

**External Program Review**  
**of the**  
**Northeast Fisheries Science Center-**  
**Social Science Branch**

**Report of Findings and Recommendations**

Submitted to

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## Executive Summary

The NOAA Fisheries Service, Northeast Fisheries Science Center (NEFSC) asked the panel to review the activities of their Social Science Branch (SSB) and provide advice and recommendations on the alignment of the SSB strategic objectives and initiatives with the missions, strategic goals, and objectives of NOAA, NMFS, and the NEFSC; the direction and quality of SSB programs and research in relation to management needs; the ability of the SSB to conduct its programs and research; and the ability of the SSB to communicate about its programs and research. The panel considered informational materials provided for the review process, participated in presentations by SSB research staff and engaged in discussions with SSB research staff, stakeholders, and collaborators. This report reflects the observations, findings and recommendations of the individual panelists. The key findings and recommendations are as follows:

- 1. SSB Strategic Plan:** The SSB Strategic Plan is aligned with the mission of the NEFSC, and the substance of the SSB Strategic Plan in broad terms appears to be consistent with the NMFS and NOAA Strategic Plans. However, we recommend that the SSB Strategic Plan articulate its connections to the missions and strategic objectives of all relevant levels and offices of NOAA, and explicitly demonstrate these connections. The plan should be written in plain language, which will clarify the plan for stakeholders, improving their understanding of the SSB function. A Center-wide strategic planning process would strengthen connections and alignment between the SSB and the other branches and divisions.
- 2. Organization of the Social Science Branch:** With increases in staffing and increasing demands for its various products, the panelists recommend that the SSB consider whether changes are needed to its flat organizational structure. One way to approach any possible changes to its structure is to consider what would be the most effective mix of research staff at different grade levels, and consideration of technician-grade position levels to assist in fulfilling its various missions that do not require senior personnel involvement. Also, efforts should be made to provide stakeholders and collaborators with a better understanding of the SSB organizational structure, workflow processes, and the availability and utility of its products. In this context, the mode and frequency for communicating and interacting with stakeholders and collaborators should be improved with assistance from those with expertise in this area.
- 3. Alignment of SSB Objectives and Initiatives with Stakeholder Needs:** The panelists find that research undertaken by the SSB to inform management activities are closely aligned with regional stakeholder needs. However, it is less obvious to some stakeholders how some research findings and products influence decision-making within the management process. To ensure that the most relevant and useful products and advice are provided to stakeholders from its research efforts, the panelists recommend that the SSB consider developing and implementing a formal process for internally prioritizing research programs, selection of projects and activities, and also that they obtain input from stakeholders for this process.

4. **Mix of Research versus Management–Oriented Activities:** The panelists find that a large portion of the SSB’s work is currently driven by management needs. This has greatly benefitted NOAA, NMFS Northeast Regional Office (NERO), both Councils, and the SSB. The downside is that SSB researchers have very little time to pursue cutting-edge research of relevance in their respective sub-disciplines. While the allocation of research time must be flexible in order to accommodate pressing needs, neither management support nor scholarly inquiry should be crowded out. Close involvement in the management process supports NOAA’s mandates. However, there is a legitimate need to accommodate mission-driven innovative research. Innovative scholarly research fuels professional development, improves the knowledge base, and fosters academic collaborations. Publication in scholarly journals supports NOAA’s reputation for conduct of innovative high quality scientific research. Key elements that support the appropriate allocation of research time include: strategic planning; staffing positions that are dedicated to providing management support; improved coordination of the demands for management support; and timing of regulatory analyses.
5. **Mix of Economic versus Social-Cultural Research:** The panelists find that the research portfolio of the economic program is diverse and robust. The socio-cultural program appears to be moving forward but is faced with primary data needs that present challenges. The panelists recommend exploring funding options including conducting such activities through collaborative efforts with regional partners that are well positioned to receive grants from external sources. The mix between economic and social-cultural research may shift periodically depending on needs and conditions in the region.
6. **Appropriateness of Time and Fiscal Resource Allocations:** The panelists viewed this request first in terms of the appropriateness of human resource allocation given current roles and responsibilities, and then in terms of how funds are distributed between the economic and socio-cultural programs. The SSB currently serves as the primary support unit for social science expertise for the NERO and to some extent, the New England and Mid-Atlantic Fishery Management Councils. It appears that the economists are performing the bulk of the direct support for management actions. However, this imbalance is not necessarily related to a lack of need or interest for socio-cultural products. On the contrary, there seems to be a growing need for socio-cultural products. Also, the reliance on primary data by the socio-cultural research group for conducting their analyses increases the time required to deliver final products. The panelists recommend that the Branch Chief is made aware of work assignments, particularly those originating from informal communication with managers, and conduct periodic reviews of staff time spent on various activities. In terms of the allocation of fiscal resources, it appears that funds are equitably distributed between the economic and socio-cultural programs and that the division director is supportive of programs within the SSB. It appears that while task-specific funds have increased in recent times, base funding for programmatic activities have decreased. However, there is no evidence of any causal relationship between the two observations. The SSB’s desire to seek external funds is both desirable and legitimate given the erosion of base funding.

7. **Dissemination of SSB Products and Research Communication:** The formal mechanisms available to communicate SSB products to stakeholders are mainly the NEFSC website and direct outreach by SSB research scientists. Also, SSB research findings and products are communicated to scholarly audiences through presentations at professional conferences and publication in peer-reviewed journals. The panelists recommend that the SSB consider developing formal protocols for facilitating exchange of information about planned and existing SSB products and activities with stakeholders. The same protocols could be utilized to facilitate interactive communication on the needs of stakeholders and managers to the SSB.
8. **Quality Assurance and Quality Control Procedures:** Although there is an internal peer-to-peer review process which is seemingly effective, it does not necessarily lend itself to the level of assurance or transparency that would increase the confidence of stakeholders. The panelists recommend that the SSB redesign its process for reviewing research papers, and articles, products and tools, as well as research methodologies and analyses. The redesigned process should provide a protocol for determining the appropriate level of review, the timing of reviews and choice of internal and external reviewers.
9. **Research Themes and Product Timing and Relevance:** The SSB has done an excellent job in identifying important research topics of relevance to fisheries in the region. There are also indications that the SSB plans to revise its research portfolio to include a number of new research themes of importance to the region and the nation. Some of these themes should open up new opportunities for research collaboration and partnership within and beyond NOAA. The SSB's effectiveness in providing policy-relevant and timely products appears to be in large part due to the successes of the economics program. There is room for expansion of the socio-cultural and protected resources programs. This could be achieved through meaningful stakeholder engagement, early in the policy-making process.
10. **Personnel Structure and Management:** The blend of educational backgrounds and professional experience of the staff in disciplines such as economics, anthropology, and political science is commended. The collegial environment contributes greatly to the success of interdisciplinary research at the SSB. To increase effectiveness of the research program, the panelists recommend that future investments in personnel include disciplines such as sociology, demography, and human geography without sacrificing current capabilities. This would support the role and relevance of the SSB as NMFS further strengthens its ecosystem-based management capacity. The panelists recommend continued support for professional training to improve the skill sets of the SSB scientists.

## Introduction

The Northeast Fisheries Science Center (NEFSC) invited this panel to conduct a formal, external review of the Resource Evaluation and Assessment Division's Social Sciences Branch (SSB) on July 20–22, 2011. The panel was asked to provide advice to the NEFSC Directorate on:

- the alignment of SSB strategic objectives and initiatives with the missions, strategic goals and objectives of NOAA, NMFS, and the NEFSC;
- the direction and quality of SSB programs and research in relation to management needs;
- the ability of SSB to conduct its programs and research; and
- the ability of the SSB to communicate about its programs and research.

More specifically, the NEFSC asked the panel to consider the following questions in relation to the SSB:

- Are the Vision and Objectives as outlined in the SSB Strategic Plan consistent with the mission and objectives of NOAA, NMFS, and the NEFSC?
- Is the SSB properly organized to effectively fulfill its strategic objectives and meet the demands of stakeholders and partners?
- Are the right objectives and initiatives being proposed by SSB to meet the needs of internal and external stakeholders and partners?
- Is the mix of research and management appropriate?
- Is the mix of economics and social/cultural research topics appropriate?
- Is the allocation of SSB resources (i.e., time and financial) appropriate?
- Does the SSB have appropriate procedures in place to communicate products to internal and external stakeholders?
- Are there appropriate quality assurance procedures in place for science products including transparency, integrity, and peer review?
- Is the SSB taking advantage of research opportunities and producing timely and policy-relevant scientific research products?
- What areas of expertise could be added in the future to strengthen the ability of the SSB to meet management and research objectives?

The NEFSC provided the panel with a variety of supporting documents and other written materials describing the mission, objectives, qualifications, and accomplishments of the SSB. Additionally, the panel viewed a number of informational presentations on the SSB and its programs, and was given opportunities to interact with SSB research staff, stakeholders, and collaborators. After careful consideration of the information and materials provided by NEFSC, the panel is pleased to offer this report of findings and recommendations. However, the panel would like to emphasize that this report does not represent a consensus position. Rather, the report provides a summary of the various observations, findings, and recommendations of individual panelists.

## Alignment of Strategic Objectives and Initiatives

The panel was asked to consider how effectively the SSB has aligned its strategic objectives and program initiatives with the missions and objectives of its affiliates. More specifically, we were asked to evaluate the relationship of the newly completed SSB Strategic Plan to the missions and strategic plans of NOAA, NMFS, and the NEFSC. The questions that we entertained included:

- Are the vision and objectives as outlined in the SSB Strategic Plan consistent with the mission and objectives of NOAA, NMFS, and the NEFSC?
- Is the SSB properly organized to effectively fulfill its strategic objectives and meet the demands of stakeholders and partners?

### ***Consistency of Strategic Vision and Objectives***

The panel was asked to consider whether the articulated vision and objectives of the SSB, as outlined in their newly drafted strategic plan, were consistent with the mission and objectives of NOAA, NMFS, and the NEFSC.

The SSB is to be commended for taking the initiative to conduct strategic planning, particularly because such planning is not presently a standard practice at the NEFSC. The fact that the SSB developed a strategic plan on their own is indicative of their desire to move their program forward in the most efficient and effective way possible.

The timing of the SSB strategic planning effort appears to be ideal because both the region and the SSB are in a state of flux. For example, there have been staffing changes and new budgetary patterns at the SSB, and there have been new fishery policies implemented in the region. With such changes comes much opportunity, as the SSB clearly recognizes. Therefore, much mileage can undoubtedly be gained from the SSB's strategic planning process. It was obvious from the presentations and from talking with staff members that the branch has gained much insight into how they wish to further focus their strategic goals, improve the efficiency of their operational and organizational structure, and maintain and improve relationships with stakeholders.

While the SSB is lauded for taking initiative in strategic planning, branch leadership indicated that they did not consider how their strategic vision and objectives nested within the strategic plans of NOAA and NMFS during their planning process. In other words, the SSB Strategic Plan was not explicitly developed with knowledge of the NOAA Next Generation Strategic Plan or the NMFS 2010-2015 Strategic Plan. Panelists observed that the NEFSC, apart from its mission statement, etc., does not appear to have a formal strategic planning document.

However, when asked to consider how the SSB's plan nests with relevant strategic planning documents the branch had little difficulty linking their goals and objectives to both the NOAA and NMFS documents. This is likely because of the statutory drivers and mandates of NMFS and the SSB's close connection to fisheries stakeholders. For example, the SSB Strategic Plan does have alignment with both NOAA and NMFS plans in terms of mission, which are respectively:

- “To understand and anticipate changes in climate, weather, oceans, and coasts, share that knowledge and information with others, and conserve and manage marine resources;” and the
- “Stewardship of living marine resources through science-based conservation and management, and the protection and restoration of healthy ecosystems.”

Generally speaking, the components of the SSB Strategic Plan comport with the major items in these strategic plans, yet rightly elaborate on the social, cultural, and economic aspects of the SSB's work in the context of northeast regional fisheries and ecosystems.

The SSB Strategic Plan certainly aligns with the mission objectives of the NEFSC, which are to conduct *Research and Monitoring*, provide *Scientific Advice*, and undertake *Education and Outreach*. In conclusion, although the specific words, phrases, and formatting differed somewhat among the various strategic plans and statements, the substance of the SSB Strategic Plan does appear to fit well within the hierarchy.

Nevertheless, the panel suggests that the SSB more thoughtfully consider and articulate their connections to the missions and strategic objectives of all levels of NOAA that are relevant, and develop documents that clearly demonstrate these connections. This type of strategic nesting should be done as a matter of course during planning processes and also when communicating to offices higher up in the hierarchy. For example, the strategic plan should contain a section on how the work of the SSB fits with the NMFS strategic plan and NOAA's Next Generation Strategic Plan. Such organizational "messaging" could potentially help with the SSB's goal of improving internal communications with NOAA and NMFS leadership. Additionally, explicitly linking their plan to others will likely give their champions more concrete support as they advocate on the SSB's behalf at the NEFSC, NERO, and headquarters. Failure to do so may leave open the opportunity for others to question the relevance of the SSB.

On a final note related to strategic planning processes, we suggest that Center or division-wide planning will certainly help to further strengthen connections and alignment between the SSB and the other branches of the Resource Evaluation and Assessment Division. For future planning efforts within individual branches, it might be beneficial for branches to invite input from sister branches within the Division. This would facilitate additional research and programmatic integration and collaboration across the Division and its member branches, a worthy goal as the SSB moves toward an "ecosystems" research theme.

Finally, generally speaking, more work needs to be undertaken to make the SSB's strategic planning document clearer, both for the sake of the branch and its stakeholders. Therefore, we offer the following observations and suggestions related directly to the SSB's Strategic Plan:

- Reorganization and Synthesis-Additional benefits may be derived from further synthesizing the strategic planning document, and revising it in a manner that will make it more accessible to people outside of the branch, including other agency staff, collaborators, and stakeholders. This synthesis process could be used to better organize and represent the branch's missions, goals, and objectives. By undertaking such a synthesis of the strategic planning document, the end product could help outsiders better understand the role of the branch, thereby aiding the SSB in its desire to more effectively communicate with stakeholders. Moreover, synthesis could benefit the branch by providing it with a clear framework for assessing the extent to which it is fulfilling its goals and identifying areas in need of additional effort. In its current form the strategic plan does not prominently convey the significant successes of the contributions and achievements of the branch to others. These successes may become more apparent through synthesis of the plan.
- Simplification of Language-Reorganization and revision of the SSB strategic plan could also be used as an opportunity to refine language. Instead of employing complex jargon or terminology from the social science disciplines, panelists suggest use of words, phrases, and concepts within the common usage whenever possible. Simplifying



language will make the plan more understandable, transparent, and straightforward, which will be helpful for stakeholders and likely increase stakeholder awareness of the SSB's goals and activities.

- Documentation of Planned Conduits for Stakeholder Inclusion in Research Planning-Although clarified in discussions during the review event, the plan would benefit from additional description about the exchanges and feedback mechanisms between the branch and stakeholders. Specifically, the generation of quality, applied research depends on a thorough understanding of the subject. The means by which those connections with the subject (e.g., fishing industry and the management structures) are attained could be clarified.
- Identify and Distinguish the SSB's Core Stakeholders-The plan should better distinguish between the different stakeholder groups that the branch interacts with, and prioritize these groups. For example, fishing industry stakeholders have a very different association with the group from academics. The individuals directly involved with the fishery are of primary importance. More distinction between these groups could be used to better identify the expected associations of the branch with them. This clarification could aid in more effective identification of program goals and objectives by narrowing the core stakeholder groups targeted for service and support. Identification of these core stakeholders should also help when assessing whether program goals and objectives are being met because the program will know which stakeholder groups to seek feedback from during evaluation activities.
- Performance Measures-The objectives of the strategic plan should be revisited with careful thought on how the associated performance measures will be operationalized and tracked over time.
- Possible Overemphasis on Stakeholder Perception-The strategic plan may overemphasize the perception of the SSB by its stakeholders, as opposed to focusing more directly on how the branch will achieve specific programmatic tasks related to the NOAA and NMFS missions, with stakeholder perceptions being one measure.

### ***Organization of the Social Science Branch***

The panel was asked to consider the SSB's organizational structure and whether this structure is conducive to fulfilling the branch's strategic objectives and meeting the demands of stakeholders and partners.

The current organizational structure of the SSB is "flat," as described by the branch itself, meaning that there is one branch chief at the head of a number of senior-level staff scientists who are more or less at the same position level. There was much discussion during the review event about the value of the present structure and also the challenges. Panelists considered the pros and cons of the current organizational structure, and believe that there may be alternatives of interest to the SSB.

Panelists note that the SSB has grown in recent years, largely due to national efforts at the NMFS level to support economic and social science activities that fulfill the mandates of the agency. With a growing staff, the SSB may want to consider whether the current horizontal structure remains the ideal structure to efficiently meet the broadening and diversifying demands on the branch. It may also want to consider whether this structure will be conducive to efficiently

executing research projects and management tasks that the group will be expected to perform in the future. Panelists felt, for instance, that the flat organizational structure may not be ideal as the number of staff at the branch grows because this may reduce efficiency and the effectiveness of the branch.

Additionally, the SSB is composed primarily of professional research staff with advanced degrees. Scientific staff at the SSB indicated that in some cases it would be helpful to have lower-level positions in the branch, such as research assistants, research associates, or technicians, to assist with data collection and other routine tasks that are now performed by the researchers themselves. Other scientific staff members suggested that lower-level positions would not be as useful for routine project work, such as pulling data, because the principal investigator has expertise with the data and must be responsible for processing, cleaning, and preparing data to ensure quality. The panelists suggest that the SSB as a unit consider what would be the most effective mix of research staff, in terms of position levels. For example, the SSB might consider the use of ‘technician-grade’ personnel for completion of some routine management or research tasks.

At present, however, the flat organization structure appears to be adequate to fulfilling the branch’s strategic objectives and meeting the demands of stakeholders and partners. The SSB’s partners and collaborators presenting comments to the panel were generally supportive of the work of the SSB, and remarked positively about the quality of interactions with the branch.

In terms of meeting stakeholder needs, there may be room for improvement in relation to NERO and the SSB’s contributions to management. There appeared to be a problem integrating the results of the SSB’s social science work, in particular the socio-cultural and protected resource products, into management documents such as the Fishery Management Plan (FMP) amendments. Staff from the branch expressed concern that the SSB was not able to contribute social and economic analysis into the management process at an early enough stage to be meaningful and useful to decision-makers, and to adequately document the socio-economic factors in the decision-making process.

A significant contributing factor to this challenge appears to be a lack of awareness at the SSB and NERO about each other’s organizational structure (i.e., staff roles, responsibilities, topical specialties, etc.) and work flow processes and outcomes. The organizations should together identify useful ways to inform the other about internal structure and operations. For example, web postings of documents containing current curriculum vitas, professional biographies or position descriptions could help. Making this information publicly available could also benefit the stakeholders who need to interact with both NERO and the SSB, as could more regular communication and interaction. The issue that NOAA scientists have difficulty learning what other NOAA scientists are doing was raised at the April 2010 NOAA Science Workshop, so it is a common challenge throughout NOAA. Meeting the challenge should be more straightforward, however, in the regional context.

In terms of organizational structure and workflow, the SSB may want to consider how their organizational structure could be re-aligned relative to the structure of NERO and other critical stakeholders, such as the Fishery Management Councils, so that the Branch is better positioned

to inject their work more effectively and efficiently into management processes. The groups should jointly decide the best timing for and manner of contributions from the SSB to management activities. At a minimum, to achieve a more collaborative working relationship, effort amongst all parties should be made to improve communication and interactions so that all sides are aware of existing informational needs, priorities, and requirements, as well as the expertise, roles, and capabilities of each other. Panelists understand that the SSB and NERO already plan to do this; we encourage and commend this effort, and suggest that such an exercise might be helpful for considering SSB interactions with the Councils as well.

## **Relationship of SSB Programs and Management Needs**

The panel was asked to consider whether or not the SSB has aligned its research programs effectively with the needs of the management community, that is, its stakeholders. Additionally, we were asked to evaluate the quality of the SSB's research programs, projects, and products relative to needs of the management community. We were asked to consider:

- Are the right objectives and initiatives being proposed by SSB to meet the needs of internal and external stakeholders and partners?
- Is the mix of research and management appropriate?
- Is the mix of economics and social/cultural research topics appropriate?
- Is the allocation of SSB resources (i.e., time and financial) appropriate?

## ***Alignment of SSB Objectives and Initiatives with Stakeholder Needs***

The panel considered whether the SSB has proposed and implemented objectives and initiatives that will likely meet the needs of stakeholders and partners. Presently, the SSB bins its research activities into six topical areas:

- Vessels/Individuals/Fleets/Groups
- Industrial Organization
- Markets and Related Institutions
- Communities
- Regional Models
- Methodological Research for Regulatory Requirements

The panel agrees that the research undertaken by the SSB to directly inform management activities has been closely aligned with regional stakeholder needs. Stakeholder representatives from NERO, the Northeast Fisheries Management Council, and the Mid-Atlantic Fisheries Management Council provided ample testimony that SSB economic models and studies, most especially, have been a tremendous asset to management activities in the region. Similarly, the SSB has anticipated stakeholder needs, creating products to streamline provision of information into the management process. For instance, the social science database is used to inform Social Impact Assessments.

However, for some of the work currently produced by the SSB, it was not immediately clear how research findings and products have led to documentable changes in management. In other words, have findings and research products actually influenced decision-making or affected the planning process? This relates primarily to projects that were not specifically requested or required as a part of a specific management action (e.g., some economic models, social capital assessment, oral history project, etc.). Although interesting and relevant to fisheries management, the panel was not certain if or how stakeholders understood and valued products originating from some SSB project investments, or whether stakeholders agreed with the SSB about the

applicability of these research products to management. This does not mean that such projects and products are not valuable in constructing a full understanding of the human dimension of fisheries management, but that a common understanding among all constituents is important.

In addition to describing their existing research portfolio, the SSB provided the panel with their vision for future research initiatives. Their proposed research themes include:

- Performance Measures
- Recreational Fishing Demand
- Market Demand
- Industrial Organization
- Communities
- Ecosystems
- Marine Spatial Planning
- Regional Models

Under these themes, the branch provided an extensive list of research activities that they hope to continue or undertake into the future:

- Vessel Cost Studies
- Productivity/Efficiency/Capacity
- Performance Indicators
- Crew and Owner Data Collection
- National Marine Recreational
- Fishing Expenditure Survey
- For-Hire Cost Earnings Survey in
- the Northeast Region
- Spatial Modeling
- Market Demand Studies
- SIA Standardization
- Food System Research
- Input-Output Models
- Methodological Models
- Designation of MSA Fishing
- Communities
- Interdisciplinary Ecosystem Assessment
- Ethnographic Studies
- Fishermen Job-Satisfaction and Wellbeing
- Survey
- Oral History Databases

The panel encourages the SSB to explore a variety of avenues for possible expansion or redirection of research priorities. However, panelists also feel strongly that selection of priority research themes, programs, and activities should be done strategically, methodically, and with the active participation of critical stakeholder groups. Foremost, to ensure that they provide the most relevant and useful research to stakeholders, the panel suggests that the SSB consider developing and implementing a formal process for internally prioritizing research programs and selecting specific projects and activities. Such a process could be undertaken periodically, annually, or on an ongoing basis. However, the panel encourages the SSB to involve stakeholders directly in such a process, for example, during planning workshops or through a committee, or by otherwise formally consulting with key resource managers, industry, and community stakeholders.

Panelists suggest that the SSB consider employment of rigorous social science research methods from the social, behavioral, and economic sciences to formally assess regional research needs and to collect information for research prioritization. Thus, the SSB is encouraged to be forward-looking in its strategic planning and use analysis from its core disciplines to address the question of research prioritization periodically using experimental design and sound statistical analysis.

Of course, research prioritization will necessarily be influenced by the budget constraint. Reduced funding is already responsible for non-implementation of projects for the branch, such as the non-market valuation study for use with protected resource valuation. The panel notes that the NMFS Office of Science & Technology provides almost half the research budget for the SSB and specially allocated funds to support research on catch shares is the next largest source of research support for the branch. The SSB's discretionary funds are only about \$78,000. Thus, the SSB's budget could be negatively affected if other NOAA programs experience budget reductions. Moreover, addition of new scientific staff to the SSB could exacerbate budgetary strain for research activities. Consequently, when contemplating implementation of new research areas, the SSB should carefully consider the likelihood of being able to support both existing and new research initiative at adequate levels of funding. A formal process for prioritizing research programs and activities could help the branch decide which existing programs and activities to cut in order to make room for the new ones, should it be necessary.

### ***Mix of Research versus Management-Oriented Activities***

The SSB is responsible for a variety of management-oriented activities and support. They provide direct support in the form of baseline assessments, analysis of management alternatives, and impact assessment of management actions initiated by NMFS, MAFMC, and NEFMC. The SSB is also responsible for the certification of compliance under such actions. Additionally, as a unit, the SSB staffs a total of 16 fishery management plans, although not every plan has an economist and a socio-cultural scientist and not all plans require the same level of effort. Finally, on an ad hoc basis, SSB staff conducts document reviews, certification, and data analysis for NMFS Headquarters, NERO, NEFSC, the general public, and interested stakeholders. To help streamline and manage this workload, an entrepreneurial staff at the SSB has created a variety of support tools and databases that help them respond more easily to management-oriented requests.

The SSB presented figures from 2005-2008 demonstrating that fifty percent of their staff economists' time and twenty-six percent of their socio-cultural scientists' time is spent supporting management needs on average. When compared to the rest of the NEFSC, the proportion of time allocated to original research in the social and economic sciences is less than the time allocation typical for other branches. The question of whether the SSB's program portfolio is effectively balanced in terms of its mix of management-oriented versus original research activities is obviously of keen interest. Judging from presentations and conversations during the review, there is a perception among some of the SSB staff that they presently devote too much of their staff resources to management-oriented activities. These staff expressed the view that some of these management-oriented activities might be inappropriate for the branch or for certain persons within the branch.

The panel agrees that a large portion of the SSB's work is currently driven by direct management needs. Whether intentionally or simply as a matter of course, the SSB historically accepted responsibility to fill organizational gaps in social science capacity and expertise at both NERO and the Councils. The SSB's primary role and function of providing social science support to these stakeholders has both positive and negative consequences for the branch.

A benefit of this arrangement is undoubtedly gained from the staff's strong familiarity and understanding of these stakeholders and their needs, along with the management substance and process. A direct outcome of SSB staff having such knowledge and experience is that highly applicable scientific information has been produced and provided to stakeholders. Further, the branch's significant contributions to management processes via regulatory analyses yield an indirect benefit through the increased relevance and applicability of its research. This benefit is reflected in the many achievements touted by the branch in which policymakers have relied heavily or exclusively on SSB data and models during the formation of management actions, such as the Catch Area Model. Because of the proven benefits of staff involvement in management-oriented activities, it would be unfortunate to significantly reduce or remove this function from the SSB. This organizational role seems to be rather unique among the NMFS Fishery Science Centers and appears to have greatly benefitted the region and the SSB.

On the other hand, a detrimental effect of such heavy reliance of NERO and the councils on the SSB for social science support is that fulfilling this management function may reduce the amount of time available to SSB researchers to pursue original research. Moreover, when the branch must persistently prioritize management-oriented requests with short-deadlines, the situation becomes even more challenging.

There is not a hard and fast rule on the appropriate mix of management-oriented versus original research pursuits for a science center at a federal agency, so panelist conclusions for this element are mixed. The panelists generally feel that it would be in the interest of the branch and region, but most particularly the staff, if researchers could be given more time for original research, as long as the research fits into a clear strategic plan. Most particularly, the demands on the economists to provide analysis in support of fisheries management is likely crowding out the mission-driven original research that fuels professional development. The importance of time for professional development cannot be overemphasized, and allowing scientific staff in the SSB time to maintain their knowledge base, foster academic collaborations, and publish in scholarly journals will keep the SSB's workforce current and up-to-date. Having a scientific staff current with methodological advancements, for example, is important for an agency where regulatory actions may be subject to litigation and scientists may have to demonstrate knowledge of the best practices of their discipline in court.

On the other hand, panelists also feel that the branch should not lose sight of the benefits arising from scientists' close involvement in the management process. Production of high-quality original research with a clear management application depends on a keen understanding of management needs and processes. The involvement of scientific staff in the management process gives them a heightened advantage, enhancing their ability to provide extremely relevant research. Additionally, it is this relationship that distinguishes SSB scientists from other researchers in the region, such as academic scientists, who necessarily have weaker organizational linkages to management institutions. A reduction in provision of critical management support could reduce the relevance of the branch to the agency's mission.

Due to the difficulty of the question, we do not have a single recommendation for the SSB in this regard. Rather, we would like to offer a variety of suggestions that may be of use to the branch. Foremost, the panel recommends that prior to making dramatic changes of any kind that the SSB

collect current and accurate information that can be used to evaluate the workload situation and, if necessary, engage stakeholders in a dialogue on the subject. The estimates of workload allocation provided by the SSB were not current and the panel was cautioned that the figures may not be accurate because of how they were derived. The SSB expressed their intention of conducting more careful investigation into the actual time spent doing management-oriented versus other types of activities in the branch. This is an excellent idea because it will provide the branch with objective information about how staff economists and socio-cultural scientists are actually allocating their time. Further, this is a good topic for future strategic planning by the Division.

Before collecting information on the branch's allocation of time by activity, it is important to note, however, that it was not clear when talking to and hearing from the SSB's stakeholders (e.g., NEFMC and NERO) that these entities distinguish between "research" and "management" in the same way that the SSB does. For example, it was obvious that the NEFMC tended to view management-oriented activities at the branch as "applied research" while viewing other research pursuits as "theoretical research." A consistent understanding of these fundamental terms is needed to clearly identify SSB's role, in a manner that establishes consistent expectations in stakeholders, the branch, and its staff.

After collecting additional information, should the SSB determine that they are, in fact, allocating too much time to management-oriented activities, then the panel strongly urges the branch to work in concert with the relevant stakeholder organizations to explore the problem and identify possible solutions. While the SSB can only create change within their own organization, they must recognize that such changes will likely force changes in other organizations. For example, if the SSB pulls back from providing management support activities, this could force their stakeholder organizations to redirect or hire staff to complete these tasks instead. The SSB must be sensitive to the fact that unilateral changes at the branch could profoundly influence the capacity and workflow of these organizations, negatively impacting the entire region. For this reason, if changes are made, they should be made with stakeholder involvement. Moreover, ample time must be allowed for organizational transitioning after new agreements about roles and expectations are in place.

The panel has a few additional suggestions:

- The SSB should attempt to engage early and frequently with NERO and the Councils so that they may better anticipate the data, management support, and research needs/requirements for the socio-cultural program. Engaging with stakeholders for just such a purpose is already in the strategic plan, so it is clear that the SSB are thinking in this direction. The panel urges the branch to do this sooner, rather than later.
- The SSB might consider creating and filling staff positions that are responsible for management support role at the branch or, alternatively, lower level positions to assist scientific staff with management-oriented duties. Perhaps such positions could be created as a cost-share between the SSB and NERO.
- Improved planning of regulatory analyses could better define expectations and allow branch staff to better plan their contributions to those analyses. For example, the development of an "action plan" for each regulatory analysis, a plan identifying specific

staff and their contributions to the analysis and important milestones and timelines, may clarify expectations of all contributors.

- The branch, in coordination with stakeholders, should plan for predictable deadlines that will likely be excessively short and unavoidable time constraints for management-oriented activities, such as those in the certification process. These activities should be anticipated, rather than imposed on short notice.

### ***Mix of Economic versus Social-Cultural Research***

For this element, the panel was asked to consider the appropriate mix of economic versus social-cultural research for the branch. Has the branch achieved an effective balance? This is a difficult question to answer because the ideal balance of economic versus socio-cultural research shifts periodically depending on conditions in the region. Generally speaking, however, the panel finds that the mix of research is acceptable, although there appears to be some unmet management needs from a socio-cultural perspective.

The research portfolio of the economic program is diverse, robust, and advanced. The SSB economists are considered leaders when compared to other social science branches across the NMFS science centers. The socio-cultural program of the SSB appears to be moving forward and finding more direction in the last few years, likely related to increases in budget for research on particular issues (e.g. catch shares, mixed species issues, etc.). However, the data and data collection needs for this side of the SSB appear to be a challenge. Although many of the socio-cultural products and ongoing studies at the branch rely on existing data (e.g., the Social Impact Assessments and the indicators work), the socio-cultural researchers expressed frustration that they have a significant need for original data but cannot easily accomplish data collection. Undertaking data collection can be critical because many types of desired socio-cultural data do not exist in current, regularly-collected databases.

Collection of primary data can often be labor intensive and relatively expensive<sup>1</sup>, especially when compared to research programs that require only existing, secondary data. It appears that funds for primary data collection are limited at the SSB. Additionally, the socio-cultural research staff indicated that they do not have time enough to get “into the field” to collect data themselves. Such challenges limit the type of work that they can pursue by the socio-cultural researchers at the branch and this, in turn, affects the usefulness of the socio-cultural management products that are produced.

Cutting edge, quantitative predictive models to elucidate complex socio-cultural issues, the types of studies on par with economic modeling, are certainly possible. However, this type of research can only be accomplished with an investment of adequate resources by agencies and organizations. If original data collections are a priority for the branch, then more effort must be made to direct funds to such endeavors or to leverage partnerships to conduct this work collaboratively with partners in the region who are eligible for the kinds of grant funds not available to federal agencies.

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<sup>1</sup> Having said that, it is important to note that even the most expensive social science data collections can frequently be accomplished at a fraction of the cost of collections in the natural and physical sciences because social science research does not generally require ship time, specialized equipment, laboratory facilities, etc.



### ***Appropriateness of Time and Fiscal Resource Allocations***

The panel was asked to consider whether current allocations of time, meaning the investment of human resources to complete tasks, and fiscal resources are conducive to the branch meeting the research, data, and informational needs of management stakeholders.

Discussion provided in the section above, “Mix of Research versus Management-Oriented Activities,” is relevant to whether the branch is effectively allocating its human resources in order to achieve its organizational goals. The question of what is the appropriate role and responsibility of the SSB in terms of directly supporting management organizations is paramount and, as yet, unsettled. Although its role may change, presently, the SSB serves as the primary support unit for social science expertise for the NERO and, to some degree, the councils. An opinion on the appropriateness of future allocations of staff time between research and management-oriented activities would be of dubious value. Therefore, the panel considered the question of appropriateness of human resource allocation given current roles and responsibilities.

Judging from the information provided on staff-time allocation and hearing from the scientific staff and stakeholders about the nature and extent of management-oriented activities, it appears that the economists in the branch are performing the bulk of the direct support for management actions at present. In the case of the protected resource economist, nearly her entire portfolio is composed of management-oriented activities. Conversely, the socio-cultural researchers provide comparatively less direct management support. The imbalance between the economists and socio-cultural staff in providing direct management support does not appear to be related to a lack of need or interest. Representatives from both NERO and the Councils expressed a desire to have more socio-cultural data products in support of management activities, although they suggested that there were not enough socio-cultural products available that are on par with the economic models. Nevertheless, it appears that there is a growing need for additional contributions from the socio-cultural staff for management-oriented activities, and an increasing capacity to fulfill this need.

On the other hand, as discussed in the section titled “Mix of Economic versus Social-Cultural Research,” the socio-cultural staff is often more reliant on primary data than are the economists who predominantly use existing, secondary data for their research and analyses. Therefore, the socio-cultural staff will necessarily require more time per project to collect data, which will result in longer timelines for production of final products. It is important for the SSB to consider that the appropriateness of time allocation per staff for project work may not be directly comparable between the economists and socio-cultural staff. Again, the panel encourages the SSB to undertake a rigorous, critical review of staff time spent on various activities.

From a managerial perspective, it appears that scientific staff-persons often undertake and complete tasks without the knowledge and awareness of the branch manager. This situation occurs because of existing informal networks, established channels of interaction and communication between SSB staff and staff at stakeholder organizations. In other words, staff persons at stakeholder organizations have established relationships with particular staff persons at the SSB and will simply call on these individuals to assist with tasks, or to provide information or referrals. While this arrangement may actually increase efficiency in terms of information

flow between the organizations, it might also lead to an overburdening of those SSB staff persons who are central nodes in these inter-organizational, interpersonal networks.

The panel agrees that peer to peer interactions are advantageous across organizations and that such professional networks should be encouraged, not discouraged. Consequently, we do not advocate for imposition of a “chain-of-command” approach to inter-organizational communication. However, there should be some structure or mechanism for the SSB Branch Chief to learn when staff persons accept management tasks, such as contributing text to documents, conducting analysis, or reviewing documents from external parties. Only with knowledge of the workload of his staff can the Branch Chief fully understand the nature and volume of workload and work flow at the branch.

With improved awareness of informal requests, the Branch Chief may be better able to implement strategies for more equitable distribution of tasks, thereby broadening informal networks. Additionally, with such knowledge, the Branch Chief will be able to more effectively chart timelines for multiple tasks and outputs across the branch. Achievement of such efficiencies should aid the branch in meeting its strategic objectives, while also improving the ability of heavily burdened staff realize individual, professional goals.

In terms of a recommendation, at a minimum, the panelists suggest that the scientific staff ensure that the Branch Chief is aware of work assignments arising from informal communications with stakeholders. There are numerous strategies that could be implemented to achieve this goal, at many levels of formality. The answer could be as simple as staff members sending the branch chief an email informing him of a request. Conversely, the solution might be as sophisticated as development of an automated system to log requests. The panel suggests that the SSB as a unit explore the many options available and implement the approach that is most suited to the workflow, organizational culture, and needs of the branch.

In addition to internal management of external requests, it is possible that increased communication between the Branch Chief and supervisors of the various stakeholder offices could facilitate more effective allocation of staff resources and derive efficiencies. The Branch Chief might consider whether it would be productive to have periodic meetings or conference calls with council or regional staff to discuss upcoming tasks and staff assignments.

In terms of allocation of fiscal resources within the SSB, it appears as though funds are equitably distributed between the economic and socio-cultural programs and that the Branch director is supportive of both programs. Having said that, the panel notes that the SSB has been extremely reliant on non-regular, task-specific funds originating from within NOAA to accomplish its mission. During the Fiscal Years 2010 and 2011, the SSB has benefitted tremendously from Congressional allocations to investigate the efficacy, effectiveness and impact of catch share programs. These funds are distributed to the regions by NMFS Headquarters and, although there is no guarantee, the SSB anticipates that this source of funding is likely to continue at some level into the future. Similarly, the SSB regularly receives research funding from the NMFS Office of Science & Technology as a part of that office’s internal competition.

Very little dedicated programmatic funding has been provided to the SSB for its core mission and objectives. As the share of non-regular, task-specific funds has increased at the SSB there has been a concomitant decrease in base funding. In FY2011, the SSB's discretionary funds were only \$78,000. Thus, the viability of the SSB's research programs is closely tied to a continuation of discretionary funds (such as the "catch share" funds) and the budgetary success of the NMFS Office of Science & Technology, and the SSB's ability to win these resources. Even if present funding trends continue, the dependency of the SSB on these two sources of funding is potentially problematic because the program will be crippled if these monies are not forthcoming for some reason. There should be more diversity in the SSB's budget portfolio.

Currently at the SSB there is minimal reliance on outside contract and grant resources to support research projects. However, the SSB expressed a desire to increase the proportion of funds coming from sources external to NOAA, and the panel agrees that this would be an effective avenue to diversify the branch's budget portfolio somewhat. Of course, it will take time to build this type of funding stream. More effort will be required on the part of scientific staff to identify sources of funding and write proposals. It is critical also that NEFSC managers at all levels support staff in these endeavors, providing the necessary resources (e.g., administrative support to develop and implement Memorandums of Agreement/Understanding).

While the SSB does not foresee impact to program missions and research priorities as a consequence of seeking external funding in the near term, they do anticipate some risk in the future if extramural funds begin to constitute a majority of the research budget. Procurement of external research funds by research offices is a growing strategy across NOAA as research budgets continue to erode. However, research programs within the NMFS are intimately tied to legal mandates and so seeking a larger share of external sources of funding could become a challenge from a programmatic standpoint. Staying closely engaged with stakeholders to define and prioritize research should help to stave off some of this affect. Nevertheless, there will likely be tension between the needs of funders versus those of the SSB's stakeholders, unless the management goals of the parties align closely.

Still, the SSB's ambition of seeking external funds is both legitimate and desirable given the lack of base funds and the limited nature of their budget portfolio. Of course, given recent trends, it does appear that procurement of additional extramural funds could lead to further reduction of the SSB's base budget. Communication with and support from leadership at the NEFSC will be critical to make certain that further erosion of the SSB's base budget is not a consequence of successful entrepreneurship by research staff.

Finally, the panelists would like to comment on the issue of allocation of space. Availability and functionality of space resources looks like a major issue for the branch. Having viewed the facility wherein the SSB staff are housed, panelists agreed that the working environment is likely uncomfortable and challenging for SSB staff. The office is loud, cramped, and cluttered. Moreover, collaboration with NEFSC colleagues from other disciplines is certainly hindered by geographic isolation of the branch from the other science center offices and scientists. Whether this is the case or not, the unprofessional and odd nature of the SSB facility, which is located in the basement of an active church building, communicates to the panelists and, most likely,

external stakeholders, that the SSB is not necessarily a highly valued branch of the NEFSC. This is very troubling.

Short of finding an acceptable, professional facility to house the entire SSB staff, the panel recommends that plans to expand the SSB's facilities across the street include an office for the Branch Chief and a formal conference room to receive visitors for meetings, etc. Both facilities should be improved to ensure accessibility by disabled persons. As soon as possible, the SSB's facilities should be upgraded and improved to ensure a comfortable work environment for staff. Consideration might also be given to office locations closer to the fishing constituency. This will communicate to visitors, such as important stakeholders, that the SSB is a professional group that is highly valued and an important part of the NEFSC.

## **Conducting and Communicating about SSB Programs and Research**

Finally, the panel was asked to reflect on the strategies and successes of the branch in relation to conducting and communicating with stakeholders about programs and research. Specifically, we were asked to consider:

- Does the SSB have appropriate procedures in place to communicate products to internal and external stakeholders?
- Are there appropriate quality assurance procedures in place for science products including transparency, integrity, and peer review?
- Is the SSB taking advantage of research opportunities and producing timely and policy-relevant scientific research products?
- What areas of expertise could be added in the future to strengthen the ability of the SSB to meet management and research objectives?

### ***Appropriateness of Procedures for Communicating with Stakeholders***

The panel was asked to consider whether or not the SSB has appropriate procedures in place to communicate products to internal and external stakeholders. It is difficult to answer this question because it is not entirely clear how the results and activities of the SSB are communicated to important constituencies, in particular the fishing industry and community.

The only formal mechanisms for communicating with stakeholders about SSB products appear to be the SSB's website and direct outreach from SSB research scientists. The SSB does have a presence on the Internet<sup>2</sup> where they provide a limited amount of information about the branch and links to a number of research reports and technical memoranda. However, the website is somewhat rudimentary and the content appears to be relatively static. In terms of direct outreach, SSB staff indicated that they do not regularly give presentations to stakeholder groups, although such presentations were provided by the SSB to stakeholder groups on at least four occasions in 2010.<sup>3</sup> For example, a presentation on the "Economic Requirements and Economic Issues" was

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<sup>2</sup> See <http://www.nefsc.noaa.gov/read/socialsci>.

<sup>3</sup>The following stakeholder presentations were included on the "NEFSC Social Sciences Branch Bibliography: 2008-present":

given at a New Council Member Training, presumably, to educate new council members about the SSB's requirements, methods, tools and products in the area of fisheries economics. Yet the evidence suggests that the SSB focuses most of its communication about SSB research findings and products on scholarly audiences through presentation at professional conferences and publication in scholarly journals.

Consequently, the panel finds that the SSB does not really have standard procedures for communicating with stakeholders about its programs and products. Such communication, when undertaken, appears to be informal in nature and as needed, rather than strategic and proactive. This is an area that should be organized and strengthened in the future with thoughtful consideration about the kinds of products that are most useful for each class of stakeholder, as well as the forms of communication that will be most effective given the type of product and stakeholder class.

Additionally, communication about products should not be considered one-way, meaning that the SSB should not plan to merely educate and inform stakeholders about its products. Communication procedures that facilitate a better understanding of what stakeholders' need should be given equal weight with procedures to ensure that stakeholders are aware of and understand the current SSB products. Panelists feel that such increased communication with stakeholders is critical to the planning of a relevant applied research program. Formalizing a strategy for communicating with stakeholders that is regular and reciprocal should not only increase the effective use of the SSB's management-oriented products, but also ensure the relevancy of applied research products.

In short, the panel suggests that the SSB develop formal protocols for facilitating a meaningful exchange with stakeholders about its planned and existing products. Such exchanges might take place in the context of a steering committee or possibly in an annual workshop format. For the latter, the SSB could likely benefit from professional facilitation and assistance, such as from the Gulf of Maine Research Institute or the Sea Grant Programs.

The panel also considered the issue of communication in relation to inter-organizational workflow and interaction. Unfortunately, it was apparent to the panel that the relationship

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Hunberg, Eric. 2010. "Economic Requirements and Economic Issues." Presented at New Council Member Training, Washington D.C. October.

Kitts, Andrew and Patricia Pinto Da Silva. 2010. "Identifying Social and Economic Performance Measures and Research Objectives for Catch Share Programs." Presented to the New England Fisheries Management Council. Portsmouth, NH ,26 January.

Kitts, Andrew, Evan Bing-Sawyer, Matthew Mcpherson, Julia Olson and John Walden. 2011."Interim Report for Fishing Year 2010 on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2010 – January 2011)." Presented to Congressional staff, Washington, DC, May. Also presented to the New England Fishery Management Council, Portland, ME, June.

Steinback, Scott R. 2010. "Shoreside Impacts of Proposed Permit Stacking Alternative in Scallop Amendment 15."Presented at a Scallop Oversight Committee Meeting in Providence, RI.

between the NEFSC and the NERO needs attention. For example, a representative from NERO Sustainable Fisheries commented that he did not fully understand the organization structure of the SSB or the SSB staff or some topical areas. This indicates an acute need to improve the channels of communication, which should, in turn, help both Financial Management Centers to better synchronize work processes and build a mutual understanding of the objectives and constraints. Improvement in this general relationship would also improve the ability of the SSB to fulfill its mission and objectives. For example, there is apparently a standing practice of performing full social impact assessments for framework actions. This seems, at best, inefficient in that the purpose of framework actions is to eliminate the need for full assessments. Workflow issues such as this could likely be resolved.

The panel believes that regular meetings between SSB Branch Chief and supervisors of NERO and councils might be helpful. These meetings could be used to discuss workflow synchronicity, identify gaps or problems, highlight research needs, etc. An added benefit to the SSB from such meeting is that they could also stay abreast of NERO and council activities and products, such as open houses, visioning meetings, or publications. Such knowledge could aid the branch as they strategize their own approach for improving communication with stakeholders about products.

Finally, although this appears to be improving, there remain issues of communication and mutual understanding between the biophysical and social scientists within the NEFSC. Increased regular interaction and interdisciplinary programs and projects normally improve this communication.

### ***Quality Assurance and Quality Control Procedures***

Panelists were asked to consider whether or not the SSB had the appropriate quality assurance procedures in place for science products, including transparency, integrity and peer review. It is clear that the scientists at the SSB are of the highest caliber; reviews of the branch's work demonstrate its high quality. They produce good research and are eager to have their work vetted and reviewed by others so that their products and data are the best that can be produced.

However, the branch tends to rely on internal peer-to-peer review of much of their work. While seemingly effective, this system of review does not necessarily lend itself to the level of quality assurance or transparency that the branch might like to achieve or increase the confidence of stakeholders. Therefore, the SSB should consider formalizing their processes for reviewing research papers and articles, products and tools, as well as research methodologies and analyses. There should be a formal protocol for deciding what is reviewed, when, and by whom.

A protocol could be drafted by the branch that identifies when a review is undertaken and the appropriate scale or level of that review, meaning whether it should be internal or external, formal or informal, etc. Procedures for scientific research presentations and publications already tentatively established by the NOAA and Department of Commerce Scientific Integrity Policy<sup>4</sup> and associated guidance documents would make a good starting point. Additionally, the protocol could include a variety of criteria and considerations to be used in routing the review process, including:

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<sup>4</sup> Draft NOAA Administrative Order 202-735D "Scientific Integrity Policy"  
[http://www.noaa.gov/scientificintegrity/PDFs/DRAFT\\_NAO\\_202-735\\_FINAL.pdf](http://www.noaa.gov/scientificintegrity/PDFs/DRAFT_NAO_202-735_FINAL.pdf)

- what will be reviewed (e.g., a report, article, survey, model, methodological design, etc.);
- whether the work is subject to other review processes (e.g., SSC/FMAT/PDT or scientific journal peer review);
- importance of the action (e.g., is it “high-profile” or potentially controversial);
- novelty of the action;
- novelty of the methodology, model or analysis; and the
- potential to apply the analysis or methodology in future actions.

The process could formalize internally managed reviews making a consistent hierarchy with the highest scrutiny being achieved through external processes, such as reviews by the Center for Independent Experts. The process could also include a requirement that documents adhere to the process for each work product.

The process should recognize the diversity of work and products generated by the SSB. Of course, articles and final reports must be reviewed. Additionally, the SSB could consider the possibility of scheduling regular, periodic reviews of models that are used and updated on an ongoing basis. Indeed, the review process itself could become integral to updating the models.

Further, there are many stages when work within branch could be reviewed. For example, the representative from the NEFMC indicated that survey instruments used by SSB should be reviewed by experts and stakeholders prior to implementation. Each of these products and the various stages when reviews may be needed should be considered in developing the protocol.

The SSB, together with NERO, should also establish a protocol for reviews for certifications of regulatory analyses needed by the regional office. Because short deadlines may be unavoidable, this protocol should establish reasonable notices of impending reviews, which allow SSB staff to schedule certifications around other work demands.

As a part of the development of this process, the branch could consider whether it is appropriate to have a cross section of stakeholders review SSB research papers and articles, products and tools, as well as methodologies and analyses. For documents that are not reviewed as a part of the management process, the branch could consider developing a process for receiving input from the councils, regional office, FMATs and PDTs. To the extent that these offices are the likely end users of research, they may be positioned to provide useful feedback on the relevance and quality of SSB work. Although persons dissatisfied with results are likely to be critical, it should be recognized that some stakeholders may have specific knowledge of the subject of the model and the validity of model assumptions.

In terms of document review, improved planning and coordination between the SSB and stakeholder organizations could save time in document production by increasing communication with other agency personnel who review documents, particularly regional staff. Increased planning and coordination could yield a better understanding of concerns with document content and analytical requirements that arise throughout the document production process, including a better understanding of when existing documents may be incorporated by reference. This process may save staff time and produce more focused and useful documents for decision-makers.

Some branch staff members expressed concern that the quality and accuracy of new data are uncertain. As efforts are undertaken to improve data management, continued and increasing attention could be given to data quality. A more formal process to evaluate data could be developed that includes increased interaction with data submitters. This may improve not only data quality, but also enrich the SSB's understanding of the content of data and improve relationships with data submitters. Informal interviews with data submitters or the public and one-on-one meetings with industry representatives, meetings possibly facilitated by others such as the Gulf of Maine Research Institute, may be beneficial. Through this process, branch staff may improve and expand their own relationships with stakeholders. Utilizing a process for reviewing data quality would improve data used, but could also help the branch to prioritize data collection in the event that budget constraints reduce the branch's capacity to maintaining current collections.

Finally, attention should be given to the "data architecture" used by the branch within the NEFSC to store and maintain data and information, both economic and socio-cultural data. There is currently no plan or provision for the long-term storage of socio-cultural data, in particular, or for maintaining appropriate levels of quality control and accessibility. Such provisions should be made to both preserve the results of specific research products, and to allow for time-series social scientific data streams for fisheries and ecosystem-based management purposes. The social science data storage architecture should also be designed to be as compatible as possible with the biophysical science data storage architecture.

### ***Research Opportunities and Timely, Relevant Products***

The panel was asked to consider whether or not the SSB is effectively taking advantage of research opportunities and, related, if they were producing timely and policy-relevant scientific research products.

The panel considered the question of whether the SSB were producing policy-relevant scientific research products in conjunction with the question of whether they were producing products on a timeline that is largely synchronous with the policy-making process. The answer to this question is both yes and no. As stated previously, the SSB's research activities and programmatic priorities have been very closely tied to management needs to date. This relationship has, for the most part, had the happy effect of ensuring that the majority of SSB research and work products are directly relevant to the policy-making process. Moreover, because they provide direct support to stakeholders who are responsible for the policy-making process through requests, the timing of their contributions has been good in general.

However, the SSB's effectiveness at providing policy-relevant products in a timely manner appears to be mainly due to the successes of the fisheries economics program. There is room for improvement for the protected resources and fisheries socio-cultural programs. The central issue impeding effective provision of relevant, management-oriented products for both of these programs seems to be ineffective inclusion of SSB staff by stakeholder groups, both in terms of timing and degree of involvement. Staff from the SSB indicated that they are not typically invited to engage in a meaningful way, early enough in the policy-making process, making it difficult for them to contribute quality products. Their contributions are often requested late, frequently after policy decisions are already made, and under unreasonably short deadlines.



Further, SSB staff explained, products provided, such as text for fishery management plans, has on occasion been problematically altered or disregarded by those responsible for using or incorporating SSB products into the policy documents. The current method of interaction between the SSB and its managerial stakeholders automatically limits the value and relevance of SSB products, although this is not necessarily the fault of the branch or its staff.

Effort should be made by the SSB, with the support of NEFSC leadership, and stakeholder organizations to ensure that socio-economic factors and analyses are considered very early in all management processes, and that SSB contributions are not altered throughout the process in a manner that renders them inaccurate or ineffectual. Greater involvement might be accomplished by requesting that SSB staff be more formally involved in such management efforts, perhaps as team-members. For example, a NERO representative mentioned a willingness to let socio-cultural staff review final documents after contributing analyses and text in order to ensure that SSB contributions were not altered in ways that negate the accuracy and quality of policy impact analyses. Of course, the SSB should be aware that involvement from their staff at additional stages of these processes might result in more management-oriented responsibilities, as opposed to less. There may be other remedies.

The SSB should immediately engage with stakeholders to explore existing processes for inclusion of SSB contributions, define the areas of contention or difficulty, and devise mutually-agreed upon strategies to improve outcomes. The groups should get together and decide jointly the best time and manner for SSB staff to contribute to management activities. The panelists understand that there is a plan to do this, which is encouraging.

Considering now the question of whether the SSB is effectively taking advantage of research opportunities, the panel agrees that the SSB has done an excellent job of identifying important research topics of relevance to fisheries in the Northeast. In particular, the branch is or has the potential to be a leader in the areas of vessel profitability, Input-Output regional modeling, indicators of community vulnerability/resilience, and regulatory design. Additionally, the branch has undertaken some unconventional research efforts from the standpoint of an applied research agency that holds substantial, if yet unrealized, research potential, such as the oral histories work.

The SSB indicates that they plan to revise their research portfolio to include a number of new research themes of importance to the Northeast and the nation. These new themes include recreational fishing demand, ecosystems, and marine spatial planning. The latter two themes, in particular, effectively align the SSB with numerous research programs and opportunities within and beyond NOAA, which should open up new opportunities for research collaboration and partnership. For example, the SSB could expand the research portfolio of their protected resources staff encompassing projects that inform marine spatial planning, valuation of protected species and critical habitat designation. There are offices within NOAA that presently conduct spatial analyses of biological resources, including protected species. Collaborative research of this nature, that is, combining biological with economic analysis, would provide much needed information for marine spatial planning and ecosystem-based management.

All of these proposed themes demonstrate the SSB's willingness to grow their program in directions that will enable them to anticipate and respond to future management needs. How the SSB plans to translate these themes into programmatic activities is somewhat unclear, but this will likely be determined through the remainder of their strategic planning and research prioritization processes. Undoubtedly, their plan to implement more intentional performance measure/program evaluation research will provide ample feedback related to the success of these new themes.

### ***Personnel Structure and Management***

The panel was asked to consider what areas of expertise could be added in the future to the SSB in order to strengthen its ability to meet management and research objectives. Foremost, the panel notes that the SSB personnel appear to be successful in their respective fields both inside and outside of NOAA and NMFS. This is evidenced by the many publications from the branch, as well as honors and awards among the scientific staff. Moreover, their participation in professional activities outside of the SSB (i.e., professional societies) is indicative of their continued professional integration and grounding within their disciplines.

Although the SSB programs are well-suited to meet the needs of Northeast fisheries management processes, it is equally apparent that SSB does not have the personnel or resources to fulfill these needs. Judging from the seven curriculum vitas that we received for research staff at the branch, it is clear that the blend of educational backgrounds and professional experience of staff is good, including representation from economics, anthropology, political science, and interdisciplinary studies. The only criticism of this disciplinary array is a lack of expertise in the areas of sociology, demography, and human geography. Strategic investments in personnel would have a disproportionately large impact on management effectiveness.

In terms of the allocation of staff positions between the economics versus socio-cultural programs, out of thirteen positions the SSB presently employs eight economists and five socio-cultural scientists. The branch plans to hire two additional economists in the near future. This growth in economic staff is in many ways ideal given the mission-driven research needs of the SSB to conduct economic analysis for fisheries management. The demand for this information is evident by the amount of time staff economists devote to management-oriented activities. The SSB must maintain a critical mass of economists who are capable of conducting the analysis required for fisheries management. Moreover, as NMFS moves to ecosystem-based management of fisheries, staff ability to manage large integrated models to value ecosystem services and skills to utilize general equilibrium, modern time series and other highly quantitative models will be paramount. Quantitative economists are generally the best candidates for such complex, sophisticated economic modeling.

In terms of new hires for the economics program, the SSB might consider bringing on a quantitative economic geographer. Alternatively, a game theorist could be beneficial to the branch for addressing strategic use of catch shares to exercise market power and conduct research on supply chain effectiveness.

While economic research is mandated and, consequently, critical to fisheries management, so too is sociological and anthropological research that assesses the social impact of fisheries

regulations. Judging from the information provided to the panel, the socio-cultural research staff at the SSB is composed primarily of anthropologists. Much of the work completed within the socio-cultural program is qualitatively oriented or descriptive in nature.

While qualitative research is undoubtedly critical and necessary, there appears to be a significant need at the SSB for a quantitative sociologist specializing in attitudinal/values research and, most especially, predictive behavioral modeling. Quantitative sociologists trained in the substantive areas of environment, rural/urban studies, work/industry, organizations or social stratification might complement nicely with the needs of management stakeholders and present staff composition at the SSB. Addition of a quantitative sociologist could move the SSB substantially forward in their ability to provide quantitative socio-cultural research products to support fisheries management, planning, and policy-making. Further, a quantitative sociologist could very possibly serve to bridge the research portfolios of the economics and socio-cultural programs within the branch, a connection that appears to be somewhat weak at present.

Similarly, the addition of a human geographer with strong GIS skills would be a forward-thinking addition to the branch. This type of expertise could help the group create a framework for analyzing the many social, economic, and human use dimensions of coastal and marine resources, as well as, effective coastal and marine spatial planning, should this remain a national priority area. Thus, the panel agrees that the expressed desire of SSB personnel to eventually expand with new hires into areas such as sociology and human geography would be productive. Such areas of expertise would increase the robustness of the mix of quantitative and qualitative approaches and techniques. Finally, in terms of hiring, the data management group should be a top priority.

The SSB is composed primarily of advanced degree professionals. Some SSB research staff conducts their own field research, data management, etc., while some staff relies more heavily on contractors or other agency personnel to complete these tasks. Because the SSB is growing, now approaching over a dozen professional personnel, consideration should be given to the most effective mix of staff from the standpoint of position level. More explicitly, the SSB should consider the use of “technician” grade personnel or research assistants. Alternatively, the SSB might consider making more use of graduate student interns to provide technical support to staff. Addition of this level of personnel would free up senior and advanced-degree research staff to perform higher-level tasks such as project and program conceptualization, proposal-writing, program management, etc.

Related to personnel management, the panelists would like to recommend that, regardless of discipline or position level, continued professional training is absolutely necessary for the SSB staff. Continued training will ensure that the skill sets existing at the SSB are maintained. Similarly, the SSB should actively support individual professional development among research staff. This could be by provision of training, attendance at conferences, etc.

Although not personnel per se, the SSB’s external partners and collaborators add significantly to the research capacity of the branch and its programs. Consequently, the panelists thought it is important to briefly comment on these relationships as well. The SSB is a large group with staff situated in a variety of locations. Indeed, the SSB has taken advantage of its organizational

capacity to exploit research opportunities and partnerships arising from collaborative relationships with academic and non-government organization partners, in particular. The SSB assumes the regional role of “connector” among their partners with social science capacity. This is commendable and this role should be encouraged and supported by the division and NEFSC.

While SSB relationships appear to be good with regional academic institutions, they also seem to develop on an ad hoc basis as research opportunities arise. The SSB does not seem to have formal, long-term activities and relationships ongoing with their partners and collaborators. Increased use of mechanisms such as cooperative agreements with regional universities should be considered to supplement both the expertise and the resources of the SSB.

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