

Strengthening Scientific Advice for Management: Increasing Confidence in Council Stewardship

Background Information for ‘Managing Our Nation’s Fisheries II’

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Reliable science is essential for successful fishery management. The Magnuson-Stevens Act (MSA) requires each Council to establish a Scientific and Statistical Committee (SSC) to assist the Council with developing and evaluating scientific information for fishery management plans. All of the Councils have prestigious SSCs, and additional scientific review panels, to provide the best available scientific advice. Yet, there is a public perception that scientific advice is sometimes ignored by regional councils in favor of social or economic considerations. To address this perception, the U.S. Commission on Ocean Policy and other panels have made numerous recommendations to strengthen scientific advice for management.

Discussion Topics

The Advisory Panel will review the current requirements for the use of science in fishery management plans. National Standard 2 and draft legislation for the re-authorization of MSA (Table 1) and other recent reports (Table 2) provide guidance for managing fisheries. The panel will discuss the merits associated with the proposed recommendations for the use of science in fisheries management. The issues are divided into five themes: (1) Best Scientific Information Available; (2) Separating Science and Management; (3) Need for Independent Review; (4) Making Research Relevant; and (5) Using Default Measures to Ensure Progress. Background information, potential discussion items, and questions for each issue are provided below.

Best Scientific Information Available

The U.S. Commission on Ocean Policy noted that “the MSA requires each Council to establish and maintain a scientific and statistical committee (SSC) to provide the best scientific information available and assist in the development of fishery management plans. However, the Act does not define the phrase or require the Councils to follow the advice of the SSCs. The U.S. Commission on Ocean Policy stated that social, economic, and political considerations may have led the Councils to downplay the best available scientific information at times, resulting in overfishing and the slow recovery of overfished stocks. In addition, the selection of SSC members is generally up to each Council. No process is in place for ensuring that SSC members have the proper scientific credentials and are free from conflicts of interest. Although some Councils assemble highly respected SSCs and follow their advice, the public and the fishing community should be confident that this is the case in all regions.” (USCOP 2004).

As described in NRC (2004), National Standard 2 currently is under scrutiny as Congress develops legislation for reauthorizing the MSA. Such legislation is timely because of numerous lawsuits that have challenged whether National Standard 2 has been met in fishery management plans and other federal actions and because federal courts have not defined “best scientific information available.” Clarification would improve the application of scientific information in conservation and management decisions and reduce costly and time-consuming litigation.

National Standard 2.

Conservation and management measures shall be based upon the best scientific information available.

Training sessions for newly appointed council members currently focus on regulations, process, and conflict of interest issues. The Councils have stated support for additional training to address stock assessments and the use of other scientific data, but not as a requirement for voting; training may not be offered in time to ensure that all new members are trained prior to their first meetings.

Discussion Items

- *What steps should be taken to ensure confidence that fisheries are managed on the basis of the best available scientific information?*
- *Should SSCs continue to be appointed by Councils or by NOAA Fisheries?*
- *Should more stringent criteria, fixed terms, and compensation be applied to SSCs?*
- *Should Council members be required to complete training prior to voting?*

Separating Science and Management (conservation v. allocation)

The U.S. Commission on Ocean Policy noted that “many fishery managers and analysts have recommended separating scientific assessment decisions from the more political allocation decisions. While not required by law, some Councils already follow this approach. For example, the North Pacific Council has a long history of setting harvest levels at or below the level recommended by its SSC. Many policy makers believe this practice is largely responsible for the successful management of the fisheries in that region.” (USCOP 2004).

The Council’s have disagreed with the concept of separating conservation and allocation decisions (by assigning the conservation decisions to the Secretary of Commerce and the allocation decisions to the Councils), because conservation decisions have allocation effects and cannot always be separated. Often these decisions involve a complex suite of interactive decisions which require a balance between competing users. Political and societal pressures occur in the Council process and are debated in an extensive public process. These same pressures would (and do) occur in the federal process, which may be less open and transparent to the public.

In her testimony to the Senate Subcommittee on Oceans Fisheries and Coast Guard, Stephaine Madsen (Chair, NPFMC) stated that, “the Councils agree that scientific advice is critical to successful management and should be an integral part of the Council process rather than a separate aspect of the overall decision-making process. Even the determination of annual catch limits sometimes requires a Council to judge uncertain or conflicting science. This is precisely the decision-making process the Councils were designed to accomplish. Approval of these decisions by the Secretary, or disapproval where appropriate, is the final safeguard built into this process. Virtually all other management actions involve aspects of both conservation and allocation which may be impossible to separate.” (Madsen 2004).

Complete separation of science and management may be compromised in instances of weak science. Precautionary adjustments to science are frequently made in instances where the scientists deem it appropriate. Councils often are called on for practical solutions when scientific information is weak; basing their decisions on trade-offs between advice from fishery experts and public testimony – the exact process for which the Councils were designed. Some believe that SSC composition and role in Council decision making could be strengthened along the lines of successful Council models that currently exist. In situations where Councils are not believed to be following the proper scientific advice, or where the necessary provisions are not developed in the fishery management plans, the Secretary of Commerce (NOAA Fisheries) has the final authority to disapprove management decisions or initiate Secretarial management plans.

Discussion Items:

- *Should separation of science and management occur? If so, how? Should conservation decisions be assigned to the SSC or the Secretary of Commerce (i.e, NOAA Fisheries)?*
- *Is separation of science and management realistic for other than quota management?*

Need for Independent Review

The U.S. Commission on Ocean Policy noted that “the National Research Council (NRC) has conducted a number of reviews of NOAA Fisheries science; however, the NRC cannot be called upon to review every scientific decision, particularly stock assessments, at the rate they are generated. An interesting model for external scientific review is the Center for Independent Experts that was established by NOAA Fisheries in 1998 to conduct reviews of fishery-related science. Although NOAA Fisheries pays for its operation, the Center is currently based at the University of Miami and is completely insulated from NOAA Fisheries once it initiates a peer review. Although the Center’s experts have examined a number of controversial topics, their reviews have so far been less subject to challenge than internal NOAA Fisheries peer reviews. “ (USCOP 2004).

While all Councils currently employ some procedure to obtain independent peer reviews of stock assessments and analyses, not all use their SSCs in this fashion. In some Councils, a variety of stock assessment review panels and fishery-specific scientific experts provide the scientific review.

Discussion Items:

- *Should the Councils be required to use their SSCs for providing recommendations on stock assessments? On other management actions?*
- *Are additional, independent reviews of scientific information needed? If so, how and by whom should they be conducted?*

Using Default Measures to Ensure Progress

The U.S. Commission on Ocean Policy recommended that “indecision by SSCs or Councils should not delay measures to ensure the long term health and economic viability of a fishery. By setting clear deadlines for action, and activating established default measures if a deadline is missed, the roles of the different entities can be maintained without sacrificing the resource.” (USCOP 2004).

Many Councils adopt their SSC’s (or other committee’s) recommendations for a point estimate or range of acceptable ABCs and set the TACs at or below that level. However, not all Councils use quotas to manage their fisheries. Greater reliance on scientific advisors may increase public confidence in the Council’s stewardship of marine resources. Limitations on available science (stock assessment or otherwise) and/or limitations on available funding that exist in some regions may be a factor impeding progress, but that appears to be independent of MSA provisions.

Discussion Items:

- *Should the Councils be required to use default criteria for setting ABCs?*

Making Research Relevant

The U.S. Commission on Ocean Policy noted that “Council members need access to reliable information to fulfill their responsibilities. The NOAA Fisheries science program has provided biological information to manage single species. However, the research program is less able to answer questions involving interactions among fisheries, habitat, and other protected species (NRC 1998, POC 2003). Many Councils prepare annual recommendations on research priorities to address their fisheries management issues. The move toward ecosystem based management, including considerations such as essential fish habitat, highlights these shortcomings.” (USCOP 2004).

The importance of social and economic data and analysis for marine fisheries management should be recognized (NRC 2002). Improved social and economic data collection may improve our understanding of the effects of past management on fisheries and fishing communities and for predicting outcomes of management alternatives. As noted by the U.S. Commission on Ocean Policy “due to the increasing popularity of marine recreational fishing, and its growing proportion of the total catch in some fisheries, it will be critical to collect timely data in this sector to allow for sustainable management of fisheries.” (USCOP 2004)

Discussion Items

- *Is available science adequate for managers to implement an ecosystem approach?*

References

- NRC. 2004. Improving the use of the “best scientific information available” standard in fisheries management. National Academies Press, Washington, D.C. 105 p.
- _____. 2002. Science and its role in the National Marine Fisheries Service. National Academies Press, Washington, D.C. 83 p.
- _____. 1998. Improving Fish Stock Assessments. National Academies Press, Washington, D.C. 177 p.
- Madsen 2004. Testimony of Ms. Stephanie Madsen, Chair, North Pacific Fishery Management Council, to the Senate Subcommittee on Oceans, Fisheries, and Coast Guard. September 14, 2004. 5 p.
- POC. 2003. America’s living oceans: Charting a course for sea change. A report to the nation. May 2003. Pew Oceans Commission, Arlington, Virginia. 144 p.
- USCOP. 2004. An Ocean Blueprint for the 21st Century Final Report of the U.S. Commission on Ocean Policy. 412 p.

Table 1 Strengthening Science

Issue	U.S. Commission on Ocean Policy	PEW Oceans Commission	S 2066 Snowe Fishery Conservation & Management Amendments Act of 2004	HR 4749 Gilchrest Magnuson-Stevens Act Amendments	HR 4706 Rahall Fisheries Management Reform Act	S 482 Collins Fisheries Science and Management Improvement Act of 2003	-- NMFS Fishery Conservation & Management Act Amendments of 2003	S – Kerry and Snowe Fisheries Improvement Act, 2002	S – Kerry Fisheries Management Modernization & Improvement Act of 2002
Best Scientific Information Available	Strengthen role and membership of SSCs		Includes cost and revenue data for harvesting and processing	Secretary of Commerce contract with the National Academy of Science to define: <ul style="list-style-type: none"> • standards for "best scientific information available" • maximum sustainable yield 	Training requirement for appointed members	<ul style="list-style-type: none"> • Defines "best scientific information available" • Peer review of stock assessments 		<ul style="list-style-type: none"> • Regional fisheries outreach and training: scientific information • 7-year review of data collection and stock assessment methods 	<ul style="list-style-type: none"> • Compensate SSC members • Improve scientific information • Train Council members • Regional fisheries outreach and training: scientific information • 7-year review of data collection and stock assessment methods
Separating Science and Management (conservation v. allocation)	Require: <ul style="list-style-type: none"> • SSCs to supply necessary scientific information to Councils • Councils to set harvest levels at or below ABCs recommended by SSCs 	Separate science (conservation) and management (allocation) decisions			Separating science (conservation) and management (allocation)				

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Need for Independent Review	Independent review of SSC scientific information	Independent oversight through a review commission or the National Academy of Science							Establish a Center for Independent Review
Using Default Measures to Ensure Progress	Councils should set a deadline for SSCs to set ABCs, or rely on NMFS; once ABC is set, Councils should propose FMP with adequate review time or NMFS should suspend all fishing on that stock								
Making Research Relevant	<ul style="list-style-type: none"> • Require all saltwater anglers to purchase licenses to improve in-season data collection on recreational fishing, with priority on fisheries whose catch is largely recreational or those whose recreational quota is regularly exceeded • Expand regionally-based cooperative research programs 						Include cost and revenue data for harvesting and processing		

Table 2 Additional Policy-level Report Recommendations

U.S. Commission on Ocean Policy:

- Congress should amend the MSA to require Councils to rely on their SSCs, incorporating SSC findings and advice into the decision-making process. In keeping with this stronger role, SSC members should meet more stringent scientific and conflict of interest requirements, and receive compensation.
- SSCs should supply Councils with the scientific advice necessary to make fishery management decisions. Such information could include reports on stock status and health, socioeconomic impacts of management measures, sustainability of fishing practices, and habitat status. In particular, the SSCs should determine allowable biological catch based on the best scientific information available.
- Each Council should set harvest limits at or below the allowable biological catch determined by its Scientific and Statistical Committee. The Councils should begin immediately to follow this practice.
- NOAA Fisheries, working with the Councils, should develop a process for independent review of the scientific information relied on by SSCs.
- Each Council should set a deadline for its SSC to determine allowable biological catch. If the SSC does not meet that deadline, NOAA Fisheries Regional Science Director should set the allowable biological catch for that fishery.
- Once allowable biological catch is determined, whether by the SSC or NOAA Fisheries Regional Science Director, the Council should propose a fishery management plan in time for adequate review and approval by NOAA Fisheries. If the plan is not in place in a timely fashion, NOAA should suspend all fishing on that stock until it is able to review the adequacy of the management plan.
- The Councils and their SSCs should develop an annual, prioritized list of management information needs and provide it to NOAA. NOAA should incorporate these needs to the maximum extent possible in designing its research, analysis, and data collection programs.
- NOAA, working with states and interstate fisheries commissions, should require that all saltwater anglers obtain licenses to improve in-season data collection on recreational fishing. NOAA should review existing saltwater angler licensing programs to determine which approaches best facilitate the collection of data. Based on this review, existing programs should be modified as needed and used wherever possible, developing new programs only if necessary. Priority should be given to fisheries in which recreational fishing is responsible for a large part of the catch, or in which recreational fishermen regularly exceed their allocated quota.
- NOAA should create an expanded, regionally-based cooperative research program that coordinates and funds collaborative projects between scientists and commercial, tribal, and recreational fishermen. NOAA should develop a process for external evaluation and ranking of all cooperative research proposals to ensure the most worthwhile projects are funded, the most capable performers are undertaking the research, and the information produced is both scientifically credible and useful to managers.