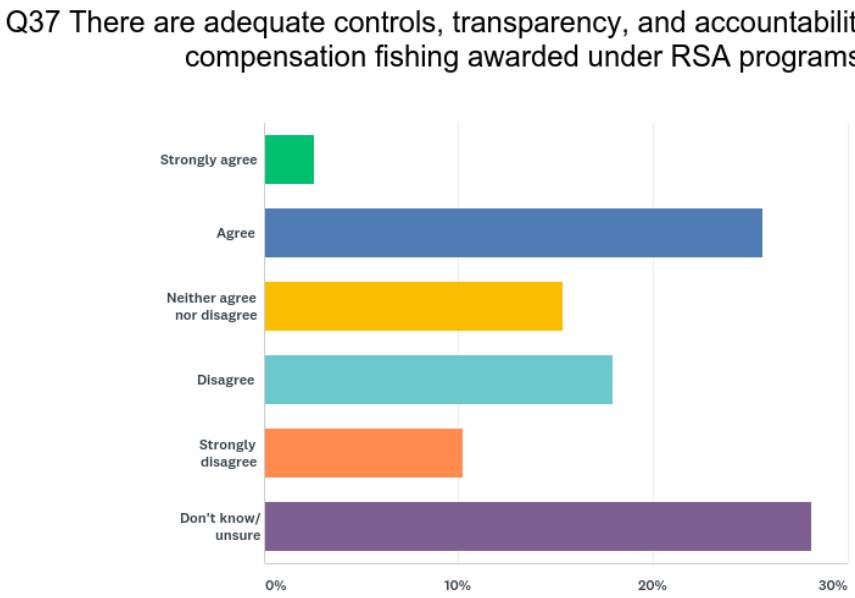


Figure 3-37. Responses to a question regarding the transparency and accountability of compensation fishing.

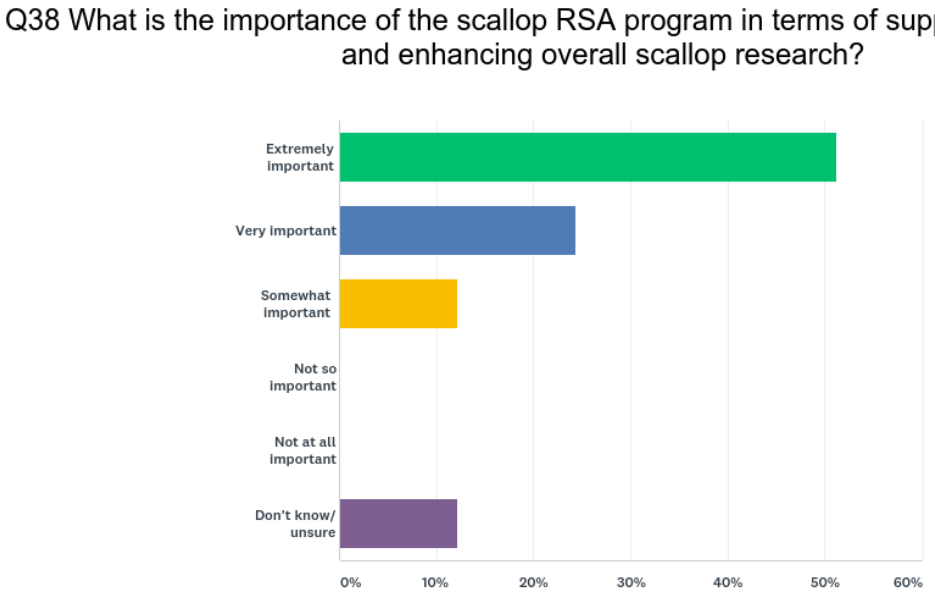


Figure 3-38. Responses to a question regarding the importance of RSA to scallop management and research.

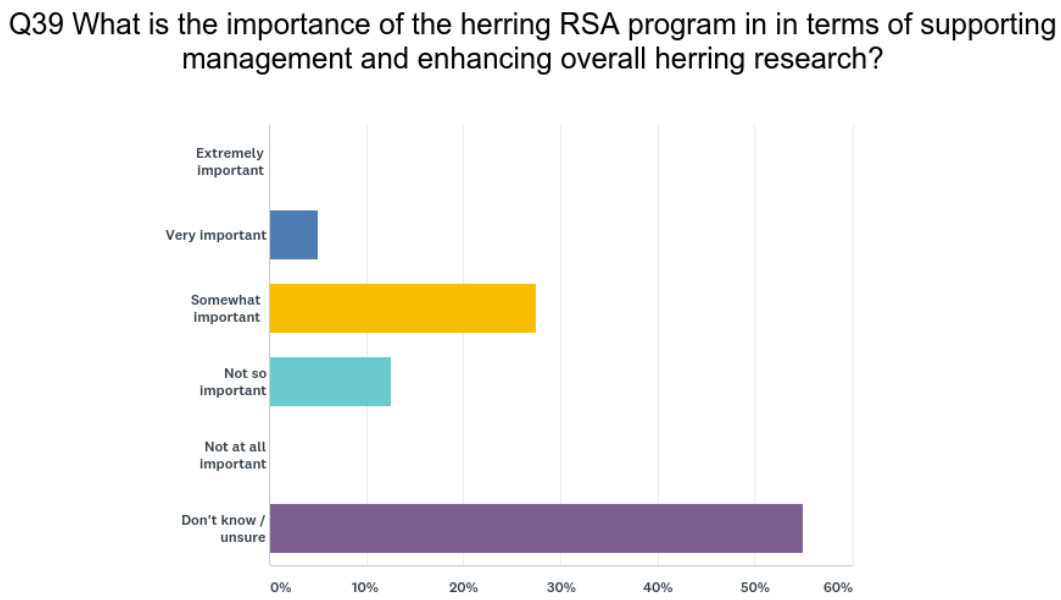


Figure 3-39. Responses to a question regarding the importance of RSA to herring management and research.

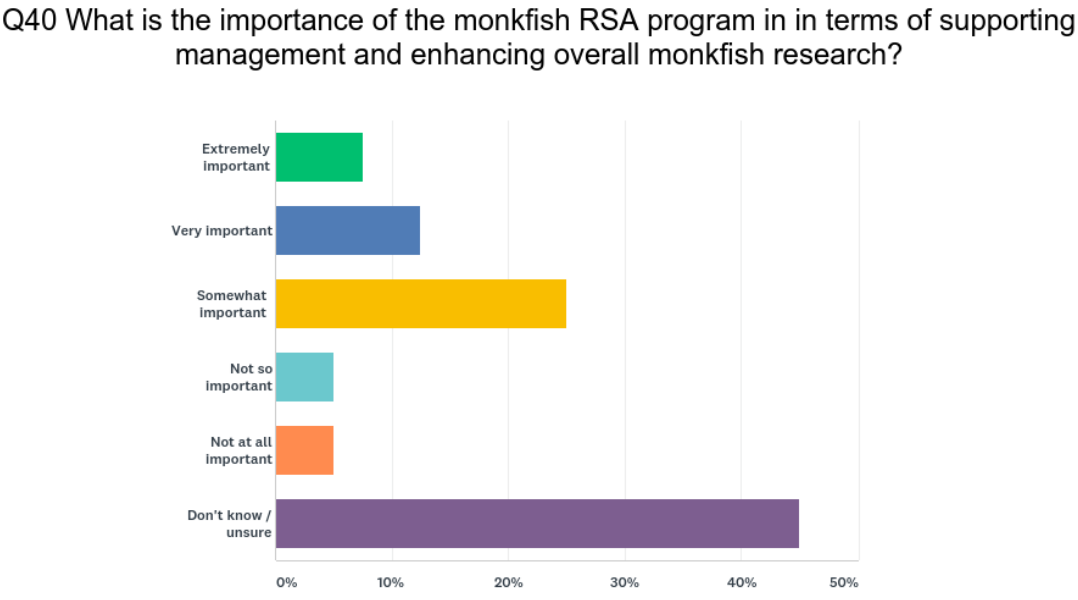


Figure 3-40. Responses to a question regarding the importance of RSA to monkfish management and research.

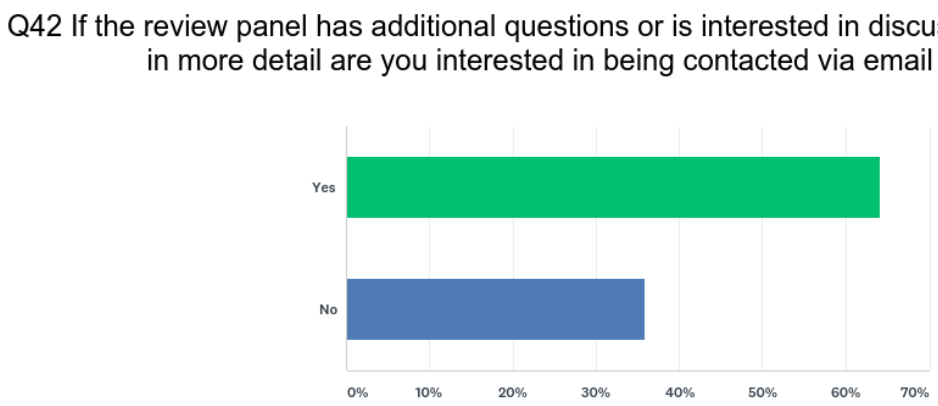


Figure 3-41. Responses to a question asking if respondents would be willing to be contacted for an interview.

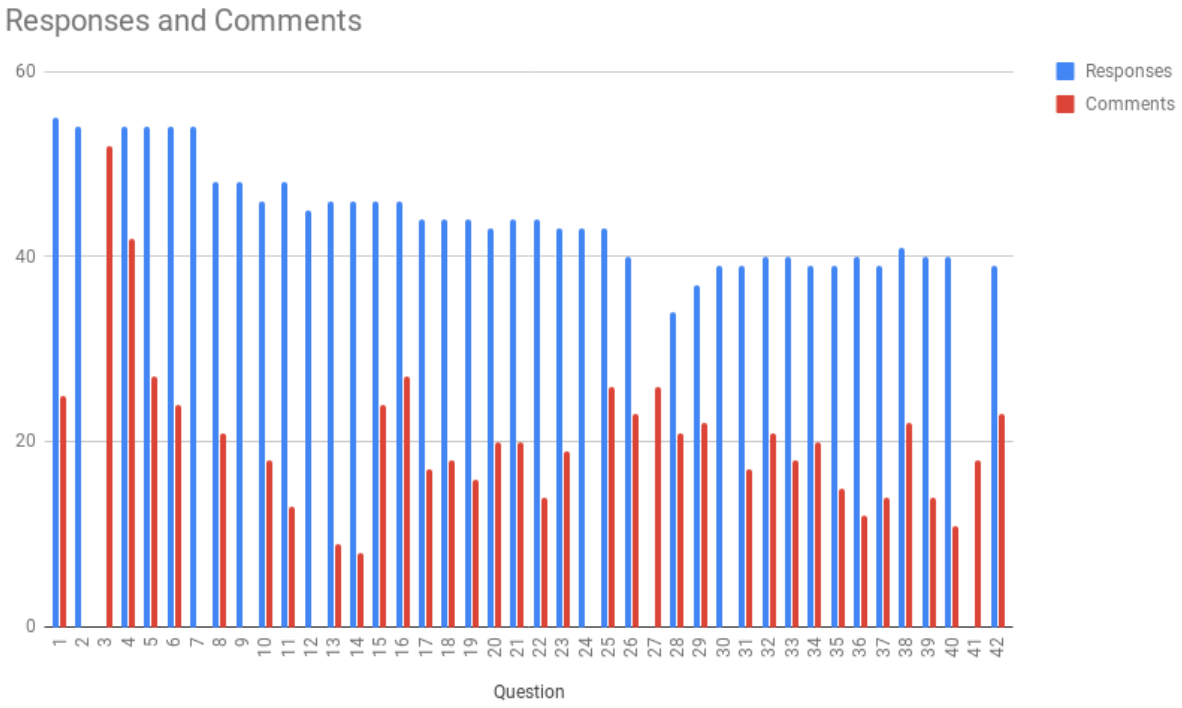


Figure 3-42. Trend in response rate over the course of the survey. Checkbox responses are in blue while typed responses are in red. Not all questions required both types of response.

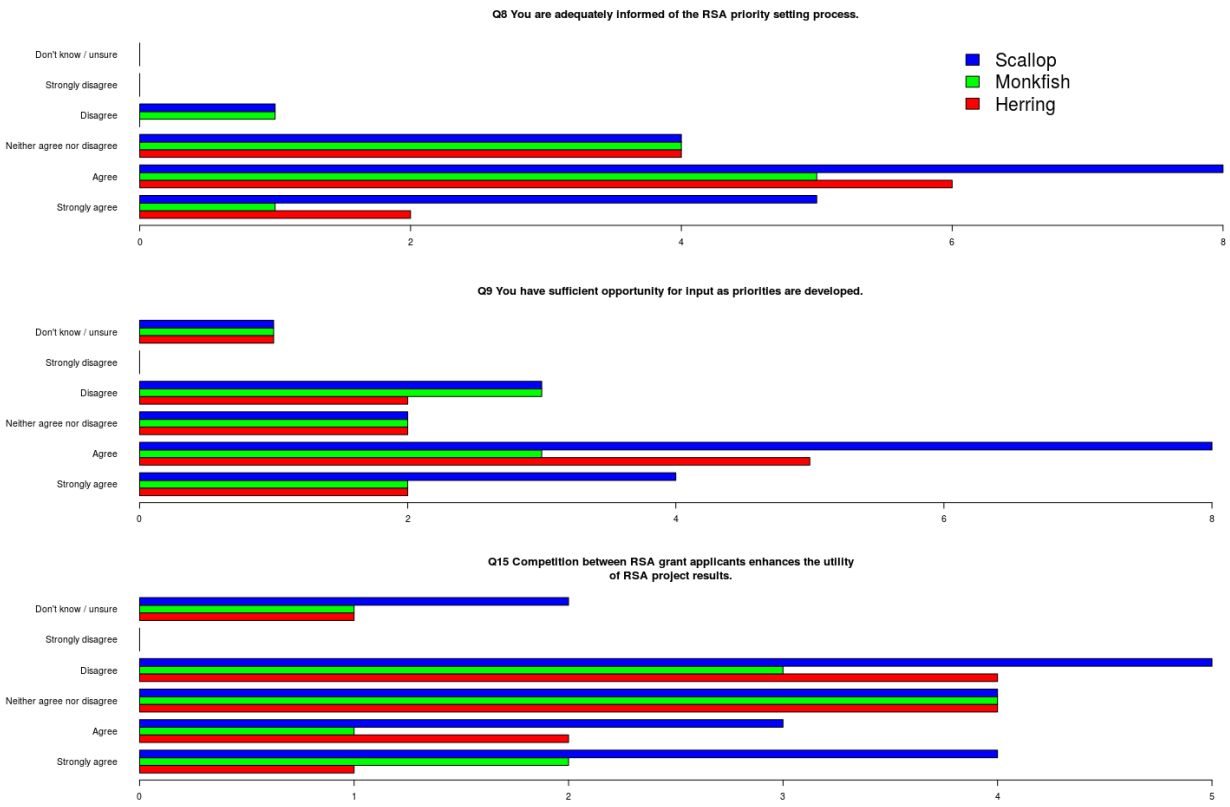


Figure 3-43. Responses to a selected set of survey questions by program.

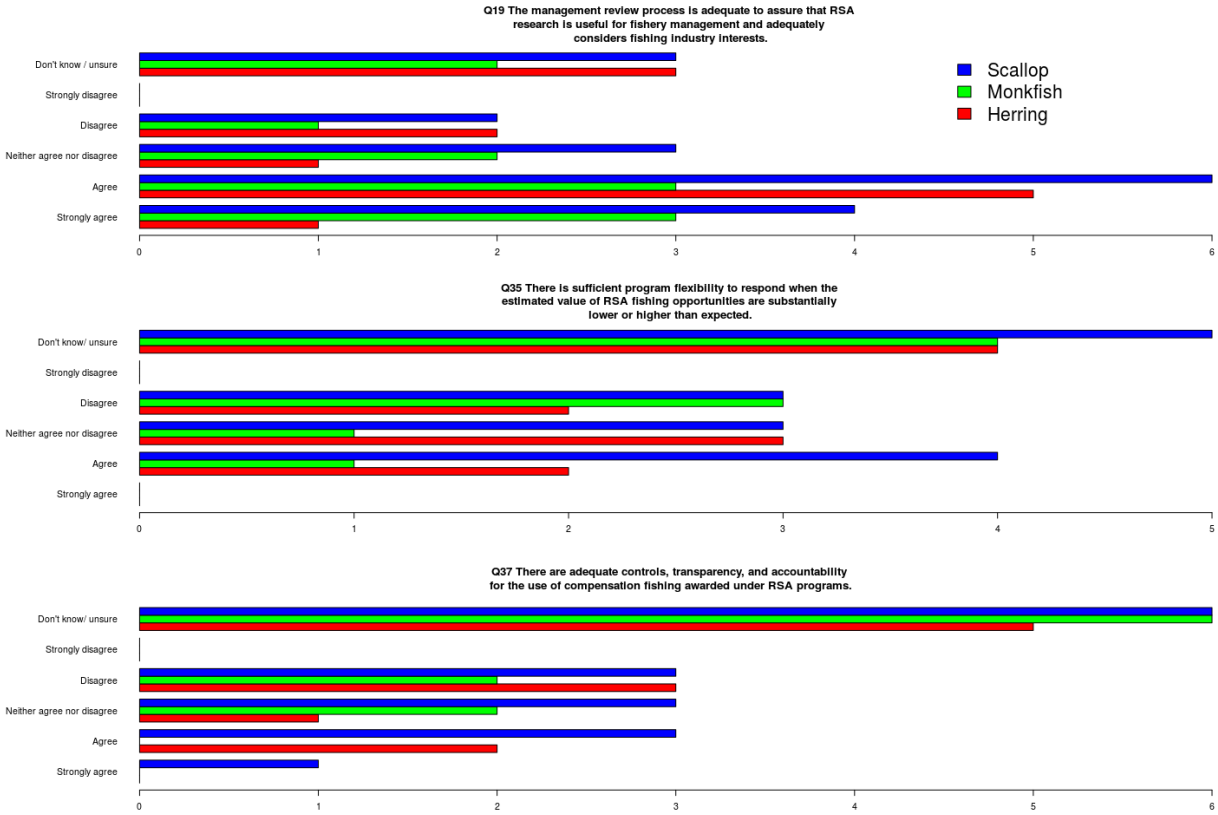


Figure 3-44. Responses to a selected set of survey questions by program.

Appendix IV: NEFMC RSA Projects Funded to Date

This appendix includes a summary of all the RSA projects funded through the NEFMC RSA program to date (2000-2018). The first part of the document includes the individual projects by title, principle investigator, RSA award amount including the estimated research dollars and compensation dollars, as well as the estimated split for research/compensation. The second part of this document includes an overall evaluation of all RSA projects funded for the last five years (2013-2017) in terms of the individual contribution to scientific knowledge and/or fisheries management. To complete this evaluation RSA review panel members assessed the impacts of each RSA project for fisheries management and/or scientific contribution, with assistance from FMP coordinators on the Council staff. Each project was categorized as high, medium, low, none, or uncertain. The evaluation was considered to be "high" if the results were used directly in a fisheries management action and/or scientific assessment. If the results have been used more indirectly and primarily in a more general way as part of the scientific body of information on a species or related topic, the evaluation was "medium" or "low". If the RSA review panel determined that the research results have yet to be used directly or indirectly, the overall rank was "none". This is not to say that these projects are not important and have not had overall impacts because they likely have; this evaluation was more rigid in terms of direct application to the fisheries science and/or management in this region. Finally, if the project is not complete yet the evaluation was considered "uncertain". Overall this exercise is subjective and since it is not a thorough evaluation, the results have been combined and presented as an overall assessment of the potential impact of RSA results by FMP. The evaluation per project has not been included, instead the summary of results have been combined into pie graphs for each program separately.

Table of Tables

Table of Figures

Table 1. Number of RSA projects awarded by FMP (2000-2018)

year	scallop	herring	monkfish
2000	6		
2001	2		
2002	2		
2003	2		
2004	4		
2005	6		
2006	7		
2007	6		2
2008	6		4
2009	7	1	3
2010	8		2
2011	14		2
2012	13		2
2013	14		2
2014	16		
2015	16	1	2
2016	12		
2017	17		2
2018	15	2	3

Figure 1. Number of RSA projects awarded by FMP (2000-2018)

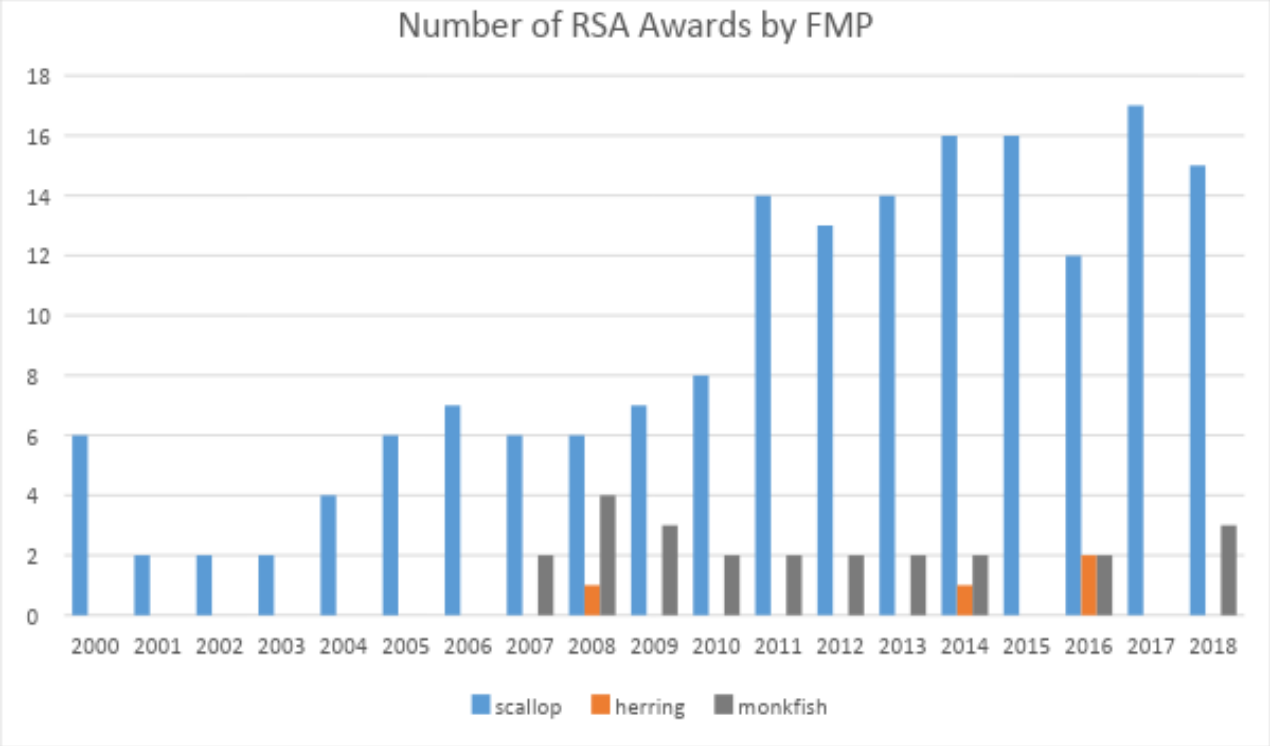
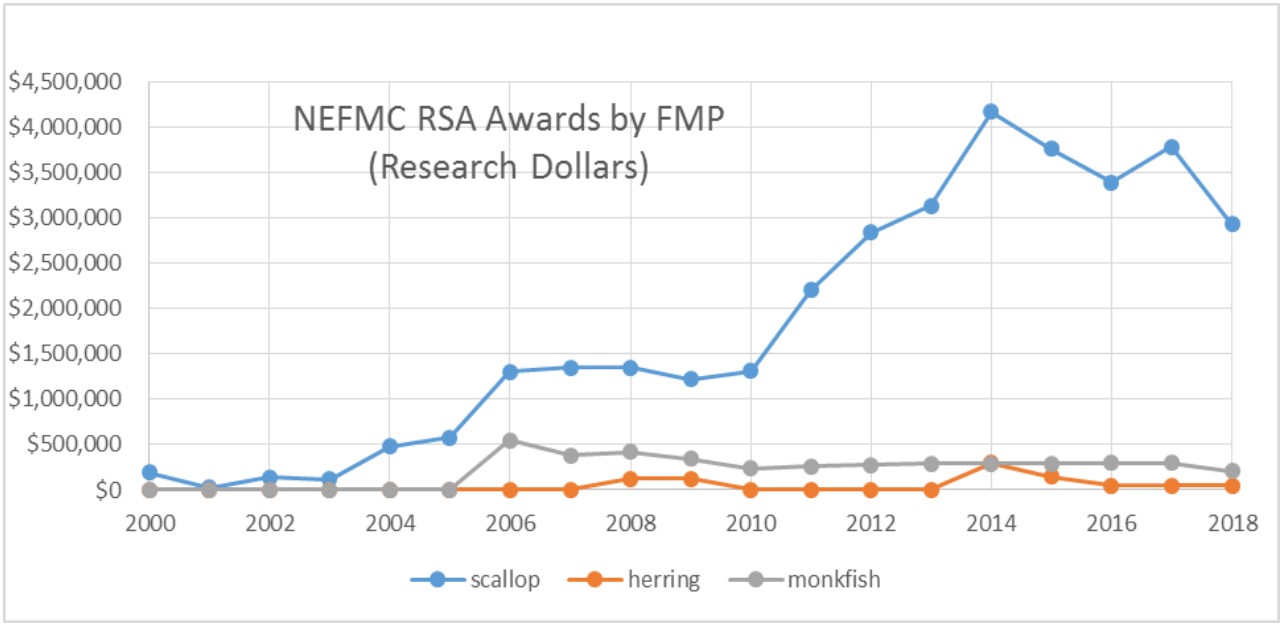


Table 2. Estimated research revenue in dollars by year for each FMP (not including estimated compensation revenue) (2000-2018).

year	scallop	herring	monkfish
2000	$189,471	$0	$0
2001	$23,918	$0	$0
2002	$139,725	$0	$0
2003	$112,892	$0	$0
2004	$477,858	$0	$0
2005	$577,665	$0	$0
2006	$1,303,997	$0	$546,000
2007	$1,352,068	$0	$381,372
2008	$1,352,068	$121,283	$418,028
2009	$1,222,935	$121,283	$343,296
2010	$1,313,718	$0	$237,277
2011	$2,206,081	$0	$263,718
2012	$2,843,360	$0	$272,591
2013	$3,133,482	$0	$287,861
2014	$4,171,623	$296,040	$291,592
2015	$3,759,494	$148,020	$294,191
2016	$3,391,149	$45,325	$296,310
2017	$3,789,555	$45,325	$295,573
2018	$2,933,849	$45,325	$204,398
2000-2018	$34,294,907	$822,600	$4,132,206

Figure 2. Estimated research revenue in dollars by year for each FMP (not including estimated compensation revenue) (2000-2018).



Scallop RSA Awards

Table 3. Scallop RSA awards (2000-2018)

FY	Grant Number	Title	Recipient	RSA Allocated	Est. Total Value	Est. Research Value	Est. Comp. Value	Split
2000	NA06FM1002	Performance Evaluation of a 4.0" Ring Scallop Dredge in the Context of Area Management Strategy for Sea Scallops	Virginia Institute of Marine Science (VIMS)	CA2 12,000 lbs	$63,000	$9,187	$53,813	0.15
2000	NA06FM1001	Examination of Population Biology and Dynamics of the Sea Scallop in Discrete Areas of Georges Bank	University of Massachusetts, Dartmouth/SMAST	CA2 45,000 lbs CA1 45,000 lbs NLCA 30,000 lbs	$225,000	$51,134	$173,866	0.23
2000	NA16FM1032	Sea Scallop Fishery Bycatch Reduction	Coonamessett Farm Foundation (CFF)	CA1 24,884 lbs NLCA 13,116 lbs;	$209,000	$44,100	$164,900	0.21
2000	NA16FM1031	Examination of Population Biology and Dynamics of the Sea Scallop in Discrete Areas of Georges Bank	University of Massachusetts, Dartmouth/SMAST	CA1 30,000 lbs NLCA 30,000 lbs	$360,000	$66,780	$293,220	0.19
2000	NA16FM1030	Performance Evaluation of a 4.0" Ring Scallop Dredge in the Context of Area Management Strategy for Sea Scallops	Virginia Institute of Marine Science (VIMS)	NLCA 12,000 lbs	$72,000	$11,970	$60,030	0.17
2000	NA16FM1029	Georges Bank Scallop Exemption Program	Virginia Institute of Marine Science (VIMS)	CA1 15,000 lbs	$90,000	$6,300	$83,700	0.07
2001	NA16FM1647	Evaluation of Bycatch Reduction Devices to Facilitate Summer Flounder Escapement from Scallop Trawls Closed Area Access	Virginia Institute of Marine Science (VIMS)	HC 15,300 lbs	$68,850	$10,350	$58,500	0.15

2001	NA16FM1648	Performance Evaluation of a 4.0" Ring Scallop Dredge in the Context of Area Management Strategy for Sea Scallops	Virginia Institute of Marine Science (VIMS)	HC 17,015 lbs	$76,568	$13,568	$63,000	0.18
2002	NA16FM2415	Evaluation of Gear Modifications to Reduce the Bycatch of Summer Flounder in Sea Scallop Dredges	Virginia Institute of Marine Science (VIMS)	HC 34,000 lbs	$119,001	$19,251	$99,750	0.16
2002	NA16FM2416	Examination of the Sea Scallop, *Placopecten magellanicus*, Recruitment in Closed and Open Areas of Georges Bank	University of Massachusetts, Dartmouth/SMAST	HC 107,400 lbs	$483,300	$120,474	$362,826	0.25
2003	NA03NMF4540344	Industry Trials of a Modified Sea Scallop Dredge to Minimize the Catch of Sea Turtles	Virginia Institute of Marine Science (VIMS)	HC 61,000 lbs	$204,350	$31,825	$172,525	0.16
2003	NA03NMF4540260	Comparison of Habitats Supporting High and Low Sea Scallop *Plactopecten magellanicus* Densities on Georges Bank	University of Massachusetts, Dartmouth/SMAST	HC 102,000 lbs	$341,700	$81,067	$260,633	0.24
2004	NA05NMF4540012	Examining the Effect of the 2004 Pulse Fishing Event on the Georges Bank and Closed Area Benthic Community	University of Massachusetts, Dartmouth/SMAST	HC 144,000 lbs	$584,640	$154,284	$430,356	0.26
2004	NA05NM4540013	Development of an Interactive Video Map Detailing the Georges Bank and Mid-Atlantic Benthic Community	University of Massachusetts, Dartmouth/SMAST	NLCA 64,368 lbs	$261,334	$64,140	$197,194	0.25
2004	NA05NMF4540009	Characterization of Scallop Abundance and Benthic Habitat Using Optical Imaging Technology	Arnie's Fisheries, Inc.	HC 36,000 lbs; NLCA 72,000 lbs; GBCA 45,000 lbs.	$621,180	$186,354	$434,826	0.30

2004	NA05NMF4540010	Preliminary Investigation of the Marine Biotoxins Along the Northwest Continental Atlantic Shelf	Arnie's Fisheries, Inc.	HC 18,000 lbs; NLCA 18,000 lbs; GBCA 18,000 lbs.	$282,320	$73,080	$219,240	0.26
2005	NA05NMF4541293	A Turtle Excluder Dredge for the Sea Scallop Fishery	Coonamessett Farm	6,226lbs CA1, 11,971 lbs CAII, 71,803 lbs HC	$424,800	$84,400	$340,400	0.20
2005	NA05NMF4541295	Multistage Centric Systematic Video Survey Design Verification	University of Massachusetts, Dartmouth/SMAST	91,000 lbs CA2	$429,520	$91,003	$338,517	0.21
2005	NA05NMF4541290	Examination of Benthic Substrates and Macroinvertebrate Distributions in the western Great South Channel and Nantucket Shoals	University of Massachusetts, Dartmouth/SMAST	96 DAS	$836,913	$181,093	$655,820	0.22
2005	NA05NMF4541294	An Assessment of Sea Scallop Abundance and Distribution in Selected Areas of Georges Bank and the Mid Atlantic	Virginia Institute of Marine Science (VIMS)	33,000 lbs CAII 52 DAS	$609,086	$64,528	$544,558	0.11
2005	NA05NMF4541291	Continued Investigation of the Marine Biotoxins Along the Northwest Continental Atlantic Shelf	Arnie's Fisheries, Inc.	18,000lbs CAI 18,000lbs CAII 72 DAS	$797,616	$119,641	$677,964	0.15
2005	NA05NMF4541292	Evaluation and Demonstration of Column Based Standard Scallop Bags for Enforcement and Dockside Monitoring of Trip Limits Output Controls to Control scallop Mortality in the Sea Scallop Fishery	Coonamessett Farm Foundation (CFF)	39,195 lbs CA1	$185,000	$37,000	$148,000	0.20

2006	NA06NMF4540258	A New Dredge for the Sea Scallop Fishery	Coonamessett Farm Foundation (CFF)	18,244lbs CA2; 5,000lbs NLSA; 40 DAS OA	$535,808	$107,162	$428,646	0.20
2006	NA06NMF4540263	Sea Turtle - Scallop Fishery Interaction Study	Coonamessett Farm Foundation (CFF)	95,000lb CA2 50 DAS	$471,410	$94,282	$377,128	0.20
2006	NA06NMF4540260	An Assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: Georges Bank Area 1, Nantucket Lightship and Elephant Trunk	Virginia Institute of Marine Science (VIMS)	50,000 ETCA 50,500 NLCA 45 DAS	$532,125	$62,165	$469,960	0.12
2006	NA06NMF4540257	Examination of Benthic Substrates and Macroinvertebrate Distributions on the Northern Edge of Georges Bank	University of Massachusetts, Dartmouth/SMAST	120 DAS	$1,128,600	$219,236	$909,364	0.19
2006	NA06NMF4540261	High-Resolution Video Survey of the Habitat and Sea Scallop Resource in the Elephant Trunk Closed Area	University of Massachusetts, Dartmouth/SMAST	56,401lbs CA2; 131,604lbs NLCA	$930,622	$188,004	$742,618	0.20
2006	NA06NMF4540264	Adaptive Characterization of Scallop Populations Using High resolution Optical Imaging from Tethered and Untethered Platforms	Arnie's Fisheries, Inc.	36,000 lbs NLSA; 120 DAS in OA (228,000lbs)	$1,306,800	$298,292	$1,008,508	0.23
2006	NA06NMF4540262	Testing Bycatch in an Observer-based Experimental Scallop Fishery Outside the GOM Scallop Dredge Exemption Area and within Portions of Statistical Areas 521 and 526	Gulf of Maine Research Institute (GMRI)	46,324 CA2; 36,176lbs NLSA 5 DAS	$408,375	$334,856	$73,519	0.82

2007	NA07NMF4540030	Characterization of Benthic Habitat and Scallop Abundance Using Optical Imaging Technology: Phase 2	Arnie's Fisheries, Inc.	100 DAS - OA 36,000 lbs - CA 1 36,000 lbs - ETCA	$1,787,850	$446,963	$1,340,887	0.25
2007	NA07NMF4540028	Developing an Improved Dredge for Standardized Surveys of the Sea Scallop Resource	Coonamessett Farm Foundation (CFF)	21,689 lbs - ETCA	$629,003	$125,800	$503,203	0.20
2007	NA07NMF4540029	Field Testing of a New Dredge for the Sea Scallop Fishery	Coonamessett Farm Foundation (CFF)	20,000 lbs - CA1 41,479 lbs - ETCA	$445,723	$89,144	$356,579	0.20
2007	NA07NMF4540027	Calibrating Industry Scallop Surveys with NOAA Vessel Platforms	Virginia Institute of Marine Science (VIMS)	15 DAS - OA 23,000 lbs CA1 44,000 lbs ETCA	$678,528	$74,639	$603,889	0.11
2007	NA07NMF4540026	An Assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: Georges Bank Area I and II, Nantucket Lightship and Elephant Trunk	Virginia Institute of Marine Science (VIMS)	30 DAS 23,000 lbs CA1 23,000 lbs NLSA 44,400 lbs - ETCA	$1,035,155	$113,866	$921,289	0.11
2007	NA07NMF4540031	High-Resolution Video Survey of the Habitat and Sea Scallop Resource in the Elephant Trunk and Nantucket Lightship Closed Areas	University of Massachusetts, Dartmouth/SMAST	204 DAS OA	$2,582,336	$356,184	$2,226,152	0.14
2008	NA08NMF4540663	Sea Turtle-Scallop Fishery Interaction Study	Coonamessett Farm Foundation (CFF)	87,855 lbs. ETCA	$673,174	$134,624	$538,550	0.20
2008	NA08NMF4540664	Assessment of Sea Scallop Distribution and Abundance in Federal Waters of the Gulf of Maine	ME DMR	70,000 lbs. ETCA	$539,000	$216,049	$322,951	0.40

2008	NA08NMF4540665	An Assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: George's Bank Area II and DelMaVA Closed Area	Virginia Institute of Marine Science (VIMS)	38,000 NLS 52,000 ETCA	$693,000	$83,160	$609,840	0.12
2008	NA08NMF4540666	Developing Tools to Evaluate Spawning and Fertilization Dynamics of the Giant Sea Scallop	Bigelow Laboratory	88,015 ETCA	$677,718	$183,270	$494,448	0.27
2008	NA08NMF4540667	An Assessment of Hanging Ratio and Mesh Orientation of Twine Tops on Selectivity and Bycatch in the General Category Scallop Dredge Fishery in Scallop Limited Access Area	Gulf of Maine Research Institute (GMRI)	70,565 ETCA 33 DAS	$687,325	$274,929	$412,396	0.40
2008	NA08NMF4540668	Characterization of Scallop Abundance and Benthic Habitat and Acoustic Imaging Technology	Arnie's Fisheries, Inc.	72,000 ETCA 72,000 NLS 100 DAS	$1,958,110	$460,036	$1,498,074	0.23
2009	NA09NMF4540128	High Resolution Video Survey of the Sea Scallop Resource, Recruitment Patterns and Habitat of the Elephant Trunk and Nantucket Lightship Closed Areas	University of Massachusetts, Dartmouth/SMAST	18,270 lbs ETCA 79 DAS	$836,977	$122,544	$714,433	0.15
2009	NA09NMF4540130	Evaluation of Northwest Atlantic Ocean Continental Shelf Substrates	University of Massachusetts, Dartmouth/SMAST	36,000 lbs Delmarva 66 DAS	$855,808	$111,961	$743,847	0.13
2009	NA09NMF4540129	Testing of a Sea Scallop Dredge Dual Mesh Size Twine Top for Bycatch Reduction	Coonamessett Farm Foundation (CFF)	28,160 CA II 56,322 lbs ETCA 68,298 lbs Delmarva	$1,153,412	$288,353	$865,059	0.25

2009	NA09NMF4540131	Sea Turtle Oceanography Study	Coonamessett Farm Foundation (CFF)	132,408 lbs ETCA	$999,680	$199,929	$799,751	0.20
2009	NA09NMF4540132	Continuing the Time Series: Calibrating the NMFS Sea Scallop Survey to the R/V Sharp	Virginia Institute of Marine Science (VIMS)	45,000 lbs ETCA	$339,750	$40,770	$298,980	0.12
2009	NA09NMF4540133	An Assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: Nantucket Lightship Closed Area	Virginia Institute of Marine Science (VIMS)	33,840 lbs CAII 13,160 lbs Delmarva	$354,850	$40,770	$314,080	0.11
2009	NA09NMF4540242	Optical Survey of Scallop Abundance	Arnie's Fisheries, Inc.	54,000 lbs CA II 72,000 lbs ETAA 89 DAS OA	$1,738,825	$418,608	$1,320,217	0.24
2010	NA10NMF4540471	Real-Time Electronic Bycatch Reporting Pilot Project	Coonamessett Farm Foundation (CFF)	14,000 lbs. Delmarva 32 DAS	$484,250	$96,850	$387,400	0.20
2010	NA10NMF4540472	Loggerhead Sea Turtle Ecology on the Sea Scallop Grounds	Coonamessett Farm Foundation (CFF)	157,084 lbs. ETAA	$863,962	$223,784	$640,178	0.26
2010	NA10NMF4540473	Testing of Modifications to the Cfarm Turtle Excluder Dredge for Bycatch Reduction	Coonamessett Farm Foundation (CFF)	19,614 lbs. NLSA 60 DAS	$918,184	$229,546	$688,638	0.25
2010	NA10NMF4540474	Tracking a Large Sea Scallop Recruitment Event with High-Resolution Video Survey in the Gulf of Maine	University of Massachusetts, Dartmouth/SMAST	69,976 lbs. ETAA 32,700 lbs. Delmarva	$775,206	$103,361	$671,846	0.13
2010	NA10NMF4540475	High-Resolution Video Survey of the Sea Scallop Resource, Recruitment Patterns, and Haabitat of the Hudson Canyon and Delmarva Closed Area	University of Massachusetts, Dartmouth/SMAST	83 DAS	$1,065,305	$140,500	$924,805	0.13
2010	NA10NMF4540476	An Assessment of Sea Scallop Abundance and Distribution in Selected	Virginia Institute of Marine Science (VIMS)	26,206 lbs. NLSA 20,000 lbs. Del.	$348,855	$48,845	$300,000	0.14

		Closed Areas: Hudson Canyon Closed Area						
2010	NA10NMF4540477	An Assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: Georges Bank Closed Area 1	Virginia Institute of Marine Science (VIMS)	33,000 lbs. Del. 14 DAS	$428,840	$61,320	$367,520	0.14
2010	NA10NMF4540478	Scallop, Yellowtail Flounder, and Substrate Distribution in the Closed Area II Scallop Access Area and the Western Side of the Great South Channel	Arnie's Fisheries, Inc.	72,000 lbs. NLSA 18,000 lbs. Del. 80 DAS	$1,706,300	$409,512	$1,296,788	0.24
2011	NA11NMF4540009	An Assessment of Sea Scallop Abundance and Distribution in a Selected Closed Area: George's Bank Closed Area II	Virginia Institute of Marine Science (VIMS)	46,250	$353,353	$53,353	$300,000	#VALUE!
2011	NA11NMF4540010	An Assessment of Sea Scallop Abundance and Distribution in a Selected Closed Area: Nantucket Lightship Closed Area	Virginia Institute of Marine Science (VIMS)	19,716 (2011) 26,524 (2012)	$353,353	$53,353	$300,000	0.15
2011	NA11NMF4540011	A Descriptive Sea Scallop Survey of the Federal Inshore Areas of the New York Bight Using a Camera Mounted Autonomous Underwater Vehicle	Phoel Associates	104,659	$799,600	$159,920	$639,680	0.20
2011	NA11NMF4540012	High-Resolution Video Survey of the Sea Scallop Resource in the Hudson Canyon Area	University of Massachusetts, Dartmouth/SMAST	55,499	$424,011	$88,798	$335,213	0.21
2011	NA11NMF4540016	An Assessment of Sea Scallop Abundance and Distribution in Selected Closed Areas: DelMarVa Closed Area	Virginia Institute of Marine Science (VIMS)	46,250	$353,353	$53,353	$300,000	0.15

2011	NA11NMF4540017	An Assessment of Sea Scallop Abundance and Distribution in a Selected Closed Area: New York Bight and Southern New England Area	Virginia Institute of Marine Science (VIMS)	90,315	$690,010	$90,010	$600,000	0.13
2011	NA11NMF4540018	Extension of the SMAST video survey in the Western portion of the Mid-Atlantic	University of Massachusetts, Dartmouth/SMAST	53,641	$409,820	$85,826	$323,994	0.21
2011	NA11NMF4540019	Assessment of Sea Scallop Distribution and Abundance in Federal and Adjacent State Waters of the Gulf of Maine	Maine Department of Marine Resources	77,135	$589,314	$235,726	$353,588	0.40
2011	NA11NMF4540020	Scallop Biomass, Bycatch and Substrate Distribution in Closed Area I Scallop Access Areas	Arnie's Fisheries, Inc.	130,628	$998,000	$239,035	$758,965	0.24
2011	NA11NMF4540021	Testing a Low Profile Scallop Dredge for Bycatch Reduction	Coonamessett Farm Foundation (CFF)	109,529	$836,800	$209,200	$627,600	0.25
2011	NA11NMF4540024	Understanding the Impacts of the Sea Scallop Fishery on Loggerheads through Satellite Tagging	Coonamessett Farm Foundation (CFF)	96,073	$734,000	$146,800	$587,200	0.20
2011	NA11NMF4540025	Developing Tools to Evaluate Spawning & Fertilization Dynamics of the Giant Sea Scallop Phase II: Field Trials in Experimental Populations	University of Maine	93,253	$712,455	$192,455	$520,000	0.27
2011	NA11NMF4540026	Effects of Mobile Fishing Gear on Geological and Biological Structure: A Georges Bank Closed Versus Open Area Comparison	University of Massachusetts, Dartmouth/SMAST	85,203	$650,953	$136,325	$514,628	0.21
2011	NA11NMF4540027	Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch	Coonamessett Farm Foundation (CFF)	241,846	$1,847,700	$461,927	$1,385,773	0.25

2012	NA12NMF4540030	Evaluating the Condition and Discard Mortality of Skates Following Capture and Handling in the Sea Scallop Dredge Fishery	Virginia Institute of Marine Science (VIMS)	115,992	$1,092,642	$291,598	$801,044	0.27
2012	NA12NMF4540031	An Inventory of the Sea Scallop Resource in the Georges Bank Closed Area II and Surrounds	Virginia Institute of Marine Science (VIMS)	38,694	$364,498	$63,260	$301,238	0.17
2012	NA12NMF4540032	An Assessment of Sea Scallop Abundance and Distribution in the Hudson Canyon Closed Area and Adjacent Inshore Areas	Virginia Institute of Marine Science (VIMS)	71,976	$678,016	$101,702	$576,314	0.15
2012	NA12NMF4540033	Bycatch Characterization in the Southern New England Sea Scallop Fishery	Fisheries Specialist	62,036	$584,375	$233,750	$350,625	0.40
2012	NA12NMF4540034	Seasonal Bycatch Survey of the George's Bank Scallop Fishery	Coonamessett Farm Foundation (CFF)	269,486	$2,538,554	$634,639	$1,903,916	0.25
2012	NA12NMF4540035	Expansion of the Yellowtail Bycatch System	University of Massachusetts, Dartmouth/SMAST	45,300	$426,729	$94,829	$331,900	0.22
2012	NA12NMF4540036	What Causes Gray Meat in the Atlantic Sea Scallop Placopecten Magellanicus in Georges Bank Closed Areas?	University of Massachusetts, Dartmouth/SMAST	40,323	$379,843	$84,409	$295,434	0.22
2012	NA12NMF4540037	Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles Through Satellite Tagging	Coonamessett Farm Foundation (CFF)	84,739	$798,240	$199,560	$598,680	0.25
2012	NA12NMF4540038	High-resolution Video Survey of the Sea Scallop Resource in the Nantucket Lightship and Closed Area I Access Areas	University of Massachusetts, Dartmouth/SMAST	98,404	$926,964	$205,992	$720,972	0.22

2012	NA12NMF4540039	Real-Time Electronic Bycatch Reporting Pilot Project	Coonamessett Farm Foundation (CFF)	75,554	$711,720	$177,930	$533,790	0.25
2012	NA12NMF4540040	Optical Survey of Closed Area II Scallop Access Area and the Nothern Edge Habitat Area of Particular Concern and Contiguous Areas	Arnie's Fisheries, Inc.	137,755	$1,297,656	$324,414	$973,242	0.25
2012	NA12NMF4540041	Testing of Scallop Dredge Bag Design Changes For Flatfish Bycatch Reduction	Coonamessett Farm Foundation (CFF)	94,482	$888,132	$222,033	$666,099	0.25
2012	NA12NMF4540042	Design and Test of a Hydrodynamic Scallop Dredge to Reduce Bycatch, Minimize Bottom Impact and Improve Fuel Efficiency	University of Massachusetts, Dartmouth/SMAST	88,838	$836,854	$209,244	$627,610	0.25
2013	NA13NMF4540009	Habitat Characterization and Sea Scallop Resource Enhancement Study in a Proposed Habitat Research Area	Coonamessett Farm Foundation (CFF)	82,711	$806,436	$201,609	$604,827	0.25
2013	NA13NMF4540010	Turtle Satellite Tagging Study	Coonamessett Farm Foundation (CFF)	41,497	$971,360	$242,840	$728,520	0.25
2013	NA13NMF4540011	Seasonal Bycatch	Coonamessett Farm Foundation (CFF)	258,698	$2,522,307	$630,577	$1,891,730	0.25
2013	NA13NMF4540012	Sea Scallop Gear Tests	Coonamessett Farm Foundation (CFF)	102,124	$995,712	$248,978	$746,734	0.25
2013	NA13NMF4540013	Preventing Bycatch of Yellowtail Flounder in the Scallop Fishery	National Fisheries Institute	34,762	$338,931	$84,733	$254,198	0.25
2013	NA13NMF4540014	Identifying Source Sink Dynamics in Sea Scallop Populations of the Northwest Atlantic	Northeastern University	113,584	$1,107,448	$276,862	$830,586	0.25

2013	NA13NMF4540015	Scallop Fishery Bycatch Avoidance System	University of Massachusetts, Dartmouth/SMAST	65,376	$637,417	$147,096	$490,321	0.23
2013	NA13NMF4540016	High-Resolution Video Survey of the Sea Scallop Resource in George's Bank Closed Area II (South) and Delmarva	University of Massachusetts, Dartmouth/SMAST	88,908	$866,849	$216,712	$650,136	0.25
2013	NA13NMF4540017	Survey of Persistent Scallop Aggregations and an Examination of Their Influence on Recruitment Using the FVCOM Oceanographic Model	University of Massachusetts, Dartmouth/SMAST	101,933	$993,844	$248,461	$745,383	0.25
2013	NA13NMF4540018	A Synoptic Survey of the Sea Scallop Resource in the Mid-Atlantic	Virginia Institute of Marine Science (VIMS)	125,915 (2013) 37,415 (2014)	$1,592,471	$300,598	$1,291,874	0.19
2013	NA13NMF4540019	An Assessment of Sea Scallop Abundance and Distribution in the Access Area of the Nantucket Lightship Closed Area	Virginia Institute of Marine Science (VIMS)	32,270	$314,628	$62,926	$251,702	0.20
2013	NA13NMF4540020	An Assessment of Sea Scallop Abundance and Distribution in the Northeast George's Bank Area	Virginia Institute of Marine Science (VIMS)	35,602	$347,122	$65,953	$281,169	0.19
2013	NA13NMF4540021	Optical Survey of Scallop Resource Areas: Closed Area I, Closed Area II HAPC, & Contiguous Areas	Arnie's Fisheries, Inc.	102,143	$995,894	$248,974	$746,921	0.25
2013	NA13NMF4540022	Combined High-Resolution Video Survey and Biological Sampling Using a Modified Sled Dredge of the Sea Scallop Resource in Nantucket Lightship Access Area	University of Massachusetts, Dartmouth/SMAST	64,477	$628,653	$157,163	$471,490	0.25

2014	NA14NMF4540068	Improvements to the CFTDD Design for Flatfish Bycatch Reduction and Energy Efficient	Coonamessett Farm Foundation (CFF)	103,069	$1,082,224	$270,556	$811,668	0.25
2014	NA14NMF4540069	Scallop Fishery Bycatch Avoidance System	University of Massachusetts, Dartmouth/SMAST	64,662	$678,955	$152,765	$526,190	0.23
2014	NA14NMF4540070	Broadscale Video Survey of the Open Areas of Georges Bank	University of Massachusetts, Dartmouth/SMAST	130,298 (2014) 130,298 (2015)	$2,736,252	$586,340	$2,149,912	0.21
2014	NA14NMF4540071	Assessment of Sea Scallop Distribution and Abundance in Federal and Adjacent state Waters of the Gulf of Maine	Maine Department of Marine Resources (MDMR)	53,192 (2014) 35,461 (2015)	$930,859	$372,344	$558,515	0.40
2014	NA14NMF4540072	Investigating the effects of ocean acidification and warming on the shell properties and meat weights of NW Atlantic sea scallops via paired field surveys and laboratory experiments	Northeastern University	87,550 (2014) 76,330 (2015)	$1,720,742	$430,186	$1,290,557	0.25
2014	NA14NMF4540073	Incidental Mortality Estimates of Sea Scallops from AUV based BACI Surveys	University of Deleware (UD)	109,314 (2014) 48,433 (2015)	$1,656,339	$579,719	$1,076,620	0.35
2014	NA14NMF4540074	An Assessment of Sea Scallop Abundance and Distribution in the Long Island/Southern New England Area	Virginia Institute of Marine Science (VIMS)	43,462	$456,346	$82,142	$374,204	0.18
2014	NA14NMF4540075	High-Resolution Video Survey and Biological Sampling of the Northern area of Closed Area I	University of Massachusetts, Dartmouth/SMAST	41,800	$438,898	$94,050	$344,848	0.21
2014	NA14NMF4540076	Habitat Characterization and Sea Scallop Resource Enhancement Study in a	Coonamessett Farm Foundation (CFF)	73,414	$770,852	$82,653	$688,199	0.11

		proposed Habitat research Area – Year Two						
2014	NA14NMF4540077	Discard Mortality of Sea Scallops following capture and handling in the sea scallops dredge fishery	Virginia Institute of Marine Science (VIMS)	91,808 (2014) 66,019 (2015)	$1,657,181	$439,153	$1,218,028	0.27
2014	NA14NMF4540078	Determining Incidental Discard Mortality of Atlantic Sea Scallops, Placopecten magellanicus (Gmelin, 1791), in the Scallop Dredge Fishery in the Mid-Atlantic Bight	National Fisheries Institute (NFI)	34,913	$366,588	$91,647	$274,941	0.25
2014	NA14NMF4540079	Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles	Coonamessett Farm Foundation (CFF)	87,558	$919,360	$229,840	$689,520	0.25
2014	NA14NMF4540080	Tracking the occurrence of grey meat in Atlantic sea scallops	University of Massachusetts, Dartmouth/SMAST	54,488	$572,123	$128,728	$443,395	0.23
2014	NA14NMF4540081	Optical Survey of Scallop Resource in the Elephant Trunk Scallop Access Area	Arnies Fisheries, Inc.	85,269	$895,320	$223,830	$671,490	0.25
2014	NA14NMF4540082	Estimating Incidental Mortality in the Sea Scallop Fishery	Coonamessett Farm Foundation (CFF)	29,197 (2014) 40,929 (2015)	$736,320	$184,080	$552,240	0.25
2014	NA14NMF4540083	Optical Survey of Recent Scallop Settlement Areas Along the Southern New England Continental Shelf	Arnies Fisheries, Inc.	85,177	$894,360	$223,590	$670,770	0.25
2015	NA15NMF4540055	Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles through Satellite Tagging	Coonamessett Farm Foundation (CFF)	66,420	$797,040	$199,260	$597,780	0.25

2015	NA15NMF4540056	Habitat Characterization and Sea Scallop Resource Enhancement Study in a Proposed Habitat Research Area- Year Three	Coonamessett Farm Foundation (CFF)	81,640	$979,680	$244,920	$734,760	0.25
2015	NA15NMF4540057	Determination of the Impacts of Dredge Speed on Bycatch Reduction and Scallop Selectivity weights of NW Atlantic sea scallops via paired field surveys and laboratory experiments	Coonamessett Farm Foundation (CFF)	79,176	$950,112	$237,528	$712,584	0.25
2015	NA15NMF4540058	Determining the Impacts of Dredge Bag Modifications on Flatfish Bycatch in the LAGC Scallop Fishery	Coonamessett Farm Foundation (CFF)	25,683	$308,200	$77,050	$231,150	0.25
2015	NA15NMF4540059	Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch	Coonamessett Farm Foundation (CFF)	166,653	$1,999,832	$499,958	$1,499,874	0.25
2015	NA15NMF4540061	Development and Implementation of a High Precision Resource Wide Dredge Survey of the Mid-Atlantic Scallop Resource Area	Virginia Institute of Marine Science (VIMS)	80,539	$966,472	$173,965	$792,507	0.18
2015	NA15NMF4540055	Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles through Satellite Tagging	Coonamessett Farm Foundation (CFF)	66,420	$797,040	$199,260	$597,780	0.25
2015	NA15NMF4540056	Habitat Characterization and Sea Scallop Resource Enhancement Study in a Proposed Habitat Research Area- Year Three	Coonamessett Farm Foundation (CFF)	81,640	$979,680	$244,920	$734,760	0.25

2015	NA15NMF4540057	Determination of the Impacts of Dredge Speed on Bycatch Reduction and Scallop Selectivity weights of NW Atlantic sea scallops via paired field surveys and laboratory experiments	Coonamessett Farm Foundation (CFF)	79,176	$950,112	$237,528	$712,584	0.25
2015	NA15NMF4540058	Determining the Impacts of Dredge Bag Modifications on Flatfish Bycatch in the LAGC Scallop Fishery	Coonamessett Farm Foundation (CFF)	25,683	$308,200	$77,050	$231,150	0.25
2015	NA15NMF4540059	Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch	Coonamessett Farm Foundation (CFF)	166,653	$1,999,832	$499,958	$1,499,874	0.25
2015	NA15NMF4540061	Development and Implementation of a High Precision Resource Wide Dredge Survey of the Mid-Atlantic Scallop Resource Area	Virginia Institute of Marine Science (VIMS)	80,539	$966,472	$173,965	$792,507	0.18
2015	NA15NMF4540062	Broadscale Video survey of Georges Bank Scallop Open Areas	University of Massachusetts, Dartmouth/SMAST	166,187	$1,994,248	$373,922	$1,620,327	0.19
2015	NA15NMF4540063	Scallop Fishery Bycatch Avoidance System 2015	University of Massachusetts, Dartmouth/SMAST	61,021	$732,252	$160,738	$571,513	0.22
2015	NA15NMF4540064	Optical Survey of the Resource in the Elephant Trunk Scallop Access Area	Arnies Fisheries, Inc.	52,444	$629,328	$157,332	$471,996	0.25
2015	NA15NMF4540065	Optical survey of recent scallop settlement areas along the Southern New England Shelf including the southern portion of the Nantucket Lightship scallop Access Area	Arnies Fisheries, Inc.	67,380	$808,560	$202,140	$606,420	0.25

2016	NA16NMF4540034	Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch	Coonamessett Farm Foundation (CFF)	166,191	$1,994,292	$498,573	$1,495,719	0.25
2016	NA16NMF4540035	A Modified Flounder Sweep for Flatfish Bycatch Reduction in the LAGC Scallop Fishery	Coonamessett Farm Foundation (CFF)	30,793	$369,520	$92,380	$277,140	0.25
2016	NA16NMF4540036	Development of Ecosystem Friendly Scallop Dredge Bags: Tools for Long-Term Sustainability	Coonamessett Farm Foundation (CFF)	146,350	$1,576,200	$394,050	$1,182,150	0.25
2016	NA16NMF4540037	Understanding impacts of the sea scallop fishery on loggerhead sea turtles through satellite tagging	Coonamessett Farm Foundation (CFF)	74,338	$892,059	$223,015	$669,044	0.25
2016	NA16NMF4540038	Drivers of Dispersal and Retention in Recently Seeded Sea Scallops	Coonamessett Farm Foundation (CFF)	90,011	$1,080,128	$270,032	$810,096	0.25
2016	NA16NMF4540039	Age structure and growth rate in the sea scallop Placopecten magellanicus	Virginia Institute of Marine Science (VIMS)	51,139	$613,673	$202,512	$411,161	0.33
2016	NA16NMF4540040	Scallop Mark-Recapture to Estimate Density Dependent Natural Mortality and Growth	Virginia Institute of Marine Science (VIMS)	49,524	$594,284	$148,571	$445,713	0.25
2016	NA16NMF4540041	A Cooperative High Precision Dredge Survey to Assess the Mid-Atlantic Sea Scallop Resource Area	Virginia Institute of Marine Science (VIMS)	164,946	$1,979,346	$395,870	$1,583,478	0.20
2016	NA16NMF4540042	An Assessment of Sea Scallop Abundance and Distribution in Georges Bank Closed Area II and Surrounds	Virginia Institute of Marine Science (VIMS)	37,351	$448,215	$89,643	$358,572	0.20
2016	NA16NMF4540043	An Investigation into the Scallop Parasite Outbreak on the Mid-Atlantic Shelf: Transmission Pathways, Spatio-Temporal Variation	Virginia Institute of Marine Science (VIMS)	78,785	$945,422	$231,628	$713,794	0.24

		of Infection, and Consequences to Marketability						
2016	NA16NMF4540044	An Assessment of Sea Scallop Abundance and Distribution in the Nantucket Lightship Closed Area and Surrounds	Virginia Institute of Marine Science (VIMS)	74,329	$891,945	$178,389	$713,556	0.20
2016	NA16NMF4540045	Impact of Disturbance on Habitat Recovery in Habitat Management Areas on George's Bank	Woods Hole Oceanographic Institute (WHOI)	222,162	$2,665,944	$666,486	$1,999,458	0.25
2017	NA17NMF4540028	2017 Broadscale drop camera survey of the US east coast sea scallop resource	University of Massachusetts, Dartmouth/SMAST	75,518	$906,217	$256,681	$649,536	0.28
2017	NA17NMF4540029	A Cooperative High Precision Dredge Survey to Assess the Mid-Atlantic Sea Scallop Resource Area in 2018	Virginia Institute of Marine Science (VIMS)	74,426	$893,114	$182,373	$710,741	0.20
2017	NA17NMF4540030	Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch	Coonamessett Farm Foundation (CFF)	164,509	$1,974,112	$493,528	$1,480,584	0.25
2017	NA17NMF4540031	Understanding the Impacts of the Atlantic Sea Scalloop Fishery on Loggerhead Sea Turtles	Coonamessett Farm Foundation (CFF)	74,917	$899,000	$224,750	$674,250	0.25
2017	NA17NMF4540032	Development of an Extended Link Apron: A Broad Range Tool for Bycatch Reduction	Coonamessett Farm Foundation (CFF)	87,000	$1,044,000	$261,000	$783,000	0.25
2017	NA17NMF4540033	Factors Influencing Scallop Landings per Unit Effort (LPUE)	University of Massachusetts, Dartmouth/SMAST	22,517	$270,199	$77,200	$192,999	0.29

2017	NA17NMF4540034	High-resolution drop camera survey examining the scallop population and habitat in the Closed Area II access area and extension	University of Massachusetts, Dartmouth/SMAST	25,560	$306,715	$89,458	$217,257	0.29
2017	NA17NMF4540035	An Optical Assessment of Sea Scallop and Predator Abundance and Distribution in the Nantucket Lightship Closed Area and Surrounds in Coordination with the VIMS Dredge Survey	Coonamessett Farm Foundation (CFF)	61,833	$742,000	$195,750	$546,250	0.26
2017	NA17NMF4540036	Improving a Low Profile Dredge Using Computational Fluid Dynamics and Flume Tank Testing	Coonamessett Farm Foundation (CFF)	38,662	$463,940	$115,985	$347,955	0.25
2017	NA17NMF4540037	Monitoring gray meat infestations in Atlantic sea scallops in a Closed Area on Georges Bank	University of Massachusetts, Dartmouth/SMAST	35,680	$428,160	$119,884	$308,276	0.28
2017	NA17NMF4540038	A Study of Incidental Mortality in Sea Scallops Investigating Predator Response and Size Selective Rates Of Mortality From BACI Image Surveys	University of Deleware (UDE)	185,583	$2,226,996	$556,748	$1,670,248	0.25
2017	NA17NMF4540040	Evaluating the Condition and Discard Mortality of Monkfish, Lophius americanus, Following Capture and Handling in the Sea Scallop Dredge Fishery	Virginia Institute of Marine Science (VIMS)	128,252	$1,539,027	$346,718	$1,192,309	0.23
2017	NA17NMF4540041	Measuring swimming capacity of yellowtail and windowpane flounders	University of Massachusetts, Dartmouth/SMAST	41,425	$497,102	$124,276	$372,826	0.25

2017	NA17NMF4540042	Sea scallop larval and early juvenile transport the along the northeast continental shelf: A modeling tool to enhance scallop management of rotationally closed areas	University of Massachusetts, Dartmouth/SMAST	113,022	$1,356,260	$339,065	$1,017,195	0.25
2017	NA17NMF4540043	High-resolution drop camera survey examining the scallop population and habitat in the Closed Area I access area and sliver	University of Massachusetts, Dartmouth/SMAST	12,137	$145,647	$42,480	$103,167	0.29
2017	NA17NMF4540044	A Study to Assess the Effect of Tow Duration and Estimate Dredge Efficiency for the VIMS Sea Scallop Dredge Survey	Virginia Institute of Marine Science (VIMS)	105,043	$1,260,510	$283,615	$976,895	0.23
2017	NA17NMF4540045	An Assessment of Sea Scallop Abundance and Distribution in Georges Bank Closed Area II and the Southern Extension Closure	Virginia Institute of Marine Science (VIMS)	30,435	$365,222	$80,044	$285,178	0.22
2018	NA18NMF4540009	The effect of density on growth, yield and reproduction of the sea scallop, Placopecten magellanicus	Virginia Institute of Marine Science (VIMS)	116,718	$1,225,538	$272,678	$952,860	0.22
2018	NA18NMF4540010	Optimizing the Georges Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch	Coonamessett Farm Foundation (CFF)	190,182	$1,996,912	$499,228	$1,497,684	0.25
2018	NA18NMF4540011	Understanding the Impacts of the Atlantic Sea Scallop Fishery on Loggerhead Sea Turtles	Coonamessett Farm Foundation (CFF)	72,609	$762,395	$190,599	$571,796	0.25
2018	NA18NMF4540012	Understanding Dredge Performance for a Lined versus Unlined NMFS Sea Scallop Dredge	Virginia Institute of Marine Science (VIMS)	15,247	$160,098	$40,025	$120,074	0.25

2018	NA18NMF4540013	Quantifying the Selectivity Characteristics of an Extended Link Apron using a Dredge Cover Net	Coonamessett Farm Foundation (CFF)	83,320	$874,859	$218,715	$656,144	0.25
2018	NA18NMF4540014	Age-based assessment in the sea scallop Placopecten magellanicus: a pilot study	Virginia Institute of Marine Science (VIMS)	65,978	$692,772	$153,630	$539,142	0.22
2018	NA18NMF4540015	An assessment of sea scallop abundance and distribution in the Nantucket Lightship closed area and essential fish habitat area	Virginia Institute of Marine Science (VIMS)	59,859	$628,516	$125,703	$502,813	0.20
2018	NA18NMF4540016	An assessment of sea scallop abundance and distribution in the Georges Bank access areas (CAI and CAII) and surrounds	Virginia Institute of Marine Science (VIMS)	72,216	$758,266	$151,653	$606,613	0.20
2018	NA18NMF4540017	High-resolution drop camera surveys to track scallop aggregations in CAI and Great South Channel	University of Massachusetts, Dartmouth/SMAST	33,626	$353,073	$84,065	$269,008	0.24
2018	NA18NMF4540018	High resolution drop camera survey examining sea stars dynamics in extremely dense scallop beds of the Nantucket Lightship Closed Area	University of Massachusetts, Dartmouth/SMAST	38,288	$402,027	$95,721	$306,306	0.24
2018	NA18NMF4540019	High-resolution drop camera survey examining the scallop population and habitat in the Gulf of Maine	University of Massachusetts, Dartmouth/SMAST	48,922	$513,680	$122,305	$391,375	0.24
2018	NA18NMF4540020	High Intensity Optical Survey of the Mid-Atlantic Bight Rotational Closure Areas: Elephant Trunk and Hudson Canyon	Woods Hole Oceanographic Institute (WHOI)	129,385	$1,358,540	$339,635	$1,018,905	0.25

2018	NA18NMF4540021	An Optical Assessment of Sea Scallop Abundance, Distribution and Growth in the Nantucket Lightship Scallop Management	Coonamessett Farm Foundation (CFF)	84,134	$883,405	$220,851	$662,554	0.25
2018	NA18NMF4540022	High Intensity Optical Survey of Closed Area II	Woods Hole Oceanographic Institute (WHOI)	114,616	$1,203,468	$300,867	$902,601	0.25
2018	NA18NMF4540077	Developing a Spatially & Temporally Explicit Gonadosomatic Index through the Scallop Observer Program: A Pilot Study	Woods Hole Oceanographic Institute (WHOI)	45,019	$472,696	$118,174	$354,522	0.25

Monkfish RSA Awards

Table 4. Monkfish RSA awards (2000-2018)

FY	Grant Number	Title	Recipient	RSA Allocated in DAS	Est. Total Value	Est. Research Value	Est. Comp. Value	Split
2007	NA07NMF4540023	A Tagging Study to Assess Monkfish (*Lophius americanus*) movements and Stock Structure in the Northeastern United States	Gulf of Maine Research Institute (GMRI)	185	$647,500	$185,233	$462,267	0.29
2007	NA07NMF4540025	Determining the Best Mesh Size for Gillnetting Monkfish, *Lophius americanus*	Capt. Brad Bowen	80	$231,000	$196,139	$34,861	0.85
2008	NA08NMF4540430	Evaluating the Discard of Monkfish Caught as Bycatch on Northeast Multispecies DAS and Directed Monkfish Trips: An Application of the Study Fleet Electronic Logbook Program	Gulf of Maine Research Institute (GMRI)	139	$417,000	$118,548	$298,452	0.28
2008	NA08NMF4540431	Movements, Growth, and Habitat Use of Mokfish Based on Archival Tagging and Otolith Elemental Analysis	Gulf of Maine Research Institute (GMRI)	191	$572,044	$163,441	$408,603	0.29
2008	NA08NMF4540433	Influence of Climate on the Distribution and Catch Rates of Monkfish	UMD Eastern Shore	94	$310,166	$88,558	$221,608	0.29
2008	NA08NMF4540432	An Evaluation of the Effects of Gill Net Alterations on Selectivity and Relative Efficiency in the Monkfish Fishery	Virginia Institute of Marine Science (VIMS)	76	$158,898	$47,481	$111,417	0.30
2009	NA09NMF4540045	Influence of Climate on the Distribution and Catch Rates of Monkfish, Lophius americanus	UMD Eastern Shore	105	$340,046	$68,009	$272,037	0.20
2009	NA09NMF4540046	Tagging to Assess Monkfish (Lophius americanus) Movements and Stock Structure in the Northeastern United States	Gulf of Maine Research Institute (GMRI)	141	$394,800	$113,168	$281,632	0.29

2009	NA09NMF4540047	A Weight of Evidence Approach for Validating Age & Growth in US Monkfish (Lophius americanus) Stocks	Gulf of Maine Research Institute (GMRI)	205	$568,400	$162,119	$406,281	0.29
2010	NA10NMF4540336	Northeast Regional Monkfish Tagging Program: Additional archival tagging and otolith analyses to assess monkfish movements and age	Gulf of Maine Research Institute (GMRI)	313	$876,345	$156,445	$719,900	0.18
2010	NA10NMF4540338	An evaluation of tiedown length in monkfish gillnets on monkfish retention and the potential use as a bycatch reduction measure	Gulf of Maine Research Institute (GMRI)	162	$453,432	$80,832	$372,600	0.18
2011	NA11NMF4540006	Influence of temperature on the distribution and catch rates of monnkfish, Lophius americanus	UMD Eastern Shore	96	$285,354	$79,899	$205,455	0.28
2011	NA11NMF4540007	Using Archival Tagging and Age Validation Efforts to Assess Monkfish Movement, Age Structure, and Growth	Gulf of Maine Research Institute (GMRI)	368	$1,030,219	$183,819	$846,400	0.18
2012	NA12NMF4540095	Coastwide Stock Structure of Monkfish Using Microsatellite DNA Analysis	CCE	371	$1,687,000	$208,336	$1,478,664	0.12
2012	NA12NMF4540096	Age Validation of Monkfish in the Gulf of Maine	University of Massachusetts, Dartmouth/SMAST	129	$360,955	$64,255	$296,700	0.18
2013	NA13NMF4540090	Influence of Temperature and Lunar Cycle on the Distribution and Catch Rates of Monkfish	UMD Eastern Shore	99	$378,000	$105,840	$272,160	0.28
2013	NA13NMF4540091	Age Validation of Monkfish in the Gulf of Maine	University of Massachusetts, Dartmouth/SMAST	327	$1,147,652	$182,021	$965,631	0.16
2014 2015	NA14NMF4540226	Evaluating the Condition and Discard Mortality of Winter Skate, Leucoraja ocellata, Following Capture and Handling in the Sink Gillnet Fishery	University of New England (UNE)	359 DAS (2014) 248 DAS (2015)	$1,821,069	$349,983	$1,471,086	0.19
2014 2015	NA14NMF4540227	Archival Tagging and Age Validation in the Mid-Atlantic	University of Massachusetts,	141 DAS (2014)	$1,379,430	$235,800	$1,143,630	0.17

			Dartmouth/SMAST	252 DAS (2015)				
2016 2017	NA16NMF4540108	Estimating Growth and Movement of Juvenile Monkfish	University of Massachusetts, Dartmouth/SMAST	250 DAS (2016) 200 DAS (2017)	$1,631,340	$270,000	$1,361,340	0.17
2016 2017	NA16NMF4540109	Fine Scale Genetic Population Structure of Monkfish	CCE	250 DAS (2016) 300 DAS (2017)	$2,145,900	$321,883	$1,824,017	0.15
2018 2019	NA18NMF4540330	Development of a histological protocol for the age determination of monkfish, Lophius americanus	University of New England	209 DAS (2018) 192 DAS (2019)	$2,109,346	$163,927	$1,945,419	0.08
2018 2019	NA18NMF4540331	Exploring non-lethal techniques for sex determination and evaluation of maturity stage of Southern New England monkfish, Lophius americanus	Coonamessett Farm Foundation (CFF)	135 DAS (2018) 161 DAS (2019)	$1,559,411	$121,189	$1,438,222	0.08
2018 2019	NA18NMF4540332	Increasing Twine Thickness and Mesh Size to Reduce Skate Bycatch in Monkfish Sink Gillnets	CCE	156 DAS (2018) 147 DAS (2019)	$1,594,243	$123,896	$1,470,347	0.08

Herring RSA Awards

Table 5. Atlantic herring RSA awards (2000-2018)

FY	Grant Number	Title	Recipient	RSA Allocated	Est. Total Value	Est. Research Value	Est. Comp. Value	Split
2008 2009	NA08NMF4540429	Effects of Fishing on Herring Aggregations	Gulf of Maine Research Institute (GMRI)	2700 mt Area 1A 600 mt Area 1B	$666,600	$242,565	$424,035	0.36
2014 2015	NA14NMF4540006	River herring by-catch avoidance	University of Massachusetts, Dartmouth/SMAST	1872 mt Area 1A 276 mt Area 1B 1800 mt Area 2	$1,046,160	$296,040	$750,120	0.28
2016 2018	NA16NMF4540018	Sustaining, improving, and evaluating portside sampling and river herring incidental catch reduction in the Atlantic herring mid-water trawl fishery	University of Massachusetts, Dartmouth/SMAST	2808 mt Area 1A 3780 mt Area 3	$408,004	$135,975	$408,004	0.33
2016 2018	NA16NMF4540019	Coastwide Stock Structure of Atlantic Herring using DNA Analyses to determine the degree of mixing between stocks and spawning aggregations	CCE	414 mt Area 1B 2700 mt Area 2	$257,554	$50,000	200.000 non-voluntary match: $7,554	0.19

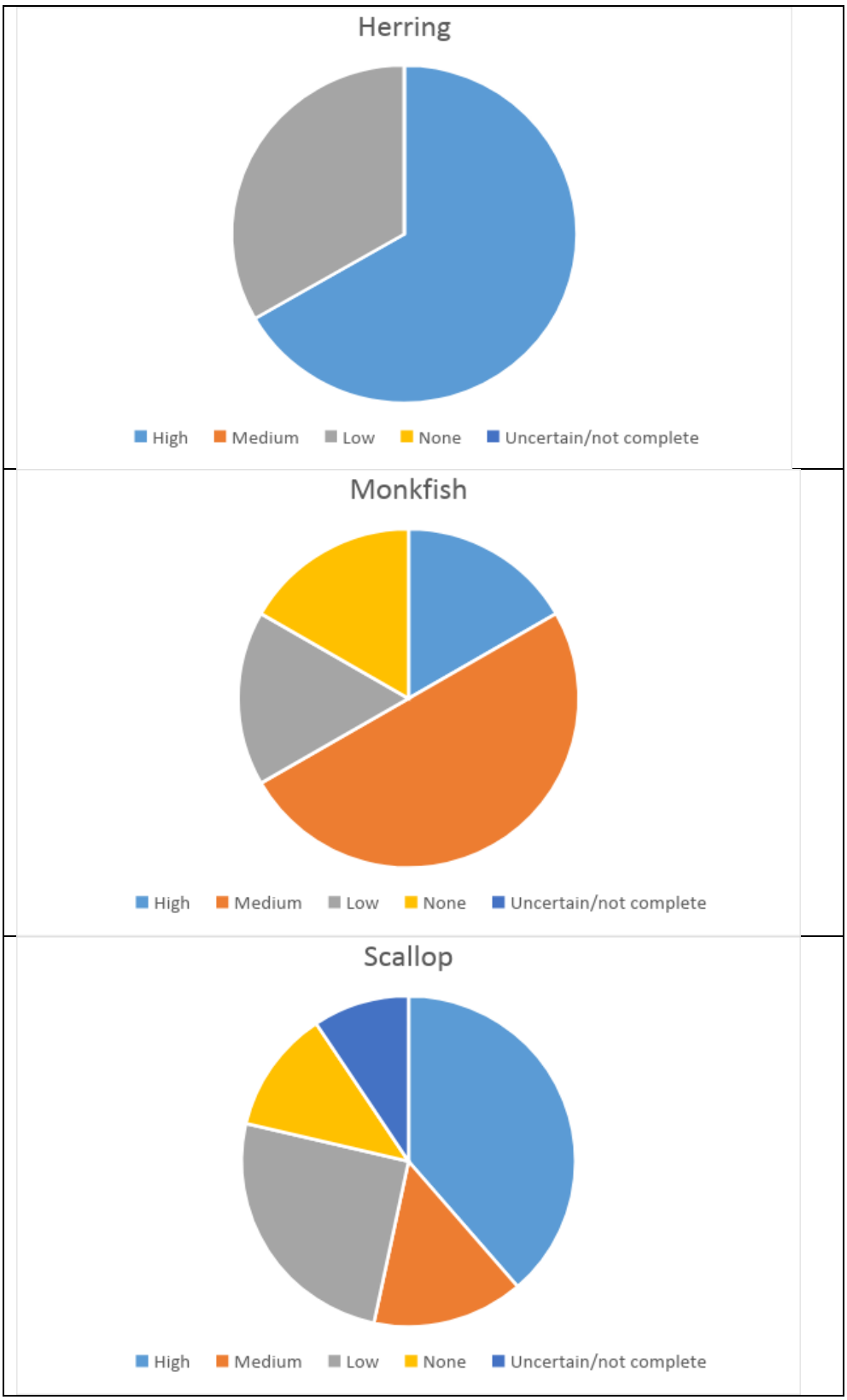
Overall RSA Project Impact

The evaluation of impact on scientific advice and management has been completed by the RSA review panel for each project individually, and then combined per FMP. High = clear impact; medium = tangible impact; low = useful but no clear impact; none = no known impact or application of results, or Uncertain = project is not complete yet so impact unknown.

Table 6. Characterization of the overall impact of individual RSA awards (2013-2018)

Impact	Herring	Monkfish	Scallop
High	2	1	29
Medium		3	11
Low	1	1	19
None		1	9
Uncertain/ not complete			7
Grand Total	**3**	**6**	**75**

Figure 3. Summary of overall impact of RSA research by FMP (High, Medium, Low, None, Uncertain/not complete)



SCALLOP RSA COMPETITION SCHEDULE (June-April)
NOTICE OF FUNDING OPPORTUNITY (NOFO) (June-September)
NOFO drafting
council priorities set
Financial Assistance Law Division (FALD) review
NOFO published
NOFO open
REVIEW PHASE (September-December)
technical review - non-survey
id reviewers
distribute proposals
review period
reviews submitted
technical review - survey
id reviewers
distribute proposals
distribute peer review information
review period
conference call
reviews submitted
management panel
id panelists
distribute proposals
review period
draft briefing book
distribute briefing book
panel meeting
panelist comments submitted
SELECTION PHASE (January)
develop selection recommendations, briefing docs
initial selection memo signed
project negotiations
favorable letters to applicants
acceptance confirmation
final selection memo signed
AWARD PHASE (January-April)
regulatory compliance National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Essential Fish Habitat (EFH) permits
review programmatic environmental assessment and biological opinion, draft determinations
Northeast Fisheries Science Center (NEFSC) NEPA Coordinator requests Greater Atlantic Regional Fisheries Office (GARFO) reviewers
proposals to GARFO Offices- NEPA, Protected Resources Division (PRD), Habitat Conservation Division (HCD), and Sustainable Fisheries Division (SFD)
review by NEPA, PRD, HCD, SFD
regulatory compliance meeting
issue resolution
final determination

AWARD PHASE (continued January-April)
draft NEPA documents as needed (NEFSC)
section 7 compliance as needed (PRD)
EFH documents as needed (HCD)
grants processing and award
selection package to FALD
FALD review
preparation for submission to grants
submission to grants
grants management review/award
awards made
draft rollout
draft award announcement
outreach to councils, GARFO Communications office
rollout
Non-selection memos
research and comp permit processing (SFD)
permits issued

MONKFISH RSA COMPETITION SCHEDULE (July-May)
NOTICE OF FUNDING OPPORTUNITY (NOFO) (July-October)
NOFO drafting
council priorities set
Financial Assistance Law Division (FALD) review
NOFO published
NOFO open
REVIEW PHASE (October-January)
technical review
id reviewers
distribute proposals
review period
reviews submitted
management panel
id panelists
distribute proposals
review period
draft briefing book
distribute briefing book
panel meeting (conference call)
panelist comments submitted
SELECTION PHASE (February)
develop selection recommendations, briefing docs
initial selection memo signed
project negotiations
favorable letters to applicants
acceptance confirmation
final selection memo signed
AWARD PHASE (February-May)
regulatory compliance National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Essential Fish Habitat (EFH) permits
review programmatic environmental assessment and biological opinion, draft determinations
Northeast Fisheries Science Center (NEFSC) NEPA Coordinator requests Greater Atlantic Regional Fisheries Office (GARFO) reviewers
proposals to GARFO Offices- NEPA, Protected Resources Division (PRD), Habitat Conservation Division (HCD), and Sustainable Fisheries Division (SFD)
review by NEPA, PRD, HCD, SFD
regulatory compliance meeting
issue resolution
final determination
draft NEPA documents as needed (NEFSC)
section 7 compliance as needed (PRD)
EFH documents as needed (HCD)
grants processing and award
selection package to FALD
FALD review
preparation for submission to grants

AWARD PHASE (continued February-May)
submission to grants
grants management review/award
awards made
draft rollout
draft award announcement
outreach to councils, GARFO Communications office
rollout
Non-selection memos
research and comp permit processing (SFD)
permits issued

HERRING RSA COMPETITION SCHEDULE (March-January)
NOTICE OF FUNDING OPPORTUNITY (NOFO) (March-June)
NOFO drafting
council priorities set
Financial Assistance Law Division (FALD) review
NOFO published
NOFO open
REVIEW PHASE (June-September)
technical review
id reviewers
distribute proposals
review period
reviews submitted
management panel
id panelists
distribute proposals
review period
draft briefing book
distribute briefing book
panel conference call (if needed)
panelist comments submitted
SELECTION PHASE (October)
develop selection recommendations, briefing docs
initial selection memo signed
project negotiations
favorable letters to applicants
acceptance confirmation
final selection memo signed
AWARD PHASE (October-January)
regulatory compliance National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Essential Fish Habitat (EFH) permits
review programmatic environmental assessment and biological opinion, draft determinations
Northeast Fisheries Science Center (NEFSC) NEPA Coordinator requests Greater Atlantic Regional Fisheries Office (GARFO) reviewers
proposals to GARFO Offices- NEPA, Protected Resources Division (PRD), Habitat Conservation Division (HCD), and Sustainable Fisheries Division (SFD)
review by NEPA, PRD, HCD, SFD
regulatory compliance meeting
issue resolution
final determination
draft NEPA documents as needed (NEFSC)
section 7 compliance as needed (PRD)
EFH documents as needed (HCD)
grants processing and award
selection package to FALD
FALD review
preparation for submission to grants

AWARD PHASE (continued February-May)
submission to grants
grants management review/award
awards made
draft rollout
draft award announcement
outreach to councils, GARFO Communications office
rollout
Non-selection memos
research and comp permit processing (SFD)
permits issued

Form CD 571
10/01

United States
Department of Commerce

REVIEWER CONFLICT OF INTEREST AND CONFIDENTIALITY CERTIFICATION FOR NON GOVERNMENTAL PEER REVIEWERS

1. Confidentiality of Documents and Restriction on Contact

I understand that _____ applications for proposed awards are made available to reviewers solely for the purpose of reviewing those applications against the published evaluation criteria for the financial assistance program.

I agree not to discuss the contents of the applications outside the Department during or after the review process, and to discuss the proposals within the Department only with the other reviewers and Department staff members and in the context of, and under the procedures for, application review. I agree to follow the written instructions provided by the Department for the completion of review forms. I also agree to retain no copies of documents or parts of documents related to this review.

I further agree not to contact the originators of applications being reviewed concerning any aspect of their contents. In addition, I agree not to use any information obtained as a result of my participation as a panel member for personal or private gain.

2. Conflict of Interest

I hereby certify that, to the best of my knowledge, I do not have a conflict of interest and that my particular circumstances are not likely to raise the appearance of a conflict of interest, impropriety, or the appearance of impairment of objectivity with respect to any application I am asked to review or comment on.

For purposes of this agreement, I understand that a financial interest may include employment, stock ownership, a creditor or debtor relationship, or prospective employment with an applicant. An appearance of impairment of objectivity could result from, an organizational conflict where, because of other activities or relationships with other persons or entities, a person is unable or potentially unable to render impartial assistance or advice to the Government. It could also result from non financial gain to the individual, such as benefit to reputation or prestige in a professional field.

I also recognize that I will be considered to have a financial or other interest, and therefore a conflict of interest, if any of the following has a financial or other interest in a financial assistance application I am asked to review or comment on:

(1) 1, my spouse, minor child, or general partner;
(2) A profit or non profit organization in which I serve as an officer, director, trustee, general partner, or employee; or
(3) Any person or organization with which I am negotiating or have an arrangement concerning employment, including consultantship, or a past employer (within the last year).

I recognize that this certification is a continuing representation. I acknowledge that it is in effect at all times until I have completed all of the work performed by me under this agreement.

If I discover that I might have a conflict of interest, might present a conflict of interest, or might have an appearance of impairment of objectivity with any application within the competition, I will immediately inform the appropriate Program official and refrain from further Work as a reviewer until authorized to continue.

I also understand that my views as a non Governmental peer reviewer will be protected from disclosure to the extent permitted by law.

PRINTED NAME	SIGNATURE	DATE

Appendix VII:

Research Set-Aside Program

Review Guidance with brief responses from the RSA Review Panel

Brief responses by the RSA Review Panel to NEFMC Executive Committee's guidance for the review are given below. Additional information is contained in the body of the RSA Review Panel's report.

Program Administration

1. What are the roles of the NEFMC, GARFO, and the NEFSC? Are these appropriate?

   Response

   a. NEFMC established a mechanism for setting aside fishing opportunities to support research in FMPs for sea scallops, sea herring and monkfish. It also sets priorities for these Research Set Asides (RSA).
   b. NMFS implements processes to award RSA fishing opportunities to support research and provides general program management and administration.
   c. NMFS with assistance from Council staff identify potential technical and management reviewers.
   d. Scientists from the NEFSC provide peer review of proposals, along with GARFO, NEFMC staff and non-governmental scientists.
   e. GARFO and NMFS Office of Law Enforcement monitors the use of awarded RSA fishing opportunities to ensure vessels adhere to compensation fishing requirements, and RSA awards are not exceeded.
   f. GARFO issues research permits and acknowledgments in support of research and compensation fishing activities. GARFO implements the RSA and EFP sanction check and compensation fishing compliance policies. GARFO revokes permits when permit terms and conditions are not followed.
   g. NMFS staff monitor RSA grant performance and provides technical guidance as needed.
   h. NMFS staff conduct program outreach.
   i. Council staff currently track if RSA projects are used in management or stock assessments.
   j. The RSA Review Panel does not have any basis to deem that the roles described above are inappropriate.

2. How are research priorities determined for each program?

   Response

   a. NEFMC sets priorities. The priority setting process is based on input from PDTS, APs, and Committees. Priorities are approved by the Council.
   b. Research needs identified by peer reviewed scientific advice (e.g., operational and benchmark assessments, SSC reviews) are taken into account by PDTs and are often integrated into overall priority list.

c. All meetings are open to the public and the public can provide input to priorities during public comment periods.
d. The RSA Review Panel does not have any basis to deem that the priority setting process described above is inappropriate. However, the Panel's report Findings and Recommendations has ideas and suggestions for improving priority setting.

3. How are technical reviewers identified?

   Response

   a. NMFS maintains list of individuals that are qualified to conduct scientific peer reviews of grant proposals.
   b. Reviewers are selected in consideration of their specific expertise relative to the proposals.
   c. NMFS strives to assign one NEFSC reviewer, one GARFO reviewer, and one Council/industry expert reviewer per proposal to balance the review burden.
   d. For scallop RSA survey proposals, NMFS convenes a panel of NMFS and non-NMFS scientists with expertise in survey design to technically critique each proposal.
   e. Potential reviewers are excluded if they have a conflict of interest. The standards that NMFS applies to judging scientific conflict of interest are given in 5 CFR Part 2635
   f. Selection of peer reviewers attempts to share or spread the workload of conducting peer reviews among qualified reviewers.
   g. The RSA Review Panel members most familiar with technical reviews deem the process for identifying technical reviewers appropriate.

4. How are management reviewers identified?

   Response

   a. Council staff forwards a range of potential participants primarily from existing management bodies (AP, PDT, and Committee) that are knowledgeable about fisheries and/or fisheries management to participate on management review panels.
   b. Potential reviewers are excluded if they have a conflict of interest. The standards that NMFS applies to judging scientific conflict of interest are given in 5 CFR Part 2635
   c. NMFS establishes a final list of RSA review participants.
   d. Although the RSA Review Panel members most familiar with management reviews deem the process for identifying management reviewers appropriate, securing industry participation has been a challenge at times.

5. How are technical and management evaluations combined to select grant award recipients? What is the process used to make awards?

   Response

   a. NMFS uses the results of technical and management reviews to select one or more proposals that collectively best fulfill the priorities set by the NEFMC. The technical review and management panel recommendations carry equal weight in the selection process. For example, if a project scored lower on technical basis alone, but had high

scores from management panel reviewers, that project could be funded over other projects with higher technical scores.

b. In the case of sea scallop survey proposals, NMFS takes input from the technical and management review comments and consults with its scientists and NEFMC scallop assessment lead, when necessary, that are familiar with the way survey data is used for fishery management advice to piece together a collection of projects that best fulfill management needs. NMFS uses its own survey assets to fill holes in the collection of RSA supported surveys.
c. As necessary, NMFS may negotiate with grant applicants to modify grant proposals so that they better meet management needs or to improve technical rigor. If a project proposal would benefit from direct involvement by NMFS technical expertise, it is awarded as a cooperative agreement.
d. In addition to the technical score and management panel recommendations, there are program selection factors, which are specified in the funding opportunity, that are considered. While selection factors may be used as the basis for a selection decision, it is not common. However, the highest ranking projects may not necessarily be selected for an award.
e. The RSA Review Panel does not have any basis to deem that the process used to combined technical and management evaluations described above is inappropriate.

6. Is conflict of interest an issue in the review process; can improvements be made?

Response

a. Concerns about conflicts of interest in the RSA proposal review process were expressed during the RSA program review.
b. The concerns heard were primarily about management reviews. There were concerns about some technical reviews, but these seem to be about the experience and expertise of technical reviewers (e.g., they really don't understand the RSA fisheries and how they are managed).
c. On the other hand, the RSA Review Panel was told that rules to guard against conflicts of interest on Management Review Panels were too strict such that knowledgeable individuals that could contribute to Management Reviews were not permitted to serve. It was noted that the COI rules that apply to participation on Management Review Panels are stricter and more limiting than COI rules that apply serving on Fishery Management Councils.
d. While there are concerns about COI, the RSA Review Panel does not have any evidence or documentation that substantiates concerns. It is the sense of the Panel that there will always be some degree of concern about conflicts of interest because review processes lack transparency by design, and it an is only natural that some unsuccessful applicants feel aggrieved.
e. The RSA Review Panel is aware of PDT and AP members and other stakeholders that participate in the priority setting process who are also applicants and/or recipients of RSA awards. On the other hand, these participants have valuable knowledge and experience that has probably contributed to RSA successes.

f. While there will probably always be concerns about COI, it is the judgement of the Panel that this is not a serious problem for RSA.

7. Can the award decision process be improved from the perspective of awarding the highest quality science best linked to program priorities?

   Response

   a. Stakeholder response largely supported RSA project selections. The decision process could be improved. However, the existing process is very intense in terms of solicitations, reviews, grant awards and project monitoring.
   b. The RSA Review Panel concludes that the performance of RSA, in terms of producing quality science that is used to support fisheries management, is probably more dependent on planning, priority setting, and collaboration than it is dependent on the grants process.

8. Are measures in place to ensure financial accountability of award recipients? Are financial requirements of the program being met? Is required financial documentation submitted? Are audits of the grantee's institutions required or desirable? Does the public understand how the program works? Is the process transparent? What improvements could be made?

   Response

   a. Award recipients are subject to the normal financial monitoring and reporting requirements of NOAA grants.
   b. Concerns about the adequacy of these requirements or shortcomings in adherence to the requirements were not raised by respondents to the online survey or by interviewees. However, it was noted by the RSA Review Panel that this information should be more transparent. While there are limitations on what can be reported, more efforts should be made to help communicate these details and promote confidence that financial requirements are being met.
   c. While there is no evidence of financial irregularities, the Review Panel's report expressed concern about the adequacy of financial accountability. It recognizes that the financial oversight is complicated by the fact that RSA awards are in fishing opportunities, not money. Financial oversight is also limited because of the staff's workload.

9. What problems or difficulties are experienced by the program administrators? What improvements could be made?

Response

   a. The workload to implement RSA programs is a significant burden for NMFS and NEFMC staff. Significant time, effort, and resources are required to complete the processes resulting in project selections
   b. Areas that stress administrative resources include:
      i. RSA competition administration.
      ii. Technical guidance and oversight of awarded projects, including: Greater consideration of research results and upcoming research needs during the

priority setting process; greater transparency and support for technical input and guidance at the project selection phase; greater engagement with projects throughout the life cycle of the grant, including site visits; and increased oversight and accountability of ongoing and recurring projects.

iii. Access to RSA project data and results.

iv. RSA program outreach needs.

v. RSA grant report review processes and timeliness.

c. Annually grants for sea scallop surveys, which are inefficient.

d. NMFS and NEFMC focus on RSA projects does not include promoting results. Resources are not adequate to fully track and ensure integration of RSA results within NMFS and NEFMC, and to the fishing industry. It currently falls on PIs, and some are more involved than others.

e. Participating in management reviews can be very time consuming and for some programs that process occurs during a very busy time of year (late Fall/early winter) when fishery specifications are being developed.

Program Structure

10. Are projects used for research or for routine fishery science and management purposes (i.e. is the RSA program used for research or to supplement agency funding)?

    Response

    a. This Executive Board guidance question is unclear, but it seems to be asking if RSA is supplementing the NMFS budget in the sense of supporting activities that are traditionally and generally understood to be within the Agency's mission of providing the scientific basis for fisheries management. This is a difficult question to answer because the boundaries around the NMFS scientific mission are not sharp.

    b. There are scientific activities that are clearly within the Agency's mission (e.g., long term monitoring of marine ecosystems and fisheries) and other activities that are not (e.g., basic research that provides "nice to know" scientific information without apparent applications in the foreseeable future). However, there are a lot of potential scientific activities that fit within the mission, but they are not necessary to fulfill it. For example, more surveys than are funded by Congressional appropriations probably fit within the Agency's mission, but they are not strictly necessary.

    c. The Federal Anti-Deficiency Act places restrictions on augmenting Federal appropriations. It is unclear if and how the Act would apply to using RSA to supplement Agency funding, but some Panel members believe it might be relevant to the Executive Committee's question. Initial NOAA legal guidance has indicated that RSA program implementation decisions are unrelated to the Anti-Deficiency Act.

    d. One of the findings of this review is that role of RSA relative to other sources of support for research (such as Congressionally appropriated funds) is unclear. The Review Panel recommends that the Council prepare an RSA mission statement to clarify the role of RSA programs.

11. What factors limit or promote the interest of industry in participating in the RSA Program?

    Response

    a. While the review did not address this question explicitly (in either the online survey or interviews), it found that the fishing industry is generally supportive of RSA programs.
    b. Industry interest and support for RSA Programs is enhanced by a feeling that it is their program (i.e., they feel a sense of ownership) and when they see evidence that results are used.
    c. Members of the fishing industry participate in RSA Programs by contributing to priority setting and proposal review processes, collaborating with scientists on RSA projects, fishing for RSA compensation, and in some cases subsidizing a portion of the research (when the value of RSA compensation is lower than anticipated because the ex-vessel price of RSA species declines).
    d. Interest in participating in RSA Programs is enhanced by a sense that the Programs lead to better science, better management, and ultimately higher profits.
    e. Interest in RSA compensation fishing is enhanced by the fishing being profitable, and it is limited when compensation fishing is not profitable.

12. Is it possible to extend the period funding for proposals in general and survey proposals specifically?

    Response

    a. RSA awards currently have a 1-3 year duration.
    b. While multiyear RSA grants are possible and sometimes used, some stakeholders prefer one year grants to maintain flexibility if programs need changes.
    c. The RSA Review Panel recommends that the NEFMC continue to allow and encourage multi-year grants where appropriate.
    d. For survey proposals specifically, the RSA Review Panel suggests that a long term plan for sea scallop surveys is prepared, while maintaining the flexibility to respond to unforeseen circumstances.
    e. In response to the Review Panel's finding that there is the potential to improve RSA's performance with respect to sea scallop survey projects, the Panel recommends consideration of a series of options. Some of the options include the use of longer term grants (up to 5 years), or a cooperative agreement to design and implement RSA surveys. It is the understanding of some members of the Review Panel that a cooperative agreement for sea scallop surveys (or a broader RSA cooperative agreement, see 12e) could (under appropriate circumstances) potentially be issued for 5 years and it would be eligible for competitive renewal indefinitely. Such a cooperative agreement would entail further legal review to determine if this approach is legally feasible. There was no consensus on options for improving sea scallop surveys.

13. Are sufficient resources set aside to provide meaningful grant opportunities?

    Response

    a. The Sea Scallop RSA Program supports several million dollars' worth of scientific activity annually.

b. In general, the RSA Review Panel received feedback from stakeholders indicating that the amount of sea scallop quota allocated to the research set aside is about right, although there hasn't been a rigorous analysis to demonstrate that net benefits are positive (i.e., marginal increase in expected net present value of the fishery exceeds the marginal cost).
c. The amount of research that can be supported by sea herring and monkfish RSA is limited by the value of compensation fishing opportunities, and not necessarily by the amount of quota allocated to the research set aside.
d. The RSA Review Panel recommends that the NEFMC should periodically review the set-aside amounts in each plan and adjust if needs change etc.
e. The RSA panel also recommends that further evaluation of the viability of the herring program (and monkfish to a lesser degree) is warranted.

14. Currently the program is run as a competitive grant program. Are there alternatives that could be used? Is there a way to use contracts within the RSA program? If a grant must be used, can the RFP be written more narrowly to accomplish specifically designed tasks?
Response
    a. The Department of commerce legal counsel determined in about 2000 that contracts cannot be used to implement RSA Programs. However, the RSA review panel was unable to obtain a copy of this legal determination, and the rationale behind it is unclear. The review panel was told that "Contracts are for purchasing a service for the sole benefit of the Federal Government. The RSA research projects are supporting a legal public purpose that benefits all, therefore, it has legally been determined numerous times that they will be administered through the Federal Assistance Grant process." However, at least some panel members understand that NMFS sometimes contracts for resource surveys similar to the surveys supported by RSA, for essentially the same purposes: i.e., as input to Agency stock assessments and also providing data which is available for legal public purposes that benefit all. Thus, the basis for the determination that Grants must be used to implement RSA, especially for sea scallop surveys, is unclear to at least some panel members.
    b. Grant announcements of opportunity and research priorities can be written narrowly in terms of the objectives of the research. However, it is the understanding of at least some members of the review panel that there are limits on the degree that a grant announcement can specify how the research is performed. If so, this could potentially impede using grants to implement a highly specified sea scallop surveys design (analogous to the level of specification and quality assurance of NMFS resource surveys). There was not a consensus position on the panel that attaining such a design, if so desired, could not be accomplished under a grant program.

    c. The RSA Review Panel recommends the Council and NMFS continue to encourage the use of cooperative agreements for awards where appropriate. The awards would still be grants, but a cooperative agreement may allow for more collaboration and planning with NOAA staff after the grant is awarded. Overall the panel believes that it would

benefit some projects if more collaboration was permitted to improve research design and integration of results in assessments and management plans.

d. As noted under 12e, the review panel's report describes a potential option for using a broad cooperative agreement for RSA, which could create a mechanism (a) for sub-contract like arrangements for implementing highly specified research designs, such as sea scallop surveys, and (a) for "end to end" (from the initial idea for the research to application of results) participation of NMFS scientists in RSA projects. The cooperative agreement would specify (a) a broad range of topics as an umbrella for projects to be conducted under the cooperative agreement (b) an appropriate team of scientists to collaborate with NMFS scientists, and (c) a governance structure. There was no consensus on this option and some panel members expressed skepticism that such a shift, even if legally possible, was justified.

15. Is there sufficient funding to support the administration of RSA programs, which have grown over the years? Is there a way to use RSA awards to support program administration, potentially including the staff support with review and selection of proposals, follow-up with recipients, dissemination of research results, education and outreach for new participants?

    Response

    a. The RSA review panel recommends that NMFS, in consultation with the Council, evaluate and document RSA program administrative capacity to determine where support is sufficient and where it could or should be increased. There are elements of RSA program administration that would benefit from additional resources.

    b. Responding to the issue of support for administration of RSA programs through RSA derived funds requires consideration of two questions. One is whether there is enough RSA to support administrative costs and the other is if there is a legally viable vehicle for using funds generated from RSA to pay for administration.

    c. Pending legal feasibility, administrative costs might be directly supported by RSA by either diverting some of the current RSA or by increasing RSA. However, NEFMC should anticipate significant negative feedback from fishing industry stakeholders if they perceive they are being ask to support administrative costs by forgoing fishing opportunities.

    d. As noted under 12e and 14e, the review panel's report describes an option for potentially using a broad cooperative agreement for RSA. While there would probably be a significant workload necessary to establish such an arrangement for RSA, it has the potential to substantially reduce the workload in the long term because (a) it could be a long term (5 years renewable) agreement, (b) there could be a much smaller number of grant solicitations, (c) there would be fewer grant recipients to monitor, and (d) some of the administrative burden and associated cost of RSA program administration could be built into the cooperative agreement. There was no consensus on this option and some panel members expressed non-specific skepticism, that such a shift, even if legally feasible, was justified.

16. Are state requirements and management objectives taken into account in the awards?

    Response

    a. The Review Panel did not explicitly address this question, but it presumes that the needs of states are only addressed in RSA awards to the degree they are addressed in the RSA priority setting processes, which has ample opportunity for input from state representatives.
    b. Concerns about RSA fishing not taking state requirements or state management objectives into account was not mentioned by stakeholders in either the online survey or interviews. RSA fishing is not exempt from state regulations, and NMFS requests states to comment on EFPs related to RSA awards to determine if there are any concerns about state management objectives related to that research project. In addition, some projects have agreements with participating vessels that include state permits and approval (e.g. the river herring avoidance project waits for state issued permits for vessels to land RSA allocation by state).
    c. If it is deemed appropriate for RSA to better address needs of states, this should probably be recognized in a mission statement that articulates the role of RSA.

17. Are there ways to increase the value of RSA compensation fishing so that more dollars are provided for research?

    Response

    a. In theory, the value of compensation fishing is maximized by an auction open to everyone with minimal restrictions on participation. However, the Office of NOAA General Council has determined that the NMFS or the NEFMC cannot conduct such an auction. There are no legal constraints that prevent the recipients of RSA awards from auctioning the compensation.
    b. An auction would also provide equal access to RSA fishing opportunities, although only the most economically "fit" fishing enterprises would obtain access on average. Concerns were shared that larger companies may have a competitive advantage over smaller companies in an auction system by having more ability to control RSA bids.
    c. While an auction would, in theory, maximize the value of RSA, some recipients of RSA compensation believe building and maintaining a relationship with the fishers that conduct compensation fishing results in more control over the fishing operations (such that they may provide more useful data or have greater confidence vessels will adhere to compensation fishing rules). In addition, when fishers feel that they are partners in RSA projects, they may absorb some of the financial burden that results when the ex-vessel value of the catch of compensation fishing declines. The panel did hear input from several stakeholders (particularly previous award recipients) that the current system used is critical for maintaining strong collaboration and industry partnership with researchers.
    d. The value of compensation fishing can be increased by exempting compensation fishing from restriction on the time, area or method of fishing that applies to non-compensation fishing. In fact, this approach has been necessary to enhance the value of

compensation fishing opportunities for all of the RSA programs, and is particularly important for the herring and monkfish programs.

While it would not necessarily increase the value of RSA in terms of the research it supports, the review panel's report includes suggestions for post-RSA award adjustments in the amount of RSA to account for changes in the value of awards as a result of fluctuations in market conditions.

18. Is compensation fishing consistent with the goals and objectives of the respective FMPs and the RSA programs?

    Response

    a. To the extent that RSA is taken account of in the setting of ACL and it is subject to the same restrictions as non-compensation fishing, it should be consistent with the goals and objectives of the respective FMPs.
    b. Compensation fishing can advance the goals of an FMP to the extent that it provides scientific information that supports achieving the goals.
    c. To the extent that compensation fishing is exempted from restrictions that apply to non-compensation fishing, it may not be entirely consistent with the goals and objectives of the FMP assuming the restrictions on non-compensation fishing are necessary to achieve those goals and objectives. The panel emphasizes that a balance is needed; some exemptions may be necessary to monetize RSA and incentivize vessels to participate for the program to be successful. In the end, the RSA program is a small proportion of the total fishery, so presumably any associated impacts are limited.
    d. When NMFS approves compensation fishing exemptions, NMFS makes a determination that the exemptions are consistent with the goals and objectives of the FMP. The Councils, states, and the general public are offered the opportunity to comment on the appropriateness of proposed exemptions.
    e. The RSA Review panel noted that fishery exemptions currently allowed under each RSA program are not consistent across plans due to the different management strategies devised for the different species (e.g., herring management area sub-ACLs, monkfish DAS, scallop DAS and access area allocations). However, there is general consistency between exemptions afforded to each program, which all center around fishing effort controls. The panel recommends that the Council should periodically review these exemptions for each plan and consider additional steps that would improve program performance.

Results

19. How are completed projects evaluated to make sure goals of the program are achieved?

    Response

    a. NMFS reviews interim and final reports of RSA projects to assure that projects fulfill deliverables. RSA program administrators and a subject matter expert (typically a NEFSC scientist that technically reviewed the original proposal) evaluate each report.
    b. The final report undergoes the most rigorous review. The RSA program manager further evaluates both the final report and the technical review to ensure a robust evaluation. If there are questions or concerns that come out of the reviews, they are presented to the

grant recipient for a response. Once all questions and concerns are adequately addressed, final reports are accepted and made available on the RSA program webpage.

20. For the last five years, what projects have been completed? How many of these projects were used in the assessment or management of the fishery?

    Response

    a. A list of RSA projects between 2013-2017 can be found in Appendix IV. A general assessment on the proportion of projects that contribute to science and management information needs is included.
    b. It is important to recognize many grants are iterative and occur over several years, so while a given project may not directly contribute to a management decision or inform an assessment, the culmination of multiple awards may.
    c. NMFS hosts a website (https://www.nefsc.noaa.gov/coopresearch/projects_search_setup.html) that tracks the status of each project including a link to final reports.
    d. Council PDTs track which projects have been used in management and assessments. Typically, when RSA priorities are being developed the PDT reviews the status of previously funded projects.

21. What is the breakdown on the number and amount of awards to each recipient? Is participation in the program (number of applicants, number of successful applicants, etc.) changing?

Response

    a. See Appendix IV for information on awards by institution between 2013-2017.
    b. Participation is relatively stable for the Monkfish and Atlantic Herring programs, one or two projects funded under each cycle with very similar participants. Participation is more variable for the Scallop program from year to year, with about 15 projects awarded annually. A handful of participants consistently receive funding every year with several new recipients each year.
    c. In recent years the level of collaboration (within and between institutions) for awarded projects has increased. This has allowed the most successful RSA applicants to bring in diverse subject matter expertise in pursuit of new avenues of research.

22. Are the results of the programs meaningful to the fisheries?

    Response

    a. In the case of sea scallops, there is no doubt that RSA projects have provided results that are important to sea scallop fisheries and their management.
    b. The results of river herring avoidance studies seem to have helped the industry avoid river herring to reduce the likelihood of sea herring fishery closures.
    c. While monkfish RSA has advance knowledge about monkfish, it is unclear how much monkfish RSA projects have contributed to the scientific basis of monkfish fishery management. Most monkfish projects have focused on improving the understanding of life history and biology, which contributes to improving the monkfish assessment. RSA data has directly informed the most recent monkfish benchmark stock assessment.

23. Is there a way to determine whether the research projects have been cost effective and if so, what are the findings for recent awards?

    Response

    a. In theory, the effectiveness of RSA projects should be judged in terms of the change in expected net present value (eNPV) of fisheries. As far as the RSA Review Panel knows, such analyses have not been conducted, and it would be a substantial research endeavor to conduct such analyses.
    b. Research Strategy Evaluation of RSA fisheries, in particular the scallop fishery, could be a tool for evaluation the value of information collected via the RSA Program relative to the eNPV of the fishery, as well as to optimize the design of fishery management.
    c. The RSA Review Panel was not able to evaluate whether projects have been cost effective during this review, but whether RSA results have been used directly in management or assessments was summarized for the last five years (See Appendix IV).
    d. RSA programs and the burden associated with the harvest of set aside quota and DAS can be substantial. However, the value of RSA awards is comparable to monetary awards for projects of similar scope funded by other NMFS grant programs. Furthermore, there are substantial benefits of collaborative research that extend beyond whether the projects are cost effective.

24. What metrics are used to evaluate the performance of award recipients? Is past performance considered when making future awards?

    Response

    a. The performance of recipients of RSA awards is evaluated in terms of the timely submission of interim and final reports, technical review procedures, and the submission of other deliverables as required by the awards.
    b. Past performance of RSA recipients is considered by RSA program administrators when making selection decisions. The technical score of a proposal also includes past performance as a metric. In addition, past performance may be discussed during management panel reviews of RSA proposals.

Appendix VIII:
Templates for NEFMC Scallop Share Days

2018 Scallop Survey Short Report

Prepared by:

[Insert Survey Group Name Here]

[Insert Institution Logo(s) Here]

[Date submitted]

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1.0 2018 SURVEY BIOMASS ESTIMATES

[Insert Survey Tool Name ex: Dredge, DropCam]							
GB	**NumMill**	**BmsMT**	**SE**	**MeanWt**	**Avg. Size**	**Scallop density**	**# Tows/Drops, HabCam images annotated**
CL1ACC							
CL1NA							
CL-2(N)							
CL-2(S)							100 tows
CL2Ext							
NLSAccN							100 drops, 3 nm
NLSAccS							
NLS-W							
NLSExt							
NF							
SCH							
SF							
MidAtlantic							
BI							
LI							
NYB							
MA inshore							1:400
HCSAA							
ET Open							
ET Flex							
DMV							
Virginia							

2.0 FIGURES OF SURVEY COVERAGE

[Include maps showing abundance of scallops and location of surveys (drops, dredge tows, HabCam transects), graphics of recruits and larger animals, no page limit.]

1. Pre-recruits: <35mm
2. Recruits: 35mm – 75mm
3. Greater than 75mm

3.0 LENGTH FREQUENCY PLOTS BY SAMS AREA

[Use 5mm bins, label length intervals on X-axis every 25mm, one plot/graphic per SAMS area covered. The y-axis can be proportion or count. You can report both if you choose.]

For each area (plot), report:

1. Total number measured
2. Mean length (average size)

***modify page layout to landscape if that makes more sense to you.

4.0 SPECIAL COMMENTS

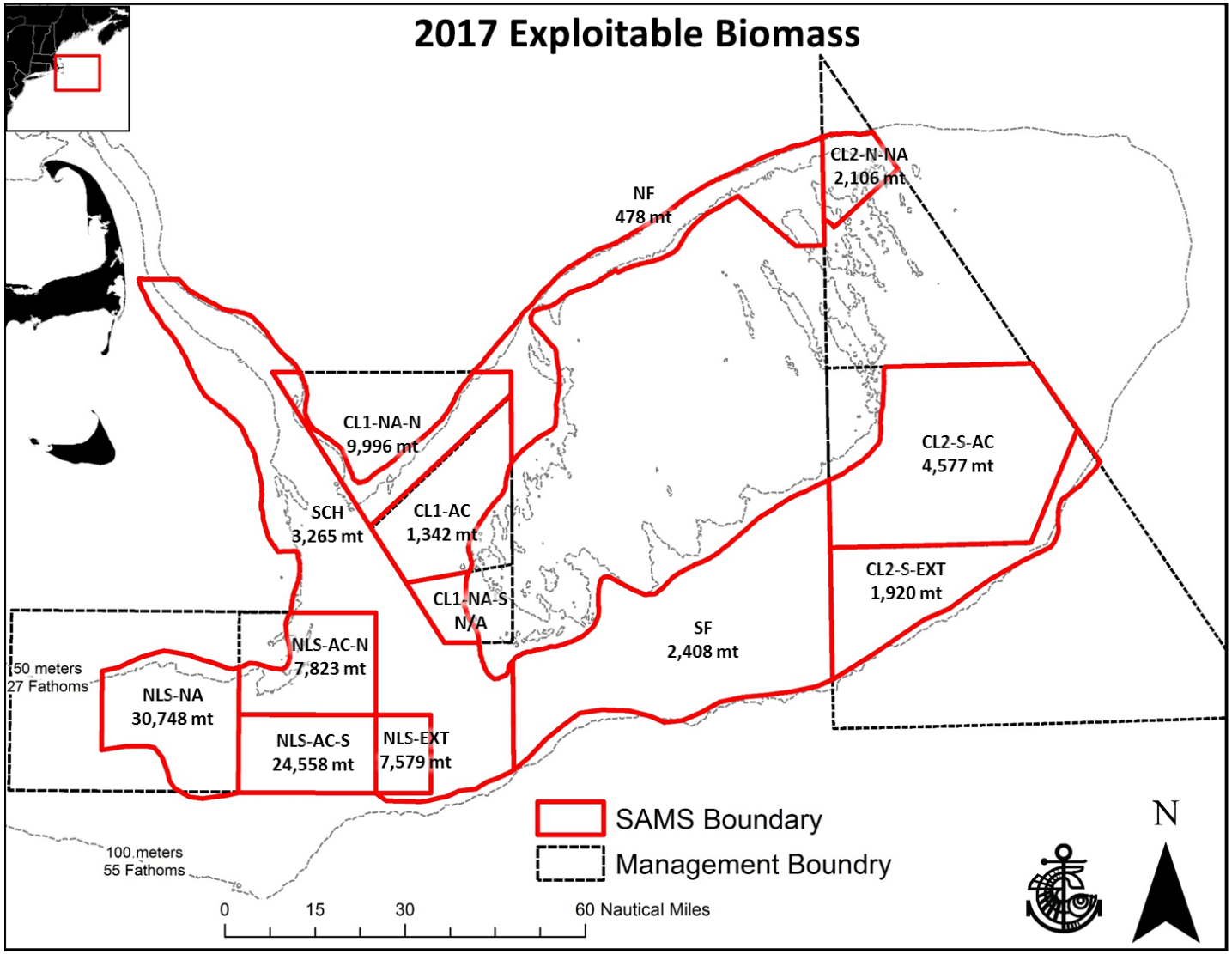
[Anything that you think is noteworthy for the PDT to discuss. For example, was any recruitment observed? More Predators or diseased observed?]

This is a section to add additional data tables

5.0 EXPLOITABLE BIOMASS ESTIMATES FOR 2018 (CURRENT FY)

[Insert Survey Tool Name ex: Dredge, DropCam]				
Georges Bank	**NumMill**	**Exploitable BmsMT**	**SE**	**MeanWt**
CL1ACC				
CL1NA				
CL-2(N)				
CL-2(S)				
CL2Ext				
NLSAccN				
NLSAccS				
NLSNA (NLS-S)				
NLSExt				
NF				
SCH				
SF				
MidAtlantic				
Block Island				
Long Island				
NYB				
MA inshore				
HCSAA				
ET Open				
ET Flex				
DMV				
Virginia				

Optional: Consider graphic like SMAST for showing exploitable by SAMS area:



[Insert Project Title Here]:

[Insert Principle Investigators Here]:

[Insert Group(s) Name Here]

[Insert Institution(s) Logo(s) Here]

[Insert Award Year and NOAA Grant Number Here]:

[Insert Award Year and NOAA Grant Number Here]:

[Date submitted for Use at Share Day]

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6.0 EXECUTIVE SUMMARY [NO MORE THAN ONE PAGE]

Project Title:

Year Awarded:

RSA Priorities Address By This Research:

[NARRATIVE HERE]

7.0 PRELIMINARY RESULTS AND DISCUSSION

[Please provide an update on the preliminary results of this project as a bulleted list. PIs should also comment on if or how they think this research could be used to support scallop management]

8.0 SPECIAL COMMENTS

[Anything that you think is noteworthy for managers to consider and discuss. What worked well about the project?]

APPENDIX IX
Evolution of the Fisheries Science and Who Pays for It

Conducting and managing fisheries requires many types of information and there are multiple ways of paying for it. The New England Council's Research Set Aside (RSA) programs are one of the ways. To evaluate potential roles of RSA as a mechanism for supporting research and production of scientific information, it is useful to consider the evolution in the need for scientific information and who pays for it.

The discussion below was prepared by the review panel chair based on his firsthand knowledge from decades of experience with the research and scientific information discussed below, and the organization and mission of the National Marine Fisheries Service (until about 10 years ago). Views in this Appendix are not necessarily the views of members of the review panel other than the chair.

Roles of Research and Scientific Information

Broadly speaking, research and scientific information has several roles (which could also be referred to purposes) with respect to fisheries and fishery management. One role is to enhance production by fisheries. It concerns identifying resources to be fished, fishing methods, fish processing, and marketing. The scientific activities that fulfill this role are generally known as ***fishery development***.

A second role concerns regulation of fisheries by governments to fulfill legal requirements for conservation of fishery resources (e.g., prevent overfishing). For the purpose of this discussion, the role is referred to as the ***resource conservation*** role. Stock assessments are a mainstay of the scientific activity that fulfills this role. Stock assessments are based on scientific information derived from a few broad categories of information. They are fishery dependent data (which includes landings, fishing effort, and at sea observation about discards and other aspects of fishing), biology of resource species (e.g., age and growth), resource surveys (i.e., fishery independent information on distribution, size composition, and abundance), and stock assessments (models that assimilate multiple types of information) which are the basis of scientific advice.

Conservation of fishery resources is a minimum legal requirement for fishery management, but the objective of the MSA is optimum yield that takes account of relevant economic, social, or ecological factor. Therefore, some (arguably most) FMPs include provisions aimed at enhancing benefits from the fishery beyond benefits which would accrue if the FMP only addressed conservation constraints. For example, the sea scallop FMP's rotational area management approach almost certainly enhances economic, social, and probably ecological benefits relative to an FMP that only limited the total catch so that the overfishing level (OFL) for the entire stock

is not exceeded. However, achieving these benefits requires additional scientific information, such as finer spatial and temporal scale data on size composition and abundance, relative to the information needed to prevent overfishing. In some cases, additional fishery dependent information, such as at sea monitoring (ASM) of retained catch and discards, is necessary to achieve the level of compliance monitoring called for in an FMP or other FMP provisions, even though this information may not be necessary for resource conservation. The role of scientific activity that fulfills scientific information needs that exceed needs for resource conservation are referred to as ***FMP implementation*** for the purpose of this discussion. The categories of FMP information needs are often the same categories used for stock assessments, but more or higher quality (e.g., greater spatial and temporal resolution) data is needed to support some FMP.

The MSA is not the only legal mandate that creates scientific needs for fisheries. The Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) also apply to fisheries. The species that are the subject of these laws are referred "protected resources" by NMFS. These are complicated laws, but simply put, they require (a) scientific information on the status of species covered by the laws (referred to as protected species by the NMFS) and (b) on the magnitude and nature of interactions between the species and human activities, and methods to reduce or mitigate interactions. Information on the magnitude and nature of interactions is the basis for regulations, and absent this latter type of information (i.e., b), industries such as fisheries, may be subject to unnecessary regulation (even elimination) since implementation of the Protected Species mandates tend to place the burden of proof on industries to convince regulators that they will not have an adverse impact on protected species. For the purposes of this discussion, the role of research and scientific activity that addresses Protected Species mandates are referred to as ***protected resource status determination*** and ***protected resource impact mitigation***.

Fisheries exist within marine and coastal ecosystems (including communities). Ecosystem research is very broad, but in the case of fisheries and the Agencies that manage fisheries (e.g.., NMFS), ecosystem research is aimed at legally mandated missions (fisheries and protected species management). The research is typically long term and the potential application of the research is only vaguely known, but it is an investments in knowledge that can reasonably be expected to be applied in the future. In this sense, it is mission oriented ecosystem research, which is different from basic or fundamental research sponsored by other government agencies, such as the National Science Foundation, which is often characterized as "nice to know" research. The role of mission oriented ecosystem research is referred to ***investment in ecosystem knowledge*** for the purpose of this discussion.

The NMFS bottom trawl survey in the northeast region of the US was an example of an investment in ecosystem knowledge that quickly paid off in terms of the NMFS mission. The surveys are an outgrowth of research surveys in the region that probably have about a 100 year history. In 1963, a standardized survey time series was initiated with

a range of ecosystem research objectives. Stock assessments were not the objective of the surveys because there was virtually no fishery management that required stock assessments. By the early 1970s, the demand for stock assessments exploded as a result of international fisheries management that set catch quotas (known as Total Allowable Catch, TAC) on many species, and bottom trawl surveys were a critical input to these assessments.

Who Pays for It?

Fishing has thousands of years of history. There is evidence of a Phoenician fishery for bluefin tuna 6,000 years ago. For millenniums, the source of information on where and when to fish, how to catch fish, which species are good to eat, and how to process (e.g., preserve) fish, came from the fishing industry itself. Sometimes the information was derived from the personal experience of individual fishers. Sometimes there were and are either formal or informal sharing arrangements. There are also many examples of the fishing industry funding research to produce information it needs to make its businesses more profitable. Clearly, the fishing industry itself has borne most of the cost of fishery development since the earliest days of fishing.

However, around a century or two ago, governments established substantial scientific programs aimed at fisheries development. The importance of fisheries development was part of the rational for "Service" being included in the name of the Agency (i.e., NMFS) established in 1970 as part of NOAA. There were dedicated seafood laboratories conducting research on seafood products, fishing technology programs aimed at designing methods of catching fish, and exploratory fishing programs aimed at identifying new species that could be fished profitably. Today, it is hard to imagine that in the middle of the last century the Bureau of Commercial Fisheries (which became the NMFS) identified Steller sea lions (now an endangered species) as an underutilized species that could support a viable meat fishery!

Beginning in the 1980s and most notably in the 1990s, the NMFS downsized or eliminated most fishery development programs. For example, the seafood technology laboratory in Gloucester were shutdown. The exploratory fishing program in the region was shutdown even earlier. Similarly, the NMFS was reorganized with barely an acknowledgment of fisheries development as part of its mission. The Kennedy-Saltonstall (S-K) grants program, which was established to promote fisheries development, remains (it is legally mandated), but a significant portion of funds are used as budget offsets for NMFS programs that do not support fisheries development. Furthermore, many S-K grants now support a wide range of research topics that support fishery management instead of resource utilization. These changes were prompted by both (a) broad changes in philosophy about the role of the Federal government (e.g., let the private sector do it, they can do it better) and the need to redirect resources to exponentially increasing demands for scientific information to support fishery

management as a result of the Magnuson Stevens Conservation and Management Act (MSA), and other mandates.

From the beginning, government fishery programs included collection of fishery dependent data on the performance of fisheries (i.e., mostly on landings). Such data was initially collected as part of broad government efforts to monitor production of all important industries (e.g., agricultural production, steel production, automobile productions, in addition to fisheries production), but there was also recognition that the data might have scientific applications. At sea observer programs (known as "sea sampling") dating back to at least the 1950s. These were small ad hoc programs (a handful of trips per year), that turned out to be useful when stock assessments began to be performed in the 1970s, but they were mostly aimed at general knowledge about fish distributions and biology.

With mandates for fishery management and protected species mandates, fishery dependent data collection, including at sea observers and monitors, increased tremendously, particularly since the 1990s. More fishery independent data was and is need to enable compliance monitoring of numerous subcomponents of fisheries, in response to National Standard 9 concerning bycatch and discards, and in response to the MMPA which require monitoring of fishery categories that having the highest rate of marine mammal interactions. In fact, throughout the 1990s and mid 2000s, most of the funding for at sea observers was supported by federal funding appropriated because of MMPA mandates, not the MSA.

However, the fishing industry also pays a share of the cost of fishery dependent data collections. Of course, they absorb record keeping costs, but they also make direct payments for data collection. The fishing industry has funded a large share, but not all, of cost of most at-sea observer programs in the North Pacific for decades. Beginning in about 2010, provisions of NEFMC FMPs made the fishing industry responsible for paying for a substantial amount of fishery dependent data collection, particularly for at sea monitors in the groundfish fishery. These provisions have yet to be fully implemented (i.e., NMFS still subsidies as-sea monitoring (ASM) costs). For the sea scallop fishery, the FMP sets aside a portion of the annual allowable catch (ACL) to "reimburse" vessels for the cost of observers on their vessels. The word "reimburse" is in quotes because the reimbursement is in authorization to catch scallops that presumably generate monetary profits that are comparable to the cost of the observers. This arrangement is not part of the RSA programs, but it is similar in concept.

Industry funding of fishery dependent data collection, as described above, could fulfil either the role of resource conservation or FMP implementation. Arguably, the primary role is FMP implementation since NMFS representatives have commented during Council meetings that their Standardized Bycatch Reporting Methodology (SBRM) is adequate for stock assessments as the basis of resource conservation.

While the MSA and Protected Species mandates have rapidly changed the focus of NMFS research and scientific programs, the Agency continues to support a broad range of ecosystem research aimed at improving its capacity to perform its mission in the future. Undoubtedly, these programs have been diminished as a fraction of the total Agency science budget, but they are still substantial investments in the future.

Fishery management and Protected Species mandates have not only changed the focus of government scientific programs, but they have led the fishing industry to fund scientific activities related to stock assessments, fishery management, and regulation of the industry emanating from Protected Species mandates. By the 1980s, the fishing industry was hiring consultants to participate in stock assessment processes. An early motivation was to produce information that resulted in more optimistic stock assessments, so the fishing industry could catch more. In some cases, the industry funded research to confirm government stock assessments, which enhanced credibility of stock assessments and fishery management. Unfortunately, there was industry funded science, such as alternative or competing stock assessments, that made fishery management even more controversial. For the purpose of this discussion, the role of research and scientific activity that is intended to be an alternative or competing source of scientific information is referred to ***Resource Conservation: Alternative Science.***

A more productive approach, which has become the common in recent years, is for fishing industry and scientists to work cooperatively to improve the scientific basis of fisheries management. This cooperation is usually aimed at increasing the type, amount, and quality of data upon which stock assessments are based. Participation of the fishing industry in cooperative research is often at least partially funded by governments, but some of the costs may be borne by the fishing industry. For the purpose of this discussion, cooperative scientific activities that are aimed at strengthening resource conservation is referred to as ***Resource Conservation: Cooperative Research***. The distinction between alternative science and cooperative research is that the former is aimed at an alternative outcome that is more favorable from the perspective of the sponsor, whereas the latter is aimed at a more scientifically defensible outcome without regard to the cooperator's interests.

What's the Role of RSA programs?

In light of the historic role that NMFS has played in funding almost all of the research and scientific activities types above, one of the challenges in deciding on the role of RSA is to distinguish between its role and NMFS's role. To address this issue, it is useful to consider legislation that might be relevant.

The Magnuson-Stevens Fishery Conservation and Management Act explicitly identifies some types of information collection and other management costs to be paid for directly by the fishing industry. RSA is not a direct payment by the fishing industry for a fishery

management costs, but to the extent that the fishing industry is foregoing an economic benefit for RSA, it is analogous. However, the legal mandates in the Act are quite limited relative the range of projects that have been supported by RSA programs and the Act does not explicitly mention research set aside programs as a way of funding research in support of fishery management. Thus, using RSA to conduct research related to fisheries largely depends on the authority vested in the NEFMC to prepare FMPs. The Act does not explicitly authorize NMFS to use RSA programs to support fishery management and for other purposes, but it does not prohibit the inclusion of provisions to do so within a Fishery Management Plan.

In addition, the Federal Anti-Deficiency Act's prohibitions on augmentation of Federal Agency budgets may be relevant to the role or scope of RSA projects, and it may help to distinguish them from projects that should be supported by NMFS with appropriated funds. However, this is a legal matter beyond the competency of the review panel chair.

The Table below is an attempt to capture the discussion about the types of information related to fisheries and primary ways it has been funded since the inception of RSA programs. The matrix indicates that there is a lot of overlap in the sources of funding for various types of information. The table also includes some intentionally provocative questions to stimulate discussion. To be clear, the RSA review panel has not developed or discussed these questions. They have been included in this Appendix for future discussions of further defining the role of RSA, if that is an activity the Council decides to pursue.

Types of information related to fisheries and how it has been funded in recent years. Question marks (?) are entered in some cells because the role of activities funded by some funding sources is unclear or debatable. The column labeled "RSA Issue" is intended to provoke discussion on whether or not RSA should address a role for research and scientific information. It is intentionally provocative.

Roles of Research and Scientific Information	Source of Funding			RSA Issue
	Government	**Industry**	**RSA**	
Fishery Development: to make fisheries more efficient and valuable in terms of when and where fishing occurs, fishing methods, processing, and marketing.	**X**	**X**	**X**	Is Fishery Development a priority of the NEFMC? If not, should the NEFMC and NMFS spend money on creating and implementing RSA programs for fishery development?

Resource Conservation: to conserve fishery resources through stock assessments that advice on stock status and catch limits to prevent overfishing and/or rebuild fisheries	**X**	**X**	**X**	This is a core responsibility of the NMFS. Should RSA fulfill this mission if the Agency cannot for budgetary reasons, is it appropriate for RSA to be used to augment federal surveys, or should it be left to the Agency to address its own budget problems?
Alternative Science: to create alternative or competing scientific advice that will allow more catch.		**X**	**X**	Should the NEFMC be complicit in efforts of an interest group to develop separate research that may undermine the scientific process that the NEFMC participates in and helped create?
Cooperative Research: coordination between fishing industry, government and academics to improve the reliability and credibility of scientific advice regardless of the interests of the partners in the cooperation.	**X**	**X**	**X**	Cooperative research is broadly viewed as positive. Is there any reason the NEFMC should not encourage it through RSA programs so long as the cooperative research can reasonably be expected to produce useful information (not just cooperation for the sake of cooperation!)? Are RSA programs well formulated to promote cooperative research? Has the RSA program had a positive or negative impact on cooperative research funded in the Northeast?
FMP Implementation: to produce information that is needed in order to fulfill provisions of an FMP, that is beyond the need for resource conservation.	**X**	**X**	**X**	Since an NEFMC FMP created the need for scientific information, this seems like an obvious role for RSA. Is there another perspective? How can scientific activities for FMP implementation be distinguished from activities to fulfill NMFS's core mission

				traditionally supported with Congressionally appropriated funds?
Protected Species Science: to produce scientific information to fulfill requirements of the MMPA and ESA. See sub-categories below.	**X**	**?**	**X**	The cost of most protected species science concerning fisheries is borne by NMFS. Why should fisheries with RSA programs be different? On the other hand, industries other than fisheries pay most of their own PR related costs (e,g., offshore oil and gas exploration). Why should fisheries be different?
Resource Status Determination: to produce information on the status of species protected by the MMPA and/or ESA.	**X**		**X**	Same as above
Impact Mitigation: to describe and characterize interactions between fisheries and protected species, and how to mitigate them.	**X**	**?**	**X**	Same as above. An additional consideration is that industries that interact with protected species are subject to regulation to minimize or mitigate interactions. Absent scientific information, PR regulations tend to err toward protection, which may result in unnecessarily severe regulations. Should RSA be used to minimize the risk of unnecessarily severe regulations?
Investment in Ecosystem Knowledge: to produce knowledge about the marine and coastal ecosystems where fisheries as an investment in the future scientific basis for fulfilling mandates related to fisheries.	**X**		**X**	This is an ongoing core mission of the NMFS. Are there specific types of information on ecosystems that are not high enough priority for NMFS ecosystem programs, but are an important enough investment to merit RSA support? If so, is it realistic to fulfil the scientific need with RSA (e.g.,

				can the RSA program make a large enough investment?).