

American Fisheries Society
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Answers to Questions from the Commission on Ocean Policy

1. To what degree is the science produced by academia used by the Federal Agencies? Is university based fisheries research as readily accepted by decision makers as science conducted in the Federal laboratories? What is the relative proportion of funding for fisheries science in academia and the Federal labs?

Situations where there is apparent conflict between "government science" and "academic science" mostly occur on a case-specific basis where the results of a particular assessment affect resource management decisions in a controversial way. In such situations, it is becoming increasingly common for special interest groups to hire academics or private consultants to challenge the science that has led to the management decisions they dislike. These alternate stock assessments often are introduced after the government stock assessment has been through the peer review process, which does not allow time for their thorough evaluation. We recommend that all stock assessments, whether federal, state, private, or academic, be considered and evaluated objectively regardless of their source, but only if they are received in sufficient time to be included in the peer review process.

Perhaps a more serious problem is the shrinking funding for basic marine fishery research (research that seeks to understand how and why fish stocks respond to their environment and to exploitation). The increasing demand for more and better stock assessments (a federal responsibility), has had the effect of concentrating fisheries funding within a single federal agency (NOAA/NMFS). With dwindling funding for basic fishery research, there will be little progress toward a more comprehensive ecosystem approach to fishery management, an approach that we believe is necessary to achieve any reasonable vision for ocean governance. An ecosystem approach will require fundamentally different information than that required for stock assessments (e.g., understanding of trophic interactions, fish habitat, larval dispersal, etc.). Management of marine fisheries must be partnered with strong science. The scientific institutions at the federal, state and academic levels which produce the science upon which fisheries management is based should have adequate funding to perform this function in a timely manner. Likewise, the enforcement and litigation aspects of fisheries management should have

clearly defined budgets so that administrators are not tempted to shift funds to one element at the expense of another. Specifically, we urge that funds for monitoring, strategic research and assessments are separated enough to reduce the potential for emphasizing one activity (usually assessments) over the other.

We also encourage government-academic partnerships through joint funding and development of cooperative fisheries institutes to address these questions in an integrated fashion. The preservation and conservation of our fishery resources require that stock assessments, fisheries and ecosystem monitoring, and fishery-related basic research be conducted in a tightly integrated and inseparable manner. We further suggest that the management of estuarine and interjurisdictional fisheries be encouraged in a comprehensive approach, and that consideration be given to using the Atlantic Coastal Fisheries Cooperative Management Act as a pattern for other areas of the country.

2. Do YOU have a vision for America's fisheries? If so will you share it? Do we need an entirely new sense of direction or do some foundation building blocks for that vision exist today?

The most important consideration for developing a vision for America's fisheries is that the public be engaged in the process and that any decision should not preclude other options in the future (i.e. whatever we decide now should be reversible). We believe that any vision for America's fisheries should include consideration of the following elements¹:

- **Goals and Constraints** that characterize the desired state of a fishery, and undesirable changes in ecosystems (including the human dimension) which fisheries should not be allowed to cause;
- **Conservation of fisheries resources** that is precautionary, takes account of species interactions, and is adaptive;
- **Allocation of fishing rights** in a manner that provides incentives for conservation and efficient use of living resources;
- **Decision-making** that is participatory and transparent;
- **Ecosystem Protection** for habitat, and for species vulnerable to extinction or deemed by society to warrant special protection; and
- **Management Support** that provides scientific information, enforcement and performance evaluation.

Any vision for America's fisheries must embrace the concept of integrated management. Integrated management concerns all uses of the world's oceans, not only fisheries; e.g., harvesting marine species for human food, for reduction products, for the aquarium trade, for medicinal purposes, and other uses; aquaculture, research, oil and gas exploration, ocean mining, dredging, ocean dumping, energy generation, ecotourism, recreational boating, marine transportation, marine defense, and other goods and services provided by marine ecosystems such as provision of food for species of special concern, breakdown of wastes and filtering of the water column. Integrated management is not really possible with the current structure of federal and state agencies because the government agencies and legal authorities regulating these activities are usually independent of one another.

3. Will you provide us a paper that summarizes your concerns about the makeup and efficacy of the regional Fishery Management Councils, recognizing some may work better than others?

For the most part, the regional Fishery Management Council system is an industry-dominated process that is focused primarily on extracting economic value from the oceans rather than on the long term sustainability of marine ecosystems, which we believe should be the overriding concern for responsible fisheries governance. As a result, the Councils generally err on the side of the fishery by requiring firm proof that management measures are needed, rather than on the side of the resource by requiring firm proof that management measures are not needed. Equally important, the Council system is an insider game, one that is intimidating and confusing to the general public, and does not adequately account for their concerns. The track record of overfished fish species and detrimental marine mammal and turtle interactions does not suggest that this is a successful system of management. This is simply not a system that is designed to promote conservation, and its history bears this out.

4. You seem concerned about the efficacy of the interaction between NMFS headquarters and the regional Fishery Management Councils. How would you fix it?

NMFS Headquarters has little ability to take action to address conservation concerns in the absence of council action because the councils are the de facto management bodies. NMFS needs clear authority to both modify Council action, and to move swiftly in the face of Council inaction, or ineffective action, with respect to conservation issues.

5. How should the US best address the issues of overfishing and declining fisheries?

The immediate action should be to significantly reduce overall fishing mortality. This will require, among other things, a significant reduction in harvesting capacity and application of the precautionary approach. Establishing a system of marine reserves would offer protection from the unknown consequences of fishing for some portion of the ecosystem, although we reiterate that marine reserves should be considered a complement to traditional fisheries management measures, not a substitute.

6. Is the regional council structure appropriate and effective for management?

For the reasons stated previously, the Councils are not effective management bodies. As we suggested earlier, an integrated management system is needed that takes into account all uses of the oceans. The current agency structure cannot accomplish this and we recommend establishing a new federal Department of the Oceans, divided into sub-agencies that would comprehensively address all human interactions with marine resources. Such a department would have responsibility for living resources, fisheries, offshore oil and gas development, coastal development, and ocean pollution. This would provide for a far more coordinated and holistic management system for the oceans. One of these sub-agencies (the equivalent of NMFS) would be responsible for determining maximum harvest levels (ABC) in a process that is transparent, peer reviewed, and participatory. The Councils would be responsible for developing management plans and quotas that responded to the 6 elements outlined in #2 above, but in no case could quotas exceed the maximum levels determined by the preceding process.

One general approach to improving the performance of both fishermen and councils that we strongly recommend that the commission consider is to make both fishermen and managers accountable for meeting conservation objectives by using incentive-based systems. For example, if fishermen were given an individual bycatch quota that was monitored by observers, and had to cease fishing when that quota was reached, bycatch problems would be reduced or eliminated very quickly. Likewise, if fishery managers were professional, paid positions and advancement was tied to achieving specific conservation objectives, we suspect that management would become truly precautionary and overfishing would be largely eliminated. Of course, the details of such a system would be complicated and must include safeguards to ensure fairness because individual managers and fishermen rarely have complete control over the fisheries in which they are involved.

7. How do we deal with the continuing problems facing marine mammals?

The most important management change for marine mammals would be to amend the Magnuson-Stevens Act to adopt a system of ecosystem management that explicitly considers the foraging needs of marine mammals and other predators, rather than seeking only to maximize the harvest of commercially viable fish species. This would probably result in lower annual catches.

8. How would subsidies affect fishing communities (pros and cons)?

Answer to this question will be sent separately.

9. What policies regarding privatization and overcapitalization issues should the US consider and implement?

Harvesting overcapacity is the most fundamental problem facing fisheries managers today, and there is no escaping the fact that access to fisheries needs to be limited or controlled. There are many ways of doing this, including Individual Fishing Quotas (IFQs) and related quasi-property rights systems, individual effort shares, limited entry licensing, co-management systems developed between a central authority and the fishing industry, management by fishing cooperatives, and community-based management. Different systems will be appropriate to different fisheries and so each should be evaluated on a case-by-case basis. The NRC report entitled "Sharing the Fish" is one example of a comprehensive study of the pros and cons of methods of semi-privatizing fisheries in order to control fishing capacity.

10. What policies need to be designed to address the possible impact of climate change on fisheries industries?

There is no question that changes in climate (whether natural or anthropogenic) can profoundly affect fisheries and marine ecosystems. What is needed is support for research that will allow us to understand, at a fundamental level, how and why fish stocks and marine communities are affected by environmental change. Until we have a basic understanding of how marine ecosystems work, we will be able to do little more than document changes as they occur.

11. What policies need to change to stimulate an environmentally sound and sustainable aquaculture industry?

Answer will be provided separately

12. What are your thoughts on locating aquaculture operations offshore?

Answer will be provided separately

13. What are your thoughts on marine hatcheries?

We believe that the primary objective of fishery management should be to maintain stocks and ecosystems at sustainable levels by protecting the habitat and preventing overfishing. If these objectives are met, then hatcheries are not likely to increase production and could have negative effects due to competition between hatchery and wild stocks. However, hatcheries may be useful for reintroduction of extirpated populations.

14. What is the best strategy to protect the future of the fishing industry, looking ahead 100 years?

The best strategy to protect the future of the fishing industry is to eliminate overfishing and harvesting overcapacity immediately so that there will actually be fish for future generations to catch. Attempts to protect unsustainable "ways of life", such as the misguided belief that fisheries resources should be able to accommodate unlimited amounts of commercial and/or recreational fishing for all who wish to pursue such activities, will ultimately threaten the long-term viability of the fishing industry.

15. What role does the American Fisheries Society play in public education?

Answer will be provided separately

16. We are obviously not the only country that has conflicts between overfishing and significant coastlines. What other systems or solutions may have been implemented around the globe to deal with this issue that we should examine?

As mentioned previously, there are many alternative uses of the ocean. Recently, there have been some initiatives undertaken at the national level, principally in Canada and Australia. In 1998, the Australian government announced a National Oceans Policy that provides the goals, principles and planning arrangements for integrated ocean management to be implemented through regional management plans requiring institutional coordination. Canada's Oceans Act of 1997 extends Canada's jurisdiction over the ocean to the full extent permitted under international law and sets up a governance structure based on the principles of integrated management, sustainable development, precautionary approaches, collaboration, and ecosystem-based approaches. The systems developed in both countries merit full examination.

17. You mentioned the contradictory nature of the laws governing your field, could you provide a description and analysis of what the contradictions are?

We were not referring to contradictory laws but to contradictory objectives of different legislation. For example, marine mammals are given virtually complete protection under the Marine Mammal Protection Act (MMPA), but predation by marine mammals on threatened or endangered runs of salmon may impede or prevent their recovery. If the objective of the MMPA is to allow marine mammal populations to increase to the carrying capacity of the environment, their food demands may leave little for fisheries to harvest or cause the economic or even biological extinction of some stocks. Management of the Columbia River provides another well-known example of how divergent legislative objectives can affect fisheries. These competing objectives include agriculture and logging interests, power production, flood control, and transportation, all of which impact salmon production and fisheries. These were the contradictory objectives to which we were referring.

The Magnuson-Stevens Act itself has often-contradictory and not easily harmonized goals. While National Standards require NMFS to prevent overfishing and minimize bycatch, it also requires the agency to minimize economic effects on communities. While the language of the Act suggests that conservation is the first priority and minimizing economic impacts is secondary, they are often interpreted as being equivalent, and, in practice, economics is often elevated over conservation.

Moreover, although National Standard 2 states that conservation and management measures shall be based upon the “best scientific information available,” this is often used offensively as a kind of “reverse precautionary principle,” with conservation measures being held to a higher burden of proof than increases in fisheries catches.

There are also significant problems with implementation of the National Environmental Policy Act, as the annual rush to authorize fisheries frequently does not allow for adequate consideration of environmental impacts.

18. If the legal status quo continues, what management measures under the existing law need to be taken to address or recognize the fisheries management problems across the board?

The Act currently requires only that OY not exceed MSY, but leaves open the question of when OY should be less than MSY. Because the use of MSY as a target may result in a stock size less than the level associated with MSY, we recommend that management recognize the need to adopt MSY harvest strategies as an upper limit on catches, and set OY below the MSY harvest strategy. Restrepo et al. (1998)² demonstrated that a fishing mortality rate of 75% of the level associated with MSY would result in much larger stock biomass levels (125-131% of the level associated with MSY) with little loss of yield (2 - 6%), and we recommend this as an appropriate management target.

19. How can sports fishermen get more involved in rehabilitation of stocks?

Answer will be provided separately

¹ Sissenwine, M.P. and P.M. Mace 2001. Governance for responsible fisheries: an ecosystem approach. Paper presented at the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem. October 2001, Reykjavik, Iceland.

² Restrepo, V.R., G.G. Thompson, P.M. Mace, W.L. Gabriel, L.L. Low, A.D. McCall, R.D. Methot, J.E. Powers, B.L. Taylor, P.R. Wade, and J.F. Witzig. 1998. Technical guidelines on the use of the precautionary approach to implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS-F/SPO 31. 54pp.