



Northeast Cooperative Research Program Review

Northeast Fisheries Science Center Summary and Response

March 2017

ACRONYMS

ACCSP: Atlantic Coastal Cooperative Statistics Program
ASMFC: Atlantic States Marine Fisheries Commission
COTR: Contracting Officer's Technical Representative
CRB: Cooperative Research Branch
DMS: Data Management Systems
EM: Electronic Monitoring
ER: Electronic Reporting
eVTR: Electronic Vessel Trip Report
FDDV: Fisheries Dependent Data Visioning Project
FLDRS: Fisheries Logbook Data Recording System
FMRD: Fishery Monitoring Research Division
FSB: Fisheries Sampling Branch
GARFO: Greater Atlantic Regional Fisheries Office
ICIC: IC Independent Consulting
IT: Information Technology
MAFMC: Mid-Atlantic Fishery Management Council
MREP: Marine Resource Education Program
NCRP: Northeast Cooperative Research Program
NEFMC: New England Fishery Management Council
NEFSC: Northeast Fisheries Science Center
NOAA: National Oceanic and Atmospheric Administration
NMFS: National Marine Fisheries Service
RSA: Research Set-Aside
SCemFIS: Science Center for Marine Fisheries
VERS: Vessel Electronic Reporting System
VTR: Vessel Trip Report

EXECUTIVE SUMMARY

The Northeast Fisheries Science Center (NEFSC) undertook an independent review of the Northeast Cooperative Research Program (NCRP) in July 2016 with the objective to assess its internal management and coordination. The review was conducted by IC Independent Consulting (ICIC). The reviewer was tasked to evaluate the effectiveness and success of the NCRP in three primary areas: 1) high quality science; 2) effective engagement; and 3) integration within NEFSC scientific programs; and provide recommendations to enhance the program.

The review examined 150 documents and interviewed 98 people throughout the Northeast United States, including NCRP staff, fisheries managers, scientists, academia, and the fishing industry. The program review was completed in September 2016, culminating in the delivery of a final report to the NEFSC. The review was complementary of the work done by the NCRP, and in particular the success of the Study Fleet, development of electronic vessel trip reporting technology, enhanced biological sampling opportunities, and industry-based survey collaborations.

The review report is available on the NEFSC webpage, providing details and recommendations for improving the NCRP in five themes: 1) increase the usage of NCRP data products and services; 2) consider separating out the Research Set Aside Program (RSA) from the NCRP; 3) improve communication about the roles and function of the NCRP both internally and externally; 4) develop organizational structure within the NCRP to better deal with the geographically dispersed nature of staff; and 5) explore synergies between the Cooperative Research Branch (CRB) and the Fisheries Sampling Branch (FSB, which manages the observer programs in the NE) within the newly created Fishery Monitoring and Research Division (FMRD).

The NEFSC formed a cross-divisional working group from over a dozen different programs within the NEFSC to discuss the review results and compile a response on how we propose to move forward. This response to the review contains their feedback, as well as some preliminary review of some parts of the report by the Greater Regional Atlantic Fisheries Office (GARFO), the New England Fishery Management Council (NEFMC) and the Mid-Atlantic Fishery Management Council (MAFMC).

The NEFSC has listed twenty four (24) action items as a result of the review (Appendix A). Work in response to those action items has already begun and will continue through the upcoming years. We are confident that the recommendations made in the report, as well as the feedback expected in the proposed working groups and regular engagement will even further improve and effectively convey the mission and objectives of the NCRP.

INTRODUCTION

The National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA Fisheries) has engaged in funding collaborative research with stakeholders in the Northeast and mid-Atlantic since 1999, primarily through the Northeast Fisheries Science Center (NEFSC) Northeast Cooperative Research Program (NCRP). The NCRP has formalized and expanded cooperative research between commercial fishing industries, scientists and managers with the goals of enhancing the data upon which fishery management decisions are made, and improving communication and collaboration among partners. This program has provided significant opportunities for NOAA Fisheries to develop collaborative relationships with the fishing industry and to begin to foster trust and mutual learning among the various players in the fisheries communities and science and management agencies.

The NEFSC began an independent review of the NCRP in July, 2016 with the objective to assess internal management and coordination of the NCRP. By focusing on the progress, performance, achievements, and lessons learned since the NEFSC began managing the program in 2006, the intent was that the review would provide specific recommendations that would inform future program enhancements. The review was carried out by Steven Kennelly of IC Independent Consulting (ICIC), through a contract with the NEFSC. The contractor was asked to evaluate the effectiveness and success of the NCRP in the following areas and provide recommendations on how to improve performance as appropriate:

1. High Quality Science:
 - a. Evaluate the effectiveness of and barriers to delivering high quality, accessible, and timely data and research results to NEFSC scientists, research partners and stakeholders, which meet expectations and supports the NEFSC's science mission. Particular emphasis should be placed on projects designed to improve the resolution, accuracy and efficiency of data collection in support of the stock assessment process, supporting essential ecosystem and climate observing programs, and improving integration with other regional and national programs.
 - b. Evaluate the relative importance among the various research areas within the cooperative research program portfolio to meet NEFSC priorities and stakeholder needs.
2. Effective engagement:
 - a. Evaluate the effectiveness of engagement with stakeholders and partners, and responding to constructive comments and suggestions from these constituents.
 - b. Evaluate the effectiveness of engagement with the New England and Mid-Atlantic Fishery Management Councils, Atlantic States Fisheries Management Council, the Greater Atlantic Regional Fisheries Office, commercial and recreational fishing organizations, and other stakeholders in setting priorities, coordinating Council cooperative research projects, communicating results and tracking progress and performance relative to research projects.
 - c. Evaluate program communications and outreach to internal and external constituents within the context of the NEFSC's broader outreach and communication efforts.
3. Integration within NEFSC scientific programs:
 - a. Evaluate the ongoing coordination with all programs throughout the NEFSC to ensure responsiveness to science and outreach needs, and support and participation of NEFSC scientists in cooperative research program activities, in setting research priorities, reporting back research results, and public engagement.
 - b. Evaluate the effectiveness of coordination with NEFSC leadership to ensure that program priorities are aligned with, and responsive to NEFSC priorities.
 - c. Evaluate current program resources and capacities, including staffing levels and skillsets, to identify program strengths and limitations. Building off the recommendations in the Science Plan, provide guidance on staffing levels and resources to meet cooperative research needs.

The review examined approximately 150 documents and interviewed 98 people throughout the Northeast United States, including NCRP staff, fisheries managers from the GARFO, scientists from the NEFSC and other universities and agencies, members of the fishing industry, staff and members of both the Mid-Atlantic and New England Fishery Management Councils, and state fisheries staff. The program review was completed in September 2016, culminating in the delivery of a final report to NEFSC leadership.

Overall, the review was highly complementary of the work that has been done to date by the NCRP, in particular highlighting the success of:

- the Study Fleet,
- development of electronic vessel reporting technology,
- enhanced biological sampling opportunities, and
- industry-based survey collaborations such as the ongoing Gulf of Maine Longline Survey.

The report describes the exemplary services currently offered by the NCRP despite its' small size and credits them with establishing good industry relationships. In fact it commends the NCRP staff in that industry offered them glowing praise.

The review report provides specific recommendations for improving the NCRP. These recommendations fell into five major themes:

1. Increase the usage of NCRP data products and services;
2. Examine the organizational structure and the administrative oversight provided by the NCRP for the Research Set-Aside Program;
3. Improve communications about the roles and functions of the NCRP both internally and externally;
4. Develop organizational structure within the NCRP to better deal with the geographically dispersed nature of program staff; and
5. Explore synergies between the Cooperative Research Branch (CRB) and Fisheries Sampling Branch (FSB) within the newly created Fisheries Monitoring and Research Division (FMRD).

In reviewing and responding to the final report, the NEFSC created a cross-divisional working group which included representation from 11 of the research branches within the NEFSC plus staff from the Research Communications Branch, the NEFSC Directorate and the Greater Atlantic Regional Fisheries Office (GARFO). A diverse working group was necessary to properly address the integration and communication themes highlighted in the review.

NEFSC RESPONSE TO THE REVIEW RECOMMENDATIONS

While the review was specific to the NCRP, we note that the issues highlighted are not unique within the NEFSC. Improvements in communication, integration with internal and external partners, and data collection systems as well as the need for additional staffing resources and organizational structure are all areas that have been highlighted in other recently completed NEFSC Program Reviews and internal strategic planning exercises. To this end, many of the issues affecting the NCRP are shared across many programs and are areas that the NEFSC is working to address through a variety of initiatives, including:

- **Internal Communications:** In 2015, the NEFSC convened a series of internal working groups that were charged with developing recommendations to improve overall organizational performance in several areas including internal communications. Four working groups were formed, with about 10 NEFSC staff each, and tasked with identifying the goals, challenges, and solutions for each area. Among the areas examined by the Internal Communications Working Group were

communications across branches and divisions and the communication of scientific results. Each working group presented their results to the Directorate and at an All Hands meeting at the NEFSC.

- External Communications: The NEFSC has been working on an external research communications strategy with an outside consulting firm; the final report with a strategy and implementation plan was delivered in January 2017 XXXX.
- Advancements in Fisheries-Dependent Data Collections: In 2013, the NEFSC and GARFO jointly began a formal effort to modernize and streamline fisheries-dependent data systems throughout the Greater Atlantic Region. Since that time, the Atlantic States Marine Fisheries Commission (ASMFC)/Atlantic Coastal Cooperative Statistics Program (ACCSP) has joined the effort, which identified ACCSP as the location for a data warehouse that would serve all data users. The goal of Fisheries Dependent Data Visioning (FDDV) Project is to adapt our data collection systems to meet the current and future needs of fisheries science and management. This work continues.
- Long-term Labor Planning: The NEFSC is developing a 2021 Labor Plan that will help guide future workforce decisions to address the priorities outlined in the NEFSC's 2016-2020 Strategic Science Plan and science program review implementation recommendations, such as this review. This workforce visioning process will be updated in each successive year to incorporate new information, new assumptions, and other annual guidance.

In the summary below, we have highlighted the major recommendations of the NCRP Review, in each of the five themes. Many of the recommendations in the NCRP Review report were not explicit, but rather identified general areas of concerns and offered example solutions. Specific recommendations from the review report are presented with a response to each recommendation; where applicable, specific action items are identified to address the review recommendations. Appendix A provides a summary of the action items and highlights the responsible NEFSC divisions as well as target completion dates.

Theme 1: Increase the usage of NCRP data products and services

The Review recommended that:

More scientists in the NEFSC need to recognize the value of cooperative research and more fully consider techniques to incorporate industry-based data. More effort should be spent to increase the awareness of NCRP products and services across the NEFSC to improve the understanding of what the NCRP does and, could potentially do in an effort to increase the number of scientific collaborations. To address this, it is recommended that the NEFSC convene a series of workshops to provide an overview of current and potential NCRP's industry-based data-gathering operations, and develop smaller working groups to guide the use of existing data and design future studies. This workshop will also include external speakers that present the value of cooperative research.

NEFSC response:

While the products generated by NCRP over the years are voluminous, the review found that there was a belief among many internal and external contacts that little of the NCRP products have been directly integrated into stock assessments, and by extension have had minimal impact on fisheries management decisions. This perception is contributing to the overall distrust of the regional stock assessment process

and compromising the future effectiveness of the NCRP. Several recommendations addressed these concerns.

Convening a workshop to familiarize all NEFSC staff with the work conducted by the NCRP is an excellent starting point. The workshop will outline the history of the program, including funding patterns by research theme, list of projects completed, documentation of the uses of the resulting products, and metadata on the available data sets from these projects. Of most significance, the workshop will provide a definitive, and inclusive, process to guide future projects, including how to most effectively engage the fishing industry and cooperative research partners. The goal of the workshop will be to facilitate responsiveness to future scientific needs across all divisions and branches

The workshop would lead to the creation of small working groups to maximize the use of NCRP products and propose future projects for the NCRP. Outreach to industry partners would occur early in the development of projects to ensure both an understanding of the project as well as allow inclusion of their perspective.

Action Item 1a: The NEFSC will convene workshops to communicate the value of cooperative research and improve awareness and integration of NCRP products and services.

The Review recommended that:

The stock assessment working groups should explore uses of the existing Study Fleet data via advanced statistical techniques that might address concerns regarding the representativeness of the data and sampling design.

NEFSC response:

Future applications of the Study Fleet will require engagement from multiple branches in the NEFSC, through the working groups mentioned above, to match the intended use to the data and the sampling design. Involvement of NEFSC stock assessment staff and other relevant science branches will help to ensure and promote the utility and use of the data collected by the NCRP.

Action Item 1b: The NEFSC will ensure that every science Division has cross-cutting activities with the NCRP and is detailed in the NEFSC 2021 Labor Planning.

The Review recommended to:

Improve the quality and ease of access of NCRP products to stock assessment analysts as well as others within the NEFSC.

NEFSC response:

The NEFSC has already begun to make historical data easier to access by all NEFSC scientists by creating dedicated analytical datasets. These datasets have been documented to help scientists understand the database tables and fields. Existing data sets include both haul level data collected by NCRP Study Fleet partners, and sub-trip level vessel data submitted by non-Study Fleet industry members intending to report via Electronic Vessel Trip Report (eVTR) in lieu of paper Vessel Trip Report (VTR).

The eVTR portal was intended to allow vessel owners and operators to view and edit the data they have submitted. The NEFSC is working to improve this application, in addition to developing tools to help industry visualize their data. Broader public access will by necessity have to be restricted to analytically derived trends and distribution displays that are at spatial and temporal scales that do not disclose confidential data. Ongoing internal collaborations across NEFSC branches are making progress on

increasing access and use, but additional resources, both computing and personnel, are needed to accelerate the process and will likely be the focus of workshop discussions, external collaborations, and inclusion of cross-cutting labor planning.

Action Item 1c: The NEFSC will ensure that the Data Management System Division has cross-cutting activities with the CRB and is detailed in the NEFSC 2021 Labor Planning.

The Review recommended to:

Continue to improve and expand electronic reporting (ER) tools for the fishing industry.

NEFSC response:

The NEFSC recognizes the benefits of electronic reporting and is continuing to develop tools for the fishing industry. Specifically, the FDDV Project is working towards a system that will provide a single unique trip identifier for each fishing trip in the region and protocols for reporting, storage, and support of electronically reported data. This unique identifier will facilitate linking among the many databases where information is stored and allow improved quality assurance/quality control (QA/QC) measures. The increased speed of data availability and reduced QA/QC data issues will allow scientists to respond to inquiries more efficiently. Through the FDDV further adoption of ER tools by the fishing industry are being explored. Continued development of ER must include full collaboration with industry to ensure the practicality of use and to incorporate design elements and additional data that is useful for industry and will incentivize accurate reporting.

The satellite-telemetry electronic data collection system currently transmits oceanographic data from Study Fleet vessels and provides an example of how automated electronic transmissions of fisheries-dependent data could work. Oceanographic data has been reported in real-time from more than a dozen Study Fleet boats. Data from approximately 1500 hauls were reported to NEFSC servers within minutes of the gear landing on deck. While this system is currently independent of all other data transfer/upload operations, it could play an integral role in the process of ship-to-shore transfer of data in the future. These types of transmission mechanisms should be considered as part of the FDDV Project, though additional resources, both computer and personnel, would be required to implement this approach for eVTR.

Action Item 1d: The NEFSC will continue to support and emphasize FDDV; continue to develop and support electronic data transfer from fishing vessels.

Theme 2: Examine the organizational structure and administrative oversight provided by the NCRP for the Research Set-Aside Program.

The review concluded that the research set-aside (RSA) programs are valuable and well-administered, but several areas of improvements were identified to improve the RSA programs as well as the overall efficiency of the NCRP.

The Review recommended to:

Remove management of the research set aside (RSA) program from NCRP to free up time to focus on the core NCRP products: development of industry-based data collection systems.

NEFSC response:

The NCRP Review was not a comprehensive review of the RSA programs - it was only evaluated with respect to the NCRP activities. For this reason, recommendations that arise from the NCRP Review will be used to further evaluate RSA improvement options, working closely with our regional partners at the Mid-Atlantic and New England Fishery Management Councils, GARFO, the fishing industry, and research communities.

In January 2017, at a NEFMC Executive Committee meeting, the NEFMC, NEFSC, and GARFO agreed to conduct a comprehensive review of RSA programs. The NEFSC will examine the results of that review before pursuing detailed recommendations presented in the NCRP review.

Action Item 2a: The NEFSC will work with the Council(s) and GARFO to further evaluate improvements to the RSA programs. The NEFSC will engage in this joint comprehensive review of RSA programs.

The Review recommended that:

Final decisions on funding and the tracking of RSA project performance should be overseen by a formal committee (or board) with appropriate industry and government representation and independently chaired.

NEFSC response:

The report concluded that project decision making authority and project tracking should be transferred from NOAA Fisheries to an external, independent committee. There are legal and practical limitations associated with this recommendation. Foremost, RSA programs are Federal grant programs and final funding decisions reside with the Federal government. Further, grant program requirements must be overseen by the Federal Program Officer and the Department of Commerce. Although this recommendation cannot be adopted, there may be ways to increase input on project funding and tracking from a formal committee.

Action Item 2b: The NEFSC will develop a joint work plan with the Council(s) and GARFO to further evaluate how awards are made and tracked within the RSA programs.

The Review recommended that:

The detailed tracking of the performance of RSA projects requires greater scrutiny, transparency and accountability.

NEFSC response:

The NEFSC recognizes the importance of strong oversight to ensure RSA projects remain accountable for their proposed research and set aside award. There are several procedures in place to oversee research and compensation fishing to ensure accountability. Foremost, there are grant reporting requirements that award recipients must follow. They are required to submit progress reports every 6 months and a final report within 90 days of the conclusion of their grant. These reports provide updates on project activities such as, field research activities, compensation fishing, and any unforeseen issues that may have affected the project. Reports are reviewed by RSA program staff and NMFS staff with subject matter expertise to ensure the applicant is operating consistent with their research proposal. Final reports provide a detailed account of the research effort, and include results, analysis, and conclusions. RSA compensation fishing trip reports are audited for reporting compliance and data quality by NMFS.

Information on RSA projects is available on the NCRP website

(http://www.nefsc.noaa.gov/coopresearch/projects_search_setup.html). This searchable database allows visitors to view final reports (or see when the report is due) and award information.

Action Item 2c: The recommendation to improve tracking of the performance of the projects and increase transparency and accountability will be discussed as part of the joint RSA review.

The Review recommended that:

RSA projects should be funded more strategically by partitioning of money for several years for long-term survey-type work – instead of the current 1-2 year life cycle of most projects, as well as trying to synchronize the timing of various funding processes.

NEFSC response:

RSA programs have moved from single year to two (and three for herring) year awards in recent years. This helps to stabilize funding for projects that have long-term or ongoing objectives and increases the ability for managers and others that may benefit from research results to plan around these projects. Although there are clear benefits in making longer-term awards, there are some sacrifices; primarily, reductions in the amount of resources available to respond to emerging issues and to make near-term decisions. Extending awards beyond the quota specification cycle would need to be deliberated with the applicable Council, General Counsel Northeast Section, the Federal Acquisition Law Division, and GARFO. In addition, increasing the current grant duration may entail a change to fishery management plans and/or implementing regulations. Partitioning set asides to address specific program priorities would need to be supported by the Council and would likely require a change to the FMP and/or implementing regulations. Partitioning set-asides has been discussed in the past by the Council, but was not approved. Based on the NCRP review, we will revisit this discussion with the Council. Synchronizing the timing of RSA solicitations with other funding opportunities is difficult. The RSA competitions and awards are based on each respective fishing year. The goal is to have RSA awards made by the start of the fishing year so grant recipients can begin partnering with the fishing industry to harvest the award. Shifting this goal to focus on the timing of other funding opportunities could undermine compensation fishing opportunities, which are critical to the success of these programs.

Action Item 2d: The recommendation to adjust the funding life-cycle will be further discussed in the joint RSA Program review.

Theme 3: Improve communications about the roles and functions of the NCRP both internally and externally

The review found that both within the NEFSC and among external partners, there is a lack of awareness and understanding of the role of the NCRP, the products and services they can provide, and how the data collected are used by NEFSC scientists.

The Review recommended to:

Better define and communicate what is meant by ‘cooperative research’ and the roles and functions of the NCRP and clarify that NCRP is part of the NEFSC and that the work done through the NCRP should be feeding directly into the NEFSC science products.

NEFSC response:

We agree there is a need to better define and communicate what ‘cooperative research’ means and the roles and functions of the NCRP. Within the scope of this NCRP Review, cooperative research is restricted to the following:

- NEFSC-led projects that collaborate with industry (Study Fleet, Gulf of Maine Longline Survey, survey catchability work, etc.);
- NEFSC-funded activities coordinated by other groups (Marine Resource Education Program (MREP), Science Center for Marine Fisheries (SCemFis), etc.); and,
- NEFSC coordinated activities where research is funded externally and conducted by other groups (RSA, etc.).

While beyond the scope of the NCRP review, it is also worth highlighting that other branches within the NEFSC conduct cooperative research activities using their program funds. Examples of this non-NCRP cooperative research include the 50 year shark tagging program, significant protected species research relating to fishery interactions and socio-economic studies used to evaluate the implications of regulatory options. Additionally, there is cooperative research that is conducted outside the NEFSC among various partners (e.g., collaborations between academic universities and the fishing industry), but similar to the non-NCRP NEFSC cooperative research, are beyond the scope of the NCRP Review.

Within the NEFSC, there needs to be better communication about the type and availability of NCRP data. This is not just the responsibility of the NCRP; other branches within the NEFSC have used NCRP funds to conduct cooperative research and these groups have a shared responsibility to provide documentation of these projects. Additionally, users of the data would communicate back to the NCRP about how the data are being used (i.e. stock assessments and publications). Furthermore, it is important to clarify and communicate to external partners how the NCRP data are used, and where applicable, show how the data are incorporated into assessments. Several specific recommendations were made to improve the general familiarity of the NCRP. We have listed additional recommendations below in internal and external communications, realizing some recommendations relate to both.

Opportunities to leverage existing resources (funding, staff, and equipment) within other branches of the NEFSC to support NCRP activities will be explored. This has been an effective model used to collect oceanographic data and conduct the Gulf of Maine Longline Survey. These cross-branch collaborations also assist with the integration of NCRP products and ensure that there is a demonstrated scientific use for the data collected.

The Review recommended to:

Increase the awareness of NCRP products and services across the NEFSC to improve the understanding of what the NCRP does and, more importantly, could potentially do, in an effort to increase the number of scientific collaborations. Specifically, convene a NEFSC workshop to provide an overview of current and potential NCRP's industry-based data-gathering operations.

NEFSC Response:

Within NEFSC, we agree there is a need to increase the awareness of NCRP products and services across the NEFSC. There also needs to be an increase in willingness to use data collected as part of cooperative research. As noted above, this lack of understanding is not limited to the NCRP. Recent NEFSC internal focus groups made a series of recommendations to address internal and external communications needs within the NEFSC, including those of NCRP:

- Improve visibility and transparency of NEFSC research and products to better connect knowledge to action and inform internal and external audiences, including the media.
- Identify and track NEFSC products (data, publications, reports, and advice) in order to strategically manage our human and physical resources.

To further foster increased awareness of scientific research and projects within NEFSC, the Executive Board is considering reinstating the internal NEFSC Science Symposium on a regular basis to provide scientists throughout NEFSC an opportunity to present their work and learn more about the research being conducted at the NEFSC. Additionally, the NEFSC Lunchtime Seminar Series (<http://www.nefsc.noaa.gov/nefsc/woodshole/seminar-public.html>), NEFSC Science Spotlights (<http://www.nefsc.noaa.gov/news/spotlights.html>), and/or other communication tools provide opportunities to highlight the work being done by the various branches could give the staff ample opportunities to learn about the NCRP activities.

A specific suggestion from the review report is for NCRP to host a workshop. As highlighted under Theme 1, the workshop would help better communicate the roles of NCRP, the data available through NCRP, and to identify potential cross-division activities and projects.

Action Item 3a: The NEFSC should increase opportunities for cooperative research to be presented to staff of the NEFSC, by NCRP staff and other project collaborators, on at least a biennial basis.

The Review recommended to:

Improve the understanding of the NCRP's work by external stakeholders to ensure that those parts of the NCRP's data sets that contribute to science and/or management are adequately communicated to all appropriate stakeholders. Specifically: improve MREP curriculum to promote NCRP success stories where cooperative research products have contributed to science and/or management; develop a better web presence including video interviews, regular email newsletters to constituent lists, etc.; and, expand the size and geographic range of the Study Fleet and NCRP activities and seek to broaden cooperative research activities to include more industry participants.

NEFSC response:

The review recommended that the NEFSC develop and implement an effective communication and outreach strategy and engage regularly with research partners to review ongoing collaborations and identify new opportunities. Much recent effort has been expended on improving our external communications for all areas of the NEFSC from a larger, more centralized perspective. All of these efforts have implications for NCRP. Progress to date includes:

- The NEFSC hired a contract social media specialist to expand the visibility of our programs. Current efforts include use of Twitter and Facebook (via GARFO and NOAA Fisheries HQ Communications staff), media mailings, web articles, etc.
- NEFSC is working on an External Communications Strategy with an outside consulting firm (Kearns & West); the final report with a strategy and implementation plan is expected in January 2017.
- Discussions are underway to make better utilization of GARFO port agents for external communications.

The report notes that 'cooperative research' means different things to different people and is perceived by some as an income generator, while others consider it a means to influence management and science. Several steps will be taken to help clarify the role of NCRP and combat the notion that there's an "in" group that get to participate while everyone else is in the "out" group. External communications need to emphasize that NCRP is part of the NEFSC and the work done through the NCRP feeds directly into the NEFSC science products. Specifically, more can be done to show how the NCRP works with external

partners and how the products produced through these collaborations is incorporated into NEFSC research. Internal workshops and seminars (as noted above) as well as various for a such as port meetings, industry workshops, industry conferences/trade shows, regular presentations and discussions at Fishery Management Council meetings and with Council Staff, and collaborating with our cooperative research partners can help in this regard. These efforts will be coordinated between NCRP, Research Communications Branch and scientific staff. Lastly, clarifying and communicating what NCRP does and why it was established will help reduce the misperceptions concerning NCRP. Other suggestions include:

- Routinely update the NCRP web site to include more timely information, video interviews/podcasts, increase visibility via regular email newsletters/outreach to constituent lists, etc.
- Use various communication tools and strategies to reach external audiences, including web articles about the NCRP and its various programs and success stories, social media, communication with port agents, in-person meetings with fishermen on their turf or in a neutral setting.
- Expand the Marine Resource Education Program (MREP). The MREP has done great work in reaching out to our stakeholders to help them understand the process and our science. NEFSC can do more to improve/expand the MREP curriculum, and to highlight successful use of NCRP products in science and management.
- More widely publicize study fleet success stories. One example: Pilot Studies Test Bottom-Mounted Temperature Loggers, Weather Stations on Fishing Boats.

As noted in a previous program review, maintaining a productive working relationship with fishermen requires a substantial time commitment from scientists. Increasing interactions with intermediaries, such as state scientists, industry cooperative groups, local non-profit research organizations, and GARFO port agents, will help alleviate the time commitment of the NEFSC scientist while continuing to maintain connections with the fishing industry. Expansion of the Study Fleet program will be considered during the NEFSC NCRP workshops. Subsequent expansion efforts will be done in a planned manner and closely aligned with addressing identified research priorities.

Action Item 3b: Expand the Cooperative research curriculum in the Marine Resource Education Program (MREP) to focus on the role of the NCRP, ongoing projects, and recent success stories.

Action Item 3c: Using a variety of outreach tools (NCRP website, press releases, social media, email lists, tradeshows), NEFSC will provide more timely information about ongoing NCRP projects and success stories, video interviews/podcasts. CRB will engage in regular meetings with Social Media specialist and GARFO port agents, and reference the results noted in the NEFSC External Communication Strategy.

Action Item 3d: CRB will update the NCRP website to include a list of NCRP projects, with metadata summarizing how the information from these projects has been used in science and management applications, and listing project contacts.

Action Item 3e: The NEFSC will re-establish regular reports from the NCRP at the MAFMC and NEFMC meetings.

Theme 4: Develop organizational structure within the NCRP to better deal with the geographically dispersed nature of program staff

This theme highlighted the geographic dispersion of the NCRP staff, flat organizational structure, large reliance on contract staff and lack of direct supervisions as contributors to a) a lack of research prioritization and alignment with the NEFSC's Directorate, and b) difficulties with communication, team-building and training opportunities. In the summer of 2016, the NEFSC underwent a reorganization which included moving the NCRP from a research program reporting directly to the NEFSC Directorate, to the more formal division/branch structure used elsewhere in the NEFSC. The NCRP is now operated out of the Cooperative Research Branch (CRB) which has been placed in the newly created FMRD. As both the FMRD and CRB mature, the organizational issues are expected to improve.

The NEFSC has initiated a long-term (through 2021) labor planning process that seeks to align the labor force with the NEFSC Strategic Science Plan. This process is intended to highlight staffing shortfalls and plan for improvements/investments in this area.

The Review recommended to:

Develop a research prioritization process where cooperative research projects are properly prioritized, designed, mentored, or overseen in conjunction with NEFSC scientists.

NEFSC response:

A formal prioritization process aligned with the NEFSC Strategic Science Plan is a critical component of CRB function. Integrating advice from program staff and end users throughout the NEFSC, and engaging our external partners and industry collaborators, will improve cooperative research products. Developing a process for cooperative research prioritization and planning is highlighted in Theme 1. Development of a research prioritization process is likely to improve integration of cooperative research products in a broad array of NEFSC programs, enhancing program impacts. This will be a priority as both FMRD and CRB structure develop.

The Review recommended to:

Improve the supervision of contract staff.

NEFSC Response:

Flat organizational structure and a lack of direct supervision have been identified as creating challenges related to communication, and staff engagement in the CRB. These issues are certainly exacerbated by the limited number of Federal employees in the CRB and existing workloads. Presently there is no supervisory structure within branch contractor ranks. Developing this structure in the contract staff is possible within the existing contract framework and would alleviate the supervisory burden on Federal employees and improve the coordination of contract staff. The GARFO has developed an approach in the port sampling program involving a Federal employee program manager overseeing several contractor leads that then supervise and coordinate activities of additional contract staff. A similar structure could be developed within the CRB contract staff by creating a supervising contractor who would provide oversight and prioritization of the work of all contract staff in CRB. The number of supervisory positions will depend on the final structure of the CRB which will be addressed through the NEFSC's long-term labor planning exercise.

Action Item 4a: Explore creating supervisory contract positions within the CRB, which can be further evaluated through standing up the new Division (FMRD) structure and NEFSC labor planning for 2021.

The Review recommended to:

Provide training and career development opportunities to contract staff to include mentoring by senior NEFSC scientists and possible integration of research duties with part-time Masters or PhD program.

NEFSC Response:

Training and career development opportunities exist at the NEFSC and are available to contract staff, though NEFSC can do a better job of highlighting and encouraging these opportunities. The existing labor contractor provides annual funding for technical training for staff members (e.g., computer languages, statistical courses) that is directly related to the scope of their duties. These resources have allowed contractors to improve technical skills and enhance their contribution to program goals.

Action Item 4b: NEFSC Branch Chiefs and Division Chiefs will work with the contract staff COTR and Staff Advisory Council at the NEFSC to ensure that mentoring and training opportunities are understood, offered, and designed within the scope of acceptable contract activities.

The Review recommended to:

Centralize Cooperative Research Branch Federal employees to the extent practicable, even if on a rotating basis.

NEFSC response:

The CRB presently has three Federal employees directly involved in branch administration, though Federal staff in other branches are actively engaged in CRB activities. The three Federal employees are distributed throughout the region. Independent of distribution, this small staff may not provide critical mass in regards to program function. This is likely exacerbated by the distance between these individuals. As the NEFSC is exploring and planning for facility recapitalization efforts and implementing a long term work force vision we recognize the advantages of further developing an effective cohesive and integrated center for cooperative research.

Action Item 4c: To the extent possible, as additional Federal employees are hired within CRB, they should be located in a facility common to either their supervisor or direct reports.

Action Item 4d: In lieu of relocation, which is not favored, the two senior CRB Federal employees should host the other at their facility for a couple of days each month. This would encourage the exchange of ideas and help bridge gaps in communication.

The Review recommended to:

Develop a succession plan for the Cooperative Research Branch.

NEFSC response:

Institutional knowledge is critical to carrying programs forward during transitions. Succession planning would be beneficial. It is incumbent on existing staff to document information necessary to carry the CRB forward. Through the NEFSC's long-term labor planning exercise, transitioning many of the contract positions into Federal positions would help stabilize the CRB labor force and facilitate the transfer of institutional knowledge.

Action Item 4e: The FMRD and NEFSC will consider succession plan for CRB in the 2012 labor planning process.

The Review recommended to:

Improve the structure of the Cooperative Research Branch by creating teams based either on geography (New England vs. Mid-Atlantic), field services (commercial vs. recreational), or functional responsibilities (outreach, field support).

NEFSC response:

We believe the CRB would benefit from improved organizational structure. As highlighted earlier, the NEFSC's long-term labor planning exercise is currently underway. A primary component of this exercise will be to strategically plan the future of CRB labor force. This exercise will focus on the structure of the CRB, both with respect to products and services it will deliver and how best to staff the Branch (Federal positions, contract labor; number of junior, professional, and supervisory staff).

Action Item 4f: The FMRD will consider organizational structure and strategic geographic placement of CRB staff in the 2021 labor planning process.

The Review recommended to:

Develop a stronger presence in the Mid-Atlantic by locating at least one Federal employee in the region that could a) oversee regional cooperative research projects including continued collaborations within the recreational sector and b) improve the coordination of research priorities with the MAFMC.

NEFSC response:

Through the NEFSC's long-term labor planning exercise, consideration will be given to expanding the scope of CRB engagement in the Mid-Atlantic region and the labor needed to support that will be evaluated. Coordination with fishery management councils will continue to be undertaken by senior staff (division and branch chiefs). Technical level staff (Federal employees and contractors) are positioned to engage at the PDT and FMAT levels and this will be encouraged and expanded.

The Review recommended to:

Develop the capacity for additional analytical support within the branch.

NEFSC response:

Currently the CRB includes two contract staff members dedicated to analysis and data auditing, as well as a third contract staff member who is a software programmer. The existing staff are insufficient to meet the current analytical and technical demands on the CRB. Additional analytical and technical staff would improve CRB capabilities in this area, though this also needs to be considered within the larger context of the FMRD structure, which is further explored in Theme 5. Through the NEFSC's long-term labor planning exercise, consideration will be given to expanding the analytical and technical capacity of the CRB with consideration of the synergies that could be explored within the FMRD and with other Divisions.

Action Item 4g: In the short term, CRB would explore opportunities and resource availability to bring on temporary analytical support through a post-doctoral position.

Theme 5: Explore synergies between the CRB and FSB within the newly created FMRD

In an effort to improve overall NEFSC organizational structure, a newly created FMRD was created in June 2016. The FMRD focuses on the collection and use of information from commercial and recreational

fisheries to inform fisheries science and management and fills data gaps to complement fishery independent surveys through the utilization of commercial and recreational fishing platforms. The FMRD includes both the CRB and Fisheries Sampling Branch (FSB), both of which work closely with fishing industries to collect, process, and manage fishery dependent data, and utilize industry platforms to obtain data in support of stock assessments and ecosystem based fishery management. Since the NEFSC began managing the NCRP in 2006, it has existed as a science program reporting directly to the NEFSC Directorate. With the NEFSC reorganization the NCRP has been moved within the CRB. The review report highlighted several ways in which synergies could be explored, some of which are mentioned below.

The Review recommended the:

Development of a vessel database containing the characteristics of fishing vessels that would be available for research.

NEFSC response:

There is considerable utility in developing a database, or at a minimum – a list, of vessels operating in the Northeast United States who are cooperative and supportive of furthering the science mission of the NMFS. Given the expansive reach of the FSB operations, both in terms of geography and the number of vessels, the FSB staff have intimate knowledge of which vessels might be good candidates for cooperative research opportunities. Leveraging this knowledge to support the CRB expansion efforts would be beneficial.

Action Item 5a: The FMRD will explore the development of a database to contain information on commercial fishing vessels suited for cooperative research projects.

The Review recommended the:

Use of the Fisheries Logbook Data Recording System (FLDRS) information to assist in identifying key locations and times for observer deployment.

NEFSC response:

Although this is a creative idea, the NEFSC does not readily agree that FLDRS could help with observer placement. The FSB has access to databases with similar information (e.g., Vessel Trip Report and Vessel Monitoring System), although the observer providers and observers do not have that direct access. Additionally, within the groundfish fishery, FSB uses the Pre-Trip Notification System (PTNS) to dynamically assign observer coverage proportional to fishing effort. Efforts are underway to expand the capability of the PTNS to support other fisheries.

Action Item 5b: A FMRD representative will engage with the FDDV, which is a project to modernize, integrate, standardize, adapt, and reduce redundancies with fisheries dependent data collections, keeping the utility and applications of FLDRS and PTNS in mind.

The Review recommended to:

Combine FLDRS electronic reporting (ER) and electronic monitoring (EM) technology into a next-generation audit-type fisheries-dependent data collection system.

NEFSC response:

Under the audit-type model EM video data are used to validate the self-reported data provided by vessel captains using electronic logbooks such as FLDRS. Several regional EM projects are currently utilizing FLDRS to collect haul-by-haul catch data, including audit-type applications in the Northeast groundfish

fishery. Efforts are currently underway at the GARFO to link EM and ER data, though linkages that are more direct should be explored under the FDDV Project. The NEFSC, in conjunction with its regional partners and through the FDDV, will continue to explore opportunities to advance ER and EM linkages.

Action Item 5c: FMRD will ensure that considerations of existing and evolving ER are included in EM developments.

The Review recommended to:

Explore opportunities to share support services to include administrative, information technology (IT), field and safety training and outreach support.

NEFSC response:

The FMRD is currently exploring ways to better distribute analytical, IT, administrative and communications support throughout the Division as part of the NEFSC's long-term labor planning exercise. Steps have already been taken to utilize the existing safety training programs developed by FSB to provide regular training to CRB staff. Additionally, both FSB and CRB are in regular contact regarding regional fisheries issues that may affect each of the branches. Through the NEFSC's long-term labor planning exercise the NEFSC will continue to explore a combined services approach in the new FMRD structure, especially in areas on which efficiencies can be capitalized.

Action Item 5d: The NEFSC will ensure that cross-cutting activities, including administrative, IT, safety, and outreach support with the CRB, is detailed in the NEFSC 2021 Labor Planning.

CONCLUDING COMMENTS

We greatly appreciate the willingness of our many regional partners to participate in the NCRP review process. The review report has provided the NEFSC with a solid foundation with which to begin to better align our cooperative research efforts with the NEFSC's Strategic Science Plan for 2016-2021. We look forward to collectively working together to continue to strengthen our connections with the fishing industry and better integrating our cooperative research products and services into regional fisheries science and management efforts.

The NCRP is a critical component of building pivotal relationships with the fishing industry, building trust, and offering opportunities for inclusion in managing our marine resources. This review will be used to focus NCRP objectives and refine its mission. It will be used as a reference, milestone marker, and a basis to expand discussions. The NCRP staff has strong skills, character, passion, and dedication to the program and with added resources, direction, and NEFSC support, will improve not only their work environment, but also the benefits to industry, science, and fisheries management.

Appendix A. Summary of major NEFSC action items and schedule

Major theme	Action number	Action description	NEFSC Divisions	Deadline
1. Increase the usage of NCRP data products and services	1a	The NEFSC will convene workshops to communicate the value of cooperative research and improve awareness and integration of NCRP products and services.	FMRD	Spring 2017
	1b	The NEFSC will ensure that every science Division has cross-cutting activities with the NCRP and is detailed in the NEFSC 2021 Labor Planning.	FMRD, Directorate	Spring/Summer 2017
	1c	The NEFSC will ensure that the Data Management System Division has cross-cutting activities with the CRB and is detailed in the NEFSC 2021 Labor Planning.	FMRD, Directorate	Spring/Summer 2017
	1d	The NEFSC will continue to support and emphasize FDDV; continue to develop and support electronic data transfer from fishing vessels.	FMRD, Directorate	Spring/Summer 2017
2. Examine the organizational structure and the administrative oversight provided by the NCRP for the Research Set-Aside Program	2a	The NEFSC will work with the Council(s) and GARFO to further evaluate improvements to the RSA programs. The NEFSC will engage in this joint comprehensive review of RSA programs.	FMRD, Directorate, external partners	Spring/Summer 2017
	2b	The NEFSC will develop a joint work plan with the Council(s) and GARFO to further evaluate how awards are made and tracked within the RSA programs.	FMRD, Directorate, external partners	Spring/Summer 2017
	2c	The recommendation to improve tracking of the performance of the projects and increase transparency and accountability will be discussed as part of the joint RSA review.	FMRD, Directorate, external partners	Spring/Summer 2017
	2d	The recommendation to adjust the funding life-cycle will be further discussed in the joint RSA Program review.	FMRD, Directorate, external partners	Spring/Summer 2017
3. Improve communications about the roles and functions of the NCRP both internally and externally	3a	The NEFSC should increase opportunities for cooperative research to be presented to staff of the NEFSC, by NCRP staff and other project collaborators, on at least a biennial basis.	FMRD, Directorate	2018
	3b	Expand the Cooperative research curriculum in the Marine Resource Education Program (MREP) to focus on the role of the NCRP, ongoing projects, and recent success stories.	FMRD, external partners	Fall 2017
	3c	Using a variety of outreach tools (NCRP website, press releases, social media, email lists, tradeshows), NEFSC will provide more timely information about ongoing NCRP projects and success stories, video interviews/podcasts. CRB will engage in regular meetings with Social Media specialist and GARFO port agents, and reference the results noted in the NEFSC External Communication Strategy.	FMRD, OMI, external partners	Ongoing
	3d	CRB will update the NCRP website to include a list of NCRP projects, with metadata summarizing how the information from these projects has been used in science and management applications, and listing project contacts.	FMRD, OMI	Fall 2017
	3e	The NEFSC will re-establish regular reports from the NCRP at the MAFMC and NEFMC meetings.	Directorate	Fall 2017
4. Develop organizational structure within the NCRP to better deal with the geographically dispersed nature of program staff	4a	Explore creating supervisory contract positions within the CRB, which can be further evaluated through standing up the new Division (FMRD) structure and NEFSC labor planning for 2021.	FMRD	Spring 2017
	4b	NEFSC Branch Chiefs and Division Chiefs will work with the contract staff COTR and Staff Advisory Council at the NEFSC to ensure that mentoring and training opportunities are understood, offered, and designed within the scope of acceptable contract activities.	FMRD, Directorate	Summer 2017
	4c	To the extent possible, as additional Federal employees are hired within CRB, they should be located in a facility common to either their supervisor or direct reports.	FMRD	Ongoing
	4d	In lieu of relocation, which is not favored, the two senior CRB Federal employees should host the other at their facility for a couple of days each month. This would encourage the exchange of ideas and help bridge gaps in communication.	FMRD	Ongoing
	4e	The FMRD and NEFSC will consider succession plan for CRB in the 2012 labor planning process.	FMRD	Spring 2017
	4f	The FMRD will consider organizational structure and strategic geographic placement of CRB staff in the 2021 labor planning process.	FMRD	Spring 2017
	4g	In the short term, CRB would explore opportunities and resource availability to bring on temporary analytical support through a post-doctoral position.	FMRD	Spring/Summer 2017
5. Explore synergies between the Cooperative Research Branch (CRB) and Fisheries Sampling Branch (FSB) within the newly created Fisheries Monitoring and Research Division (FMRD)	5a	The FMRD will explore the development of a database to contain information on commercial fishing vessels suited for cooperative research projects.	FMRD, DMS	Fall 2017
	5b	A FMRD representative will engage with the FDDV, which is a project to modernize, integrate, standardize, adapt, and reduce redundancies with fisheries dependent data collections, keeping the utility and applications of FLDRS and PTNS in mind.	FMRD, DMS, Directorate	Ongoing
	5c	FMRD will ensure that considerations of existing and evolving ER are included in EM developments.	FMRD, DMS, external partners	Ongoing
	5d	The NEFSC will ensure that cross-cutting activities, including administrative, IT, safety, and outreach support with the CRB, is detailed in the NEFSC 2021 Labor Planning.	FMRD, DMS, OMI, Directorate	Ongoing