



## Economics and Human Dimensions Program Review

Northeast Fisheries Science Center

### Summary of Comments and Response to Economics and Human Dimensions Program Recommendations

September 6, 2017

#### Introduction

During May 2017, five peer reviewers evaluated the Northeast Fisheries Science Center's economics and human dimensions sciences programs. The panelists were: Mike Orbach (Chair), Professor Emeritus Nicholas School of the Environment, Duke University; Dr. Theo Brainerd, Deputy Director, NOAA Fisheries Southeast Fisheries Science Center; Dr. Theresa Goedeke, NOAA National Ocean Service, Center for Coastal Monitoring and Assessment; Prof. Kathleen Segerson, Department of Economics, University of Connecticut; and Prof. Tracy Yandle, Department of Environmental Sciences, Emory University.

The reviewers (hereafter "the Panel") evaluated the Center's economics and human dimensions sciences programs that provide information relative to the management of commercial and recreational fisheries, protected species resources, and marine ecosystems. These social science programs seek to increase the economic and social benefits derived by the nation from its regional endowment of living marine resources.

Center and agency leadership began the review by providing the Panel with an overview of national and regional strategic plans and goals with respect to economics and human dimensions science. Center staff then provided overviews of the Center's research programs, before providing more detailed information and presentations related to the full suite of the Center's economics and human dimensions programs, including the role of social science in regional fishery management actions and ongoing research into community resilience, seafood networks, recreational fisheries, protected species economics, performance measures, and ecosystem-based fishery management.

In their review, panelists were asked to consider seven core questions or terms of reference (TORs):

1. Does the Center have clear goals and objectives for an economic and sociocultural science program? Do the Center's programs provide information to address the priority needs of the Regional Offices, other NOAA managers, Fishery Management Councils, Fisheries Management Commissions, and other stakeholders that require economic and human dimensions related information to achieve their mission? Do the Center's programs have a strategic research agenda that anticipates evolving and long-term economic and sociocultural science needs including research to support adapting to climate change and implementation of ecosystem-based fishery management?
2. Are the Center's economic and sociocultural programs appropriately integrated with each other and with other science activities within the Center? Are research efforts integrated, where relevant, with efforts at the regional offices and headquarters?

3. Is the status of data collection related to commercial fisheries, recreational fisheries, fishing participants, and communities adequate to fulfill economic and sociocultural science research needs? Has the Center developed strategies to obtain, manage, and make data accessible? Are there barriers that impede data collection and access to data held by other entities (*e.g.*, states, commissions, other federal agencies, etc.) that could be used to support the Center research, and how can these barriers be overcome?
4. Is the Center using appropriate models and research tools to analyze data and provide management advice? Is it developing and using methods and models that contribute to the evaluation and exploration of ecosystem-based fisheries management and other emerging issues? Are there barriers to adapting to address emerging issues?
5. Is the Center's social and economic information being used in living marine resource management advice? Are the existing mechanisms sufficient for ensuring this information is used appropriately? Are there barriers to the uptake of science provided by the Center, and what steps can be taken to overcome these?
6. Is the Center providing the best available science? Are the Center's economic and sociocultural research products adequately peer-reviewed? Are the appropriate processes being used to ensure that scientific products meet professional standards and are of high caliber?
7. Does the Center's program use the best tools to appropriately communicate research results to various managers, partners, stakeholders and the public?

NMFS scientists provided the panel with presentations and information relevant to each of these questions. Subsequently, each panelist provided a report documenting observations, findings and recommendations. The Chair's report summarized and synthesized comments provided by all panelists, and all review materials are archived at [https://www.nefsc.noaa.gov/program\\_review/](https://www.nefsc.noaa.gov/program_review/). Center staff reviewed the panelists' and Chair's reports and identified core recommendations from the panel under each of the TORs. The Center provides responses to those recommendations below, with specific actions identified in Table 1.

The panelists were presented with information covering many aspects of our economics and human dimensions sciences programs. We would like to thank Center staff and others who prepared documents and presentations for the review and otherwise ensured that we were well-prepared and responsive to the panelists' needs. We would also like to thank the panelists for their committed and insightful participation and for their comments and suggestions, both during the proceedings and in their written reports. This review was open to the public, and we are grateful to our many partners and stakeholders who participated and contributed positively and constructively to the process.

## Responses to Reviewer Recommendations

Terms of reference 1-6 are framed in terms of two or more questions that address different facets of the overarching TOR. The panelists' reports and the Chair's summary report were structured to provide comments on each of the different facets of each TOR, but the recommendations apply to the overarching TOR. For this reason, the response to the panelists' and Chair's summary recommendations is contextualized in terms of the overarching question and its facets.

### Term of Reference 1

1. A. Does the Center have clear goals and objectives for an economic and socio-cultural science program?
1. B. Do the Center's programs provide information to address the priority needs of the Regional Offices, other NOAA managers, Fishery Management Councils, Fisheries Management Commissions, and other stakeholders that require economic and human dimensions related information to achieve their mission?
1. C. Do the Center's programs have a strategic research agenda that anticipates evolving and long-term economic and socio-cultural science needs including research to support adapting to climate change and implementation of ecosystem-based fishery management?

With respect to the Center's goals and objectives for an economic and socio-cultural program, the Panel found that programs at the Center are guided by strategic planning documents at the center, line office and bureau level. Additionally, there are a number of legislative and policy drivers that are used to prioritize programmatic work. At the Center level, the clear intention of the strategic plan (Northeast Fisheries Science Center Strategic Science plan

2016-2021<sup>1</sup>) is to serve as a document that integrates across disciplines, but economics and socio-cultural work are only addressed in two goals (B2 and G3).

The panelists recommended that [1.1] the Social Sciences Branch engage in a formal strategic planning process to align Branch goals and objectives with the Center's strategic plan and other strategic initiatives. The Center recognizes this need and notes that the Social Sciences Branch has taken steps to address the need for strategic planning, starting with a Branch retreat that was held during November 2016. The Center has also initiated an annual planning process (Science Planning Evaluation and Reporting System), as well as an out-year labor planning process. The SSB will initiate a strategic planning process to align short- and long-term Branch activities with the Center's planning process.

Regarding the extent to which the Center's social sciences program provides priority information needs to regional stakeholders, the Panel found that the Social Sciences Branch provides valuable information to regional Fishery Management Councils and Commissions as well as to NOAA's Greater Atlantic Regional Fisheries Office (GARFO). The Bio-economic Length Structured Angler Simulation Tool (BLAST) model, support for integrated ecosystem assessments and protected species were noted as examples. The Panel noted that, due to the lack of social science expertise in GARFO, SSB staff provide the management support that in other regions would be performed by the regional office. This creates strong links between the SSB and stakeholders because SSB staff are integrated into management planning teams and can provide both formal and informal input to fisheries managers throughout the management process.

At the same time, the Panel noted that SSB staff have not always been able to meet (or meet in a timely way) all of the requests for needed or desired input that they receive. Some Council staff expressed frustration at not getting the kind of help from SSB that they had asked for, at least within the timeframe that they had hoped. Council staff also expressed support for the work that SSB contract (non-federal) staff performs in support of fisheries management and concerns about the negative implications that turnover among that contract staff has for management support. The Panel also noted that the workload for management support was unevenly distributed among Branch staff and that this created differential opportunities for professional development and promotion.

To address these concerns the Panel recommended that [1.2] consideration be given to the SSB workload allocation structure and processes; that [1.3] clients should help support work relevant to their needs including clear contracts or memoranda of understanding; that [1.4] work in individual themes (seafood networks and protected species) be more closely connected to regional needs; and that [1.5] consideration be given to the use of junior scientists for routine tasks to free up more senior scientists' time for research and more sophisticated analysis.<sup>2</sup>

The Center agrees that the mix of management support and research, as well as roles and responsibilities in providing social science expertise to inform management actions between the NEFSC GARFO and the Councils, need to be evaluated. The Center notes that the SSB has taken steps to plan for management support workloads. The Branch Chief communicates with Council executive directors each year to plan for expected management actions, identify expertise desired, and approximate timeline and work load. These requests feed into workload and individual assignments to plan teams as part of individual performance plans. These plans are evaluated and modified during mid-term reviews and through communication and weekly meetings. In consultation with the Division Chief and Center Directorate, SSB will review these workload allocation processes to assure assignments are consistent with work plans.

Managing workloads on Council plan development teams (PDTs) and fishery management action teams (FMATs) can be problematic due to unrealistic expectations of Council members. Council members often request additional or modified analyses during the management process. This can cause Council staff to be unable to provide PDT/FMAT members with a clear sense of workload and workload timing. In addition, the various PDT/FMAT chairs (Council staff members) have different approaches to managing the PDT/FMAT and different expectations regarding the responsibilities of economists and human dimensions scientists assigned to support the PDT/FMAT.

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<sup>1</sup> <https://www.nefsc.noaa.gov/rcb/stratplan/>

<sup>2</sup> The Center notes that the Panel specifically called for the use of BA/BS and MA/MS level staff not junior staff. However, the level of performance in Federal service is not based on academic degree. Rather, performance is based on a combination of education, experience, skills, and training. Professionals at ZP-II/ZP-III are considered junior scientists while ZP-IV/ZP-V are considered senior scientists with the distinction between junior and senior scientists based on experience and scientific accomplishments.

The Center has a formal operating agreement that outlines the roles and responsibilities of Center staff including SSB when serving on plan teams. The Center will review the current operating agreement with the Councils to assure that roles and responsibilities of Center staff assigned to plan teams are clearly delineated.

The Center agrees that improving connections and communication between the Center and GARFO on social science priorities for protected resources is needed. The Center will work with Division and Branch leads to improve communication within the Center and with GARFO protected resources programs through more frequent interactions of both leads (*i.e.*, Branch Chiefs) and individual managers/scientists. Some initial facilitated meetings might help to overcome historical communication issues. Regarding the seafood networks theme the Center notes that this theme is consistent with the Magnuson-Stevens Fisheries Conservation and Management Act and NOAA strategic goals to ensure safe and healthy seafood supplies.

The SSB currently has three vacancies. The intent of the SSB is to recruit for a combination of professional experience and skills of junior economist and social scientist positions to form a management support team that would provide direct support to PDTs and FMATs and perform more routine analyses, which in turn would free time for senior staff to focus on research and more complex analyses and tool development. Council staff expressed concern that this would lead to diminished service from SSB. The Center believes that a more dedicated full-time management support team will have lower turnover and therefore improve services.

With respect to whether the Branch needs a strategic research agenda that anticipates evolving and long-term economic and socio-cultural science needs, the Panel found that while the SSB did not have a formal strategy document, the SSB staff does a good job in mapping research to national and regional priorities with a clear eye toward long-term objectives. The Community Resilience and Ecosystem Based Fishery Management themes were noted as examples of anticipatory research. The Panel recommended that the SSB develop a strategic research plan, which was also recommended [1.1] under TOR 1. A.

## Term of Reference 2

2. A. Are the Center's economic and sociocultural programs appropriately integrated with each other and with other science activities within the Center?
2. B. Are research efforts integrated, where relevant, with efforts at the regional offices and headquarters?

With respect to integration of SSB with other science activities, the Panel found that the economic and sociocultural programs are well integrated within the Branch but are not as well integrated with other science activities within the Center. Research themes supporting Sustainable Fisheries and Ecosystems were found to be well-integrated, while Seafood Networks and Protected Resources research themes were less so.

Regarding integration with GARFO and NOAA Fisheries Office of Science and Technology (S&T), the Panel noted that SSB integration with S&T was excellent, while integration of social science research with GARFO and Council staff was not well-integrated in part because of distance and, in the case of GARFO, the lack of social science expertise.

To address these concerns the Panel recommended that [2.1] the SSB improve engagement with Center, GARFO and stakeholder personnel with more frequent contact with Center, GARFO, and stakeholder personnel, not only on management related work but in informal settings such as lunches, seminars and topical work groups. The Center agrees that integration of social sciences with the Center's other research activities is desirable and is actively taking steps to promote collaboration among Branches within Divisions as well as across Divisions.

Within the Resource Evaluation and Assessment Division (READ) several steps have been taken to encourage informal interactions including scheduled lunches, a READ picnic, and speed talks. Regarding interactions with Council staff, the SSB already has a high quantity and quality of positive interactions with Council staff that the SSB is committed to continue to foster. The SSB also recognizes that opportunities outside of specific management actions to provide an overview of ongoing research would be productive. The SSB will schedule a regional social science workshop with Council staff to share on-going social science research and to identify opportunities for aligning SSB research with Council research priorities. The SSB will also reach out to GARFO to identify avenues for further integration, particularly with its Sustainable Fisheries and Stakeholder Engagement Divisions.

Regarding integration of the Seafood Networks and Protected Resources themes, the Center notes that the Seafood Networks theme primarily deals with seafood distribution and integration of seafood within the regional food system. This theme is well-integrated within SSB Land-based Community Resilience and Ecosystems themes but there are fewer tie-ins to Center programs that are predominantly focused on biological systems. By contrast, the SSB Protected Resources theme does have potential connections to Center and Regional Office protected resources programs that could be enhanced.

The Center will seek to improve communication and collaborations on protected resources within READ by increasing opportunities for informal engagement, holding joint Branch meetings, and developing joint research proposals. Additionally, during the review, GARFO noted that some economic analysis to support management decisions was being contracted to consultants. The Center will reach out to GARFO to discuss opportunities to develop in-house capability to analyze protected species economic impacts rather than using consultants.

### Term of Reference 3

3. A. Is the status of data collection related to commercial fisheries, recreational fisheries, fishing participants, and communities adequate to fulfill economic and sociocultural science research needs?
3. B. Has the Center developed strategies to obtain, manage, and make data accessible?
3. C. Are there barriers that impede data collection and access to data held by other entities (*e.g.* states, commissions, other federal agencies, etc.) that could be used to support Center research, and how can these barriers be overcome?

Regarding whether the status of data collection is adequate to fulfill economic and sociocultural research needs, the Panel found that data streams, including data collected by other agencies, were not adequate to fully realize the strategic goals and objectives of the SSB. The Panel noted that the current status of primary data collection goes a long way in enabling SSB scientists to conduct analysis, develop indicators, provide performance measures, inform and reduce uncertainty in management decisions. However, the Panel noted that repeated surveys were limited and concern was expressed over the heavy reliance on secondary data that was not necessarily collected for fisheries management. The Panel noted that most of the issues with expanding primary data collection were attributable to funding processes that favored novel projects over updating data or gathering time series information.

The Panel had the following recommendations; that **[3.1]** formal protocols should be established to maintain platforms for data collected by other agencies; that **[3.2]** external funding and partnerships with universities and other entities should be sought to enhance primary and other data collection capabilities; that **[3.3]** NOAA internal funding for research should also support the development of the most valuable social science time series data; that **[3.4]** a centralized data storage platform for social science data and information should be developed; and that **[3.5]** SSB conduct a workshop to identify the mix of primary data collection needed to support research activities and management decisions.

With respect to whether there are barriers or impediments to obtaining data from other agencies, the Panel found that there were no specific or major constraints to accessing data held by other agencies. The source of the problem to which this recommendation responds is unclear. The individual panelists' review reports do not identify any notable problem that came up during the program review or in discussion with SSB staff. For these reasons, the Center has not identified any action to be taken.

Regarding partnerships with universities, the Center notes that the SSB is already partnering with universities to augment the Branch's primary data collection capabilities; that the S&T Economics and Human Dimensions Division does provide dedicated funding to support priority primary data collection; and that SSB has conducted several workshops in the past to identify data needs, data gaps, and priorities. The SSB has partnered with several regional universities and entities (University of Rhode Island; University of Massachusetts, Dartmouth School of Marine Science and Technology; University of Maine; Gulf of Maine Research Institute) to collect primary data. However, for the most part, these have been one-off studies. While external partners could be a valuable contributor for collecting primary data, a stable source of funding is needed to make these relationships work. Most external funds that come into the SSB are not multi-year funds. Given that there will likely be significant start-up costs for an external partner, it may be difficult to get such an arrangement started. Furthermore, overhead rates charged by

universities likely increase the cost of longer term time-series data collection. Nevertheless, the SSB will continue to seek opportunities to cooperate with external partners to enhance primary data collection.

The SSB notes that the S&T Economics and Human Dimensions program does provide dedicated funds to support primary data collection. These funds are used to conduct a fishing vessel cost survey; a vessel owner survey; a crew survey; and updates to community social vulnerability indicators. These data collection programs were presented during the program review, but the funding source for these programs was not clearly articulated. Between the vessel-related surveys and social indicators work, S&T provides about \$400,000 per year to support these data collection programs. About half of these funds go to contractors who assist with survey design, Paperwork Reduction Act clearance, survey implementation, and data analysis. For the vessel-related surveys the SSB has conducted several repeat surveys of vessel fixed costs, a crew survey in 2011, and a survey of vessel owners in 2012. The crew and vessel owner surveys have not yet been repeated, but the SSB plans to repeat the crew survey in 2018 and will implement the vessel owner survey in conjunction with the vessel cost survey when that is next implemented. The SSB intends to continue to field these surveys on a rotating basis every three years.

With respect to whether the Center has developed strategies to obtain, manage, and make data accessible, the Panel found that, while the SSB was following clearly defined NOAA protocols in managing and obtaining data, there was a lack of a centralized data platform for social science data and information. The Panel noted that many of the data collected were confidential. The mechanisms available for making data accessible to stakeholders are web sites, publications, direct outreach by SSB scientists and presentations at professional meetings. However, the Panel noted that it was not clear how non-NOAA researchers would be able to access disaggregated data for research purposes.

The Center agrees with the general principle of documenting data collections and making data available to the research community and the public. The Center notes that all data collections are being documented through the Public Access to Research Results (PARR<sup>3</sup>), which provides meta-data on data collection events, including when surveys were implemented, the types of surveys, what variables were collected, how variables were defined, and whether the survey data were confidential. These metadata can be found at <https://inport.nmfs.noaa.gov/inport>.

The SSB recognizes the need to improve communication and notification when any new data collection has been completed and to make data summaries and raw data publicly available wherever possible. The SSB will evaluate the feasibility of creating a data portal to facilitate data access conditional on maintaining confidentiality. This could be accomplished by building a social science data page on the SSB website. However, the Center does not have dedicated staff to build and update Branch-level web pages. The SSB now relies on contractor support to build data queries and update the SSB web page. The SSB does not have base funds for contractor support, so the ability to support a dedicated social science data platform over the longer term is uncertain.

While the SSB has conducted data needs workshops in the past, the extent to which ongoing data collection programs meet anticipated needs to support ecosystem-based fishery management and other emerging issues should be evaluated. To this end, the SSB will conduct a workshop with regional stakeholders to identify primary data collection priorities and evaluate whether existing primary data collection programs are meeting strategic SSB program objectives. The workshop would also review opportunities to cooperate with external partners as noted in recommendation [3.2]. The workshop would also help guide the use of NOAA internal funds to support social science data collection consistent with recommendation [3.3].

#### Term of Reference 4

4. A. Is the Center using appropriate models and research tools to analyze data and provide management advice?
4. B. Is it developing and using methods and models that contribute to the evaluation and exploration of ecosystem based fisheries management and other emerging issues?
4. C. Are there barriers to adapting to address emerging issues?

With respect to whether the Center's social sciences program is using appropriate models and tools to analyze data and provide management advice, the Panel found that the SSB is using a well-balanced mix of quantitative and

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<sup>3</sup> [https://www.st.nmfs.noaa.gov/Assets/data/edm/documents/NOAAPARRPlan\\_v5.04\(final\).pdf](https://www.st.nmfs.noaa.gov/Assets/data/edm/documents/NOAAPARRPlan_v5.04(final).pdf)

qualitative data, models, methods, and research tools that are appropriate to identified research questions. Furthermore, the information that is being produced is useful in a management context, in addition to contributing to scholarship in social science fields. The Panel noted the tension between development and on-going model maintenance (*e.g.*, the use of the BLAST model in setting recreational measures for groundfish was mentioned).

To address this tension, the Panel recommended that [4.2] the SSB develop clear end-use goals for model development and resources for model maintenance. The Center agrees that the expected use of models should guide model development and that transition from model development to model maintenance for continued use in the management process needs to be proactively addressed. However, the Center also acknowledges that greater emphasis tends to be placed on model development and less emphasis on transferring the model to end-users, which places scientific staff that develop models in the position of being “on call” whenever a management decision needs to be made. The SSB will review the work processes involved in model development and seek opportunities to transfer model use and maintenance to stakeholders. The lack of GARFO social science staff and limited Council social science staff in the region makes such transfer difficult to accomplish in practice. Additional staff at these entities would be helpful, but those staffing decisions are not within the Center’s purview. The other option would be to hire additional SSB staff dedicated to responding to such data calls from end-users, but given current budgets this is unlikely to be feasible in the foreseeable future.

Regarding whether or not the SSB is developing models to contribute to ecosystem-based fishery management and other emerging issues the Panel found that the Branch was actively engaged in developing novel methods and models in support of ecosystem-based fishery management, particularly through integrated ecosystem assessments. The Panel also noted that the Branch was addressing emerging issues such as climate change, social vulnerability, and the implications of looming changes in recreational fisheries data on the demand for recreational fisheries analysis. The Panel noted that the difficulties in obtaining data needed to fully populate ecosystem models were problematic and recommended that [4.1] the Branch initiate a formal research prioritization process that includes leveraging resources and external partners in concert with a long-term data plan. In some regards, these are three separate issues.

The Branch is already prioritizing research through its yearly planning process but will incorporate a research plan into its strategic planning process to be initiated in response to recommendation [1.1]. Each Branch member has external partnerships. Some are formal while others are not. The external partnerships the Branch currently has tend to be low-cost given a lack of dedicated funds for grants and contracts. It is unclear what is meant by a “long-term data plan.” Currently, our long-term plan to manage our data is evolving and is closely tied with externally-driven information technology and data-sharing requirements. The Branch has explored creating a separate data group within the Branch that would be responsible for integrating data with research, managing data, and making data available both internally and externally.

Regarding potential barriers to adapting to address emerging issues, the Panel noted that the primary barriers to adapting to emerging issues involve the general lack of resources to undertake new primary data collection; tension between diverting resources from management support to emerging issues; and expertise needed on non-market valuation and spatial econometrics. The Panel recommended that [4.3] gaps in expertise, particularly in spatial analysis, be addressed.

The Center recognizes that resource constraints are challenging and that tension among ongoing programs, management support, and carving out the time to conduct research on emerging issues is problematic. The SSB will evaluate the spatial analysis skills that will be needed to support emerging issues and the means for developing these skills through labor planning for future recruitment, training of existing staff, or through collaborate with external partners to leverage additional researchers and expertise, and potentially attract some funding.

#### Term of Reference 4

5. A. Is the Center’s social and economic information being used in living marine resource management advice?
5. B. Are the existing mechanisms sufficient for ensuring this information is used appropriately?
5. C. Are there barriers to the uptake of science provided by the Center, and what steps can be taken to overcome these?

With respect to whether social and economic information is being used in management advice, the Panel found ample evidence that social and economic information was routinely used in informing living marine resource management. The Panel also found that the integral participation of the SSB staff in the various stages of the regulatory process where that information is used ensures that the information is used appropriately. However, the Panel also noted that the Council and GARFO staff would like to have access to data being collected by the SSB and that awareness of research and the SSB programs that are not directly related to a management action could be improved. The Panel recommended that [5.2] the SSB place emphasis on regular contact with constituent agencies as well as recommending [5.4] the creation of regularly scheduled opportunities to highlight the SSB's research activities. The Panel also recommended that [5.3] the SSB revamp its website.

The Center agrees that opportunities to engage with Council and GARFO staff on social science research activities and their relationship to management would be beneficial. The SSB will seek out more opportunities for constructive engagement with constituent organizations. For example, improved connections could be created by convening periodic workshops or seminar series with Council and GARFO staff. More regular contact may help to build awareness of any new data or research products as they become available. The SSB has already taken steps to overhaul its website. This process has been completed and the revised website has been submitted for Center review and approval.

Regarding barriers to the uptake of social science provided by the Center, the Panel noted that the lack of social science staff at GARFO hindered the uptake of social science research. The Panel recommended that [5.1] consideration be given to hiring social science expertise in GARFO.

The Center will review the regional staffing of social science expertise with GARFO leadership. Recognizing that shifting some of the social science responsibilities from the Center to GARFO would change the current relationship with GARFO the Center will seek to retain the strong relationship the SSB has with GARFO on social science issues and management needs.

## Term of Reference 6

6. A. Is the Center providing the best available science?
6. B. Are the Center's economic and sociocultural research products adequately peer-reviewed?
6. C. Are the appropriate processes being used to ensure that scientific products meet professional standards and are of high caliber?

The Panel found that the social sciences program at the NEFSC was providing best available science. The SSB staff are doing novel work, and their publication record speaks to the amount and quality of the science that is being conducted. Also, Regional Office and Council staff acknowledged the value and utility of the science that the SSB produces. The Panel found that the economic and sociocultural research products were adequately reviewed and that appropriate processes were being used to ensure that scientific products are high quality and continue to meet professional standards. To ensure continued emphasis on science quality, the Panel recommended that [6.1] time series of replicated surveys be emphasized over one-time surveys; that [6.2] the SSB evaluate proposed new projects to assure they meet the best available science mandate and fit within specific strategic goals; and that [6.3] the SSB ensures collaboration across staff to gather data across research foci when new data collection is undertaken.

The Center notes that the SSB is already addressing these recommendations. The SSB has already aligned its base social science data collection program to emphasize repeated data collection. Trip costs have been collected on an ongoing basis since 2001 through the observer program. Fixed-cost data are being collected every three years. The SSB implemented a survey of fishing crew in 2011 and a survey of vessel owners in 2012. These surveys have not yet been repeated, but the crew survey is planned for 2018 and will be replicated every three years thereafter. Similarly, the vessel owner survey will be replicated by incorporating it directly into the fixed-cost survey since the two surveys share the same sample frame. The SSB will evaluate these ongoing survey events for consistency with social sciences data collection priorities through the workshop to be scheduled in response to recommendation [3.5].

The SSB research and data collection programs are aligned with the Center's annual planning process (SPERS), which ensures alignment with Center priorities. Furthermore, the finding under this TOR (6) that SSB programs are providing best available science coupled with actions to be undertaken per recommendation [1.1] to develop an SSB

strategic plan, will ensure continued provision of best available science that is aligned with Branch priorities and the Center's organizational excellence goal.

While the need to make sure all Branch staff have an opportunity to collaborate on data collection events is recognized, there is a need to balance the breadth and depth of information collected in any given data collection with the issue of survey fatigue. All data collections must be approved under the federal Paperwork Reduction Act, which seeks to minimize respondent burden. One of the major recommendations from the crew survey conducted during 2011 was that the survey was too long, which compromised participation and completion rates. The purpose of each data collection needs to be clear and easily communicated to the population of interest.

### Term of Reference 7

7. Does the Center's program use the best tools to appropriately communicate research results to various managers, partners, stakeholders and the public?

The Panel found that SSB staff are engaged in presentations to Council-related bodies and professional meetings, publications in peer-reviewed journals, as well as Center publications (Tech Memos and Center Reference Documents). However, the Panel found that, for the most part, communication activities at the SSB are *ad hoc* and opportunistic and that the SSB lacks a communications plan. The Panel recommended that [7.1] the SSB work with the Center's Research Communications Branch to develop a formal communications plan, with input from the Center and outside stakeholders, to include [7.2] increased use of social media to communicate research results. The Panel also recommended that the SSB revamp its website (repeating recommendation [5.3]) and [7.4]), and increase travel support to foster more contact with their constituents.

The Center agrees that the SSB would benefit from developing a communications plan. The SSB will work with the Communications Branch to develop a formal communication strategy including alternative social media platforms to build greater awareness within the Branch of opportunities to communicate SSB activities to its constituents and the broader public. As noted in the response to recommendation [5.3], the SSB has already overhauled its website.

The majority of the SSB's discretionary funds are already devoted to travel to workshops, professional meetings, and Council-related meetings or GARFO regional management meetings. The SSB will evaluate the use of Branch funds and develop priorities to support contact with constituents.

**Table 1 – Summary of Recommendations and Response Actions**

<b>Recommendation</b>	<b>Action</b>	<b>Target</b>
1.1 A formal strategic planning process should be initiated within the SSB.	1.1.A The SSB will initiate a strategic planning process	December, 2017
1.2 Consideration should be given to the SSB workload allocation structure and process.	1.2.A - In consultation with the Division Chief and Center Directorates, SSB will review workload allocation processes.	October, 2017
1.3 Clients should help support work relevant to their needs.	1.3.A - The Center will review the current operating agreement with the Councils to assure that roles and responsibilities of Center staff assigned to plan teams are clearly delineated.	December, 2017
1.4 The work in the individual themes (Seafood Networks, Protected Resources) should be more closely connected to local/regional needs.	1.4.A – The Center will work with Division and Branch leads to improve communication within the Center and with GARFO protected resources programs.	October, 2017
1.5 Consideration should be given to the use of junior social science ‘technicians’ for such tasks as writing Social Impact Assessments to free up senior scientist time for research and more sophisticated management analysis and support.	1.5.A – The SSB has three vacancies that are planned to be filled with junior economist/social scientists to form a management support team.	November, 2017
2.1 Better engagement and more frequent contact among SSB, Center, GARFO, Council and stakeholder personnel, not only on specific management-related tasks but also in more informal settings.	2.1.A – The SSB will schedule a regional social science workshop with Council staff to share ongoing research and identify opportunities to align research with management priorities.	March, 2018
	2.1.B – The SSB will reach out to GARFO to identify avenues for further integration particularly with the Sustainable Fisheries and Stakeholder Engagement Divisions.	December, 2017
	2.1.C – The Center will reach out to GARFO to discuss opportunities to develop in-house capability to analyze protected species economic impacts rather than using consultants.	December, 2017
3.1 Formal protocols should be established that maintain platforms where data collected by others agencies reside.	3.1.A – Availability of, or access to, data collected by other agencies was not found to be a problem, so no action will be taken.	No Action

<b>Recommendation</b>	<b>Action</b>	<b>Target</b>
3.2 External funding and partnerships and cooperation with universities and other entities should be sought to enhance primary and other data collection capabilities	3.2.A – The SSB will continue to seek opportunities to cooperate with external partners to enhance primary data collection. These efforts will be informed by the workshop to be held under action 3.5.A.	Ongoing – Initial plan to be developed January, 2018
3.3 In addition to funding high-quality novel research, NOAA internal funding for research should strategically support the development of the most valuable social science time series data.	3.3.A – NOAA internal funds support social science time series data. The workshop to be held under action 3.5.A will evaluate whether changes are needed in current data collection.	January, 2018
3.4 Centralized data storage platforms for social science data and information should be developed, along with established protocols for data sharing, access and use.	3.4.A – Meta-data on social science data is documented through Public Access to Research Results. The SSB will evaluate the feasibility of creating a data portal to facilitate data access conditional on maintaining confidentiality.	Ongoing – PARR update to be completed September, 2018
3.5 Conduct a workshop to determine the right mix of primary data that should be collected on a long-term basis	3.5.A – The SSB will convene a workshop with regional stakeholders to identify primary data collection priorities.	January, 2018
4.1 Initiate a formal research prioritization process that includes leveraging resources and external partnerships in concert with a long-term data plan.	4.1.A – A formal research plan will be included in the strategic planning process under action 1.1.A.	December, 2017
4.2 Provide clear end goals for model development along with resources for model maintenance	4.2.A – The SSB will review the work processes involved in model development and seek opportunities to transfer model use and maintenance to stakeholders.	January, 2018
4.3 Address gaps in expertise within the SSB such as spatial analysis.	4.3.A – Evaluate the spatial data analysis skills needed as part of labor planning for future recruitment and/or by training.	Ongoing labor planning starting May, 2018
5.1 Consideration should be given to hiring social science expertise in GARFO	5.1.A – The Center will review regional staffing of social science expertise with GARFO leadership.	December, 2017
5.2 Emphasis should be placed on the desirability and effectiveness of regular contact with constituent agencies and organizations.	5.2.A – The SSB will seek out more opportunities for constructive engagement with constituent organizations. The interactions to be undertaken under action 2.1.A and 2.1.B are examples.	Ongoing – Stakeholder engagement meetings starting March, 2018

<b>Recommendation</b>	<b>Action</b>	<b>Target</b>
5.3 Update and further develop the SSB website.	5.3.A – The SSB website has been overhauled and is awaiting approval through Center review.	October, 2017
5.4 Create regularly scheduled opportunities to highlight SSB research activities.	See action 5.2.A and actions 2.1.A and 2.1.B.	March, 2018
6.1 Prioritize time-series or repetition of existing surveys and data gathering over development of novel data	6.1.A – The SSB’s data collection does emphasize repeat surveys within budget constraints. These priorities will be evaluated through the workshop to be held under action 3.5.A.	January, 2018
6.2 Evaluate proposed new scientific projects to ensure that they contribute to the best available science mandate and that they fit within the specific strategic goals and objectives of the SSB.	6.2.A – The SSB seeks to conduct all research consistent with the Center’s organizational excellence goal and that are aligned with the Branch’s strategic goals to be formally developed under action 1.1.A.	December, 2017
6.3 When new data collection is undertaken, ensure collaboration across SSB staff to allow for coordination and opportunities to gather data across research foci.	6.3.A – The SSB will seek to increase opportunities for broader staff input in data collection events subject to survey length and Paperwork Reduction Act requirements.	Ongoing – Beginning with crew survey April, 2018
7.1 Work with the Research Communications Division to develop a SSB communications strategy with input from interested parties such as the Center, stakeholders, clients, etc.	7.1.A – The SSB will work with the Communications Branch to develop a formal communication strategy.	November, 2017
7.2 Increased use of using social media to communicate some research results should be explored.	7.2.A – Alternative means of communication will be included in the communication plan to be developed under action 7.1.A.	November, 2017
7.3 SSB should review its website and ensure that it conveys the most up-to-date and important information about SSB activities.	See action 5.3.A	October, 2017
7.4 Provision should be made for more time and travel resources for SSB personnel to have contact with their constituents.	7.4.A – The SSB will evaluate the use of Branch funds to support contact with constituents.	Ongoing annual travel plan – FY18 travel plan due in December, 2017