

## Marine Fishery Research, Data, and Information Needs: Who Provides Them and How

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It is particularly fitting that this public forum on fisheries research strategies for the future is being held here at Woods Hole, the site of the first marine fisheries research laboratory established by the Federal government. This laboratory has witnessed the genesis of every major marine research initiative over the past 100 years and appears to be well situated to maintain its research leadership role into its second century.

I appreciate the opportunity to participate with this distinguished panel today, and to discuss, the direction and priorities of future marine research and data collection needs as perceived by recreational angling interests.

Without question, one of the most important issues and challenges facing fisheries managers today is the almost universal threat posed by overfishing. As noted in a recent article appearing in the July-August, 1985 issues of *Tide*, the official magazine of the Gulf Coast Conservation Association, 11 marine species have been exploited by today's efficient commercial fishing fleet to the point of collapse. A senior researcher for the World Watch Institute calculated, from United Nations Food and Agriculture Organization Statistics, that overfishing and mismanagement had, during boom fishing years in the 1960's and 1970's, reduced the potential annual yield from those 11 fisheries by more than 11 million tons by 1981. These species included: Peruvian anchovy, Alaskan king

crab, Atlantic cod, haddock, Pacific salmon, herring (northeast and northwest Atlantic stocks), capelin, pilchard, halibut, and Pacific ocean perch. Only the North Atlantic cod fishery has since even partially recovered, and the prognosis for the remaining species is not rosy. Many Gulf of Mexico fish stocks have also been substantially reduced by overfishing, including: Pompano, king mackerel, Spanish mackerel, cobia, redfish, speckled trout, red snapper, and Jewfish.

In order to reduce the ever-constant threat of over-exploitation, high priority should be accorded, by NMFS and state agencies, to research designed to determine total allowable catch (TAC) stock identification, migratory patterns, and other population and harvest parameters essential for arriving at the maximum sustainable yield (MSY), for major species exploited by sport and commercial fishermen. Obviously, similar initiatives must be intensified to identify and collect social and ecological data so that optimum sustainable yield (OSY) can be determined. Particular emphasis should be given to species subject to joint exploitation by commercial and recreational fishermen such as: King mackerel, bluefin tuna, swordfish, striped bass, red drum, spotted seatrout, American shad, and coho and chinook salmon. Although progress in this vital research area has been somewhat encouraging in recent years, it is imperative that such research efforts be intensified if the dubious reputation of fisheries regulatory agencies as "historians of a declining resource" is finally laid to rest.

The Sport Fishing Institute (SFI) has

long been in the forefront of efforts to redress overfishing for these species. For example, annual SFI grants awarded over a 15-year period in the 1960's and 1970's, provided early seed money support for Frank Mather's pioneering bluefin tuna and billfish research at Woods Hole. These studies provided basic life history and harvest information and led to the ultimate (and long overdue) realization by regulatory agencies of the precarious status of these threatened stocks and the need for tighter harvest regulations. Also, through statements at scientific meetings, workshops, and conferences, and in the halls of Congress, SFI has encouraged and applauded efforts by regulatory agencies to adopt realistic measures designed to curb the rampant abuse of other recreationally valuable fish stocks.

Two examples come immediately to mind. One, the recent landmark actions taken by the U.S. Congress, the Atlantic States Marine Fisheries Commission (ASMFC), and state legislatures and regulatory agencies, with regard to interstate management of Atlantic coast striped bass stocks. Member states of the ASMFC have agreed to reduced fishing mortality on 1982 year-class females, and females of all subsequent year classes of Chesapeake Bay stocks, to zero until 95 percent of the females of these year classes have had an opportunity to reproduce at least once. The politically courageous action by Maryland in imposing a moratorium on the harvest of striped bass, followed by similar action by Delaware, led the recent restoration effort of the ASMFC member states.

Undoubtedly much of the impetus and

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progress in meeting striped bass restoration goals can be attributed to the passage of the Atlantic Striped Bass Conservation Act (Public Law 98-613). This legislation directs the Secretary of Commerce to impose a moratorium on the harvest of striped bass in the coastal waters of any state deemed not to be in compliance with the Striped Bass Management Plan as adopted and amended by the ASMFC.

The second example is the action taken by the Texas legislature, and the Texas Parks and Wildlife Commission, which resulted in the banning of commercial fishing, and adoption of more restrictive harvest regulations by recreational fishermen for red drum and spotted seatrout.

Another high priority research area is the need to accelerate data collection for research programs designed to delineate and foster mitigation efforts associated with habitat alteration occurring in anadromous fish spawning areas, and in coastal marshes and estuaries. Development (energy, waste disposal, mineral extraction, etc.) affecting these critically important fish habitats can be expected to expand rapidly in future years, and it is imperative that research efforts keep pace.

If fisheries interests are to receive equitable consideration with competing marine resources use demands, it is mandatory that the pertinency and quality of economic data associated with the utilization of fisheries resources be vastly improved. Pie-in-the-sky, will-o'-the-wisp estimates of fisheries values based on vague assumptions, and/or pious assertions that it is not possible to place a price tag on "priceless" fishery values, are not conducive to attracting long-range backing from decision makers in either industry or government. It is essential that fishery researchers develop, and promulgate, economic protocols capable of providing cogent economic value assessment if fishery resources are

to be accorded equitable consideration with those competing for limited private or governmental dollars.

Aside from the need for economic data to justify the management and/or enhancement of the overall fishery resource base, it is apparent that more socioeconomic research is necessary to allow for equitable allocation of finite marine fishery resources between competing recreational and commercial fishing user groups. Current allocation scenarios, based on allocation according to historical use patterns, can only be described as bankrupt in a dynamic society.

Ongoing Recreational Fishery Statistics Surveys administered by the NMFS should be continued, expanded, and refined, where necessary, to improve the accuracy and precision of estimates. It is apparent that the current number of intercept creel surveys, incorporated in previous survey designs, is not adequate to accurately determine the angler harvest of certain important species such as striped bass. Also, the existing discrepancy concerning fishing man-day participation rate estimates, between the NMFS surveys (approximately 4 man days per angler per year) and the 5-year "National Survey of Fishing and Hunting" conducted by the U.S. Fish and Wildlife Service (approximately 12 man days per angler per year), should be resolved. NMFS should encourage better cooperation and greater participation by state agencies in the surveys to accomplish these essential objectives.

Enumeration of other specific, future priority, research areas in the marine environment should certainly include research pertinent to: Artificial reef construction, location, and management; the broad area of fish propagation (both for stocked fish to supplement wild stocks, and fish reared directly for human consumption); fish sampling (gear development, sampling protocols, and data analysis); and management-

oriented research concerning optimal harvest regimes for both recreational and commercial species.

Developing protocols providing for economical hatchery production of highly exploited species, such as striped bass for table use, would appear to offer an especially attractive avenue for future research. Substituting hatchery-reared fish to fill the commercial demand for such species would greatly relieve the pressure on unstable wild stocks.

A last point to address is the resolve of government to manage marine fishery resources. The fishery resources of the United States are common property, and it is clearly the responsibility of government, state or Federal, to manage them. Management requires data and data collection, including: Biological, economical, or sociological parameters. It is costly. Meanwhile the allocation of dollars to manage fishery resources is dwindling. Presently, appropriations for management are driven by the economic climate rather than the value of the resource. That is a clear abdication of the stewardship responsibility of government.

If not appropriation, then from where is the money to come? After a successful 7-year battle to amend the Federal Aid in Sport Fish Restoration Act, I am ready to say, "let the user pay." Landings tax on commercial fisheries can be passed-on to seafood consumers, and sport fishermen can be taxed through a fishing license. Such taxes are politically unpopular, but then most taxes are unpopular. But the precedent has been set in managing other common property resources such as forest, grazing lands, and minerals in the United States.

The fact remains: Our fishery resources are being systematically overfished and there are tough allocation decisions looming on the horizon. Let's get the facts to make fair and equitable decisions.