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INTRODUCTION

THE MAGNUSON FISHERY CONSERVATION AND MANAGEMENT ACT: RETROSPECT AND PROSPECT

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The 1976 passage of the Magnuson Fishery Conservation and Management Act (FCMA) represented a radical new approach to fishery governance. It expanded federal control of fishery resources to 200 miles from shore, established state-federal coordination mechanisms for management councils, established state-federal coordination mechanisms for shared fisheries, and transferred significant management authority to eight regional fishery management councils. Development of the FCMA was driven in large part by alarm at the effects of foreign fishing in the northwest Atlantic and a desire to capture the benefits of those fisheries for Americans. Foreign overfishing had been a continuing problem in the rich northeastern fishing grounds, and the new legislation reflected the intent to reestablish conservation as a basic fishery management goal.

Passage of the FCMA also created national standards to ensure consistent conservation requirements for all fishery management plans. Perhaps most importantly, the FCMA created a more democratic form of fishery governance based on representation of diverse fishery interests, such as industry, consumers, and environmental organizations. Fishery management councils were assigned responsibility, modified by federal checks and balances, for developing, implementing, and monitoring

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fishery management plans (FMPs). The intent in establishing the regional council system was to allow the unique cultural, economic, and biological character of regional fisheries to be reflected in management. The council system was also predicated on the belief that the inclusion of scientists, industry members, and the general public in the management process would provide a blend of scientific and operations knowledge more likely to promote conservation and stewardship.

Under the auspices of the FCMA, American fisheries developed rapidly during the late 1970s and early 1980s, with a buildup of fishing capacity and increases in landings nationwide. Within each region, fishery management proceeded according to philosophies and methods consistent with regional cultures and economies. But despite different regional approaches, management outcomes were similar. Across all regions, a common theme of the past decade has been a failure to contain fishing capacity, limit fishing pressure, or control the array of problems that these conditions create.

Now in its twentieth year, the FCMA is being reexamined and revised as it proceeds through congressional reauthorization. The reauthorization process has given rise to a great deal of reflection about the FCMA's impact as well as the strengths and weaknesses of the management structure it authorized. It is an ideal time to reflect, as this special issue does, on both the FCMA's past performance and its future prospects.

Eight of the papers in this issue address FCMA reauthorization within the context of specific regions: New England (Shelley, Atkinson, Dorsey, and Brooks); Mid-Atlantic (Creed and McCay); South Atlantic (Orbach), Caribbean (Cihon and Larkin); Gulf of Mexico (Godsell and Thompson; Pocalyko); Pacific (Watters); and North Pacific (Fluharty). Three papers concentrate on conceptual issues that underlie the FCMA: conservation needs (Iudicello, Burns, and Oliver), ecosystem management (Just and Hager), and difficulties in state-federal coordination (Bittleman). The papers take both a retrospective and prospective look at American fishery management under the original and reauthorized FCMA.

RETROSPECT

What lessons emerge from the FCMA's history? As Iudicello, Burns, and Oliver point out, the debates surrounding reauthorization have

revealed several themes that reflect on the performance of fishery management during the past twenty years. These themes represent widespread and bipartisan recognition across regions of some of the management problems that have developed: the difficulties of creating an ethic of stewardship, the waste of bycatch and discards, conflicts of interest among Council members, industry resistance to regulation, the public cost of open access, the detrimental effect of subsidies, and the costs of fishery bailouts and restoration. The problems are discussed within the broader subjects of conservation, fishery operations, management operations, and property rights.

Conservation: Managing for long-term sustainability has been a problem not only for U.S. fisheries but also for fisheries worldwide. Conservation is based on long-term objectives, science adequate for decisionmaking, and an effective link between regulations and fishing behavior. These concepts are often more ideal than real. Conservation goals underlie fishery management, but they have been eroded over time by both increases in fishing capacity and conflicting management objectives. As Fluharty notes in the context of the North Pacific, efforts to deal with conservation issues are often complicated by their implications for allocation, as expressed in rules about bycatch, discards and prohibited species. Shelley, Atkinson, Dorsey, and Brooks argue that the problem with the current "overfishing" intervention point is that it comes too late to reach a solution without drastic intervention. Conservation issues are broader than fishing mortality and must include habitats, as Iudicello, Burns, and Oliver note in their discussion of some of the failures of fishery management. They argue for a stronger consultation process between agencies charged with fishery management and those charged with broader environmental guardianship. Just and Hager support the point of inadequate attention paid to habitat in their argument for a comprehensive accounting of ecosystem effects. Pocalyko describes the compounding effects on conservation of habitat loss, overcapacity and overfishing in the Gulf of Mexico shrimp fishery. Discussing another dimension of habitat, Bittleman points to the linkage between coastal habitats and offshore fishery productivity that requires a better coordination of authority between the states and federal government. Watters also identifies the lack of a comprehensive legal framework to help coordinate conservation objectives across different authorities. But Creed and McCay warn that despite good intentions, a

stronger consultation process might work against conservation goals if it slows the remediation process.

Fishery Operations: It is a truism that understanding fishery operations is fundamental to the design of effective regulations. As Orbach illustrates within the South Atlantic context, fishery operations are unique to each region. In the South Atlantic region, recreational fisheries are extremely important, and they operate beside a wide-ranging commercial fishing fleet as well as local small-scale commercial fishermen. Shelley, Atkinson, Dorsey, and Brooks characterize the New England groundfish fleet as diverse yet comprised of predominantly small, family-owned operations. In contrast, Fluharty describes North Pacific fisheries characterized by large-scale offshore commercial fleets, port-based commercial fleets, and subsistence fishermen. Pocalyko recounts the practical difficulties of managing the actions of the Gulf of Mexico shrimp fleet, which includes thirteen thousand commercial and forty-five thousand recreational boats. In all regions, an increasingly important issue related to fishery operations is bycatch. As the interactions between fisheries increase and the size of allowable biological catches (ABCs) decrease, bycatch becomes less avoidable. Iudicello, Burns, and Oliver point to the failure of managers to control bycatch and its associated discards as a reason to require that management directly address the problem.

Management Operations: Not surprisingly, the issue discussed in greatest depth by the papers is the effectiveness of management operations under the FCMA. Management operations involve issues of the adequacy of scientific information, the design of management structure, the development of management objectives, and the coordination of actions. According to Shelley, Atkinson, Dorsey, and Brooks, experience in some council regions raises the possibility that the problems are on a deeper level that one which changes in the FCMA or changes in management operations can address. The challenge of obtaining scientific information adequate to decisionmaking is made difficult on two fronts. First, biological and oceanographic systems are complex and highly variable, so information is expensive. Social and economic systems within which fisheries operate are also complex, and research on the human dimensions of fisheries has been chronically underfunded. Second, funding for all research and management has been in decline at the same time that information needed for management has increased. Research and management resources are strained. At the

same time, the FCMA prohibits regions from recovering research and management costs from resource users, despite the expressed willingness of some industry groups to participate in funding. In response, Orbach mentions South Atlantic proposals to address the problem of inadequate scientific information through the use of management tools such as marine reserves that, theoretically at least, can be implemented with less precise data. Another approach is taken in the North Pacific where, as Fluharty illustrates, on-board observer programs provide valuable data on bycatch for management, albeit at significant organizational cost. Still another approach is proposed by Just and Hager, who advance a method of ecosystem management based on the monitoring and analysis of indicator species, including predators.

The structure within which management is organized influences its effectiveness. Sometimes there is a mismatch between the management structure and the interests it is intended to represent. According to Orbach, the management structure created by the FCMA may be better suited to traditional fishery interest that to a broader range of marine resource interests. In addition, Shelley, Atkinson, Dorsey, and Brooks argue that the national standards lack specificity, and the process of extensive public input and revision can sometimes mean that management measures come "too little and too late," as in the case of the New England Council's Amendment 5 to the Multispecies plan. To ensure that management has resources and authority to carry out its responsibilities, Cihon and Larkin point to the need for more procedural safeguards.

Another structural problem working against effective management is the layering of different management authorities that results in fragmentation. As an example, both the Creed and McCay and Orbach papers mention the complications brought about by the formation of the Atlantic States Marine Fisheries Commission (ASMFC), charged with managing all interstate fisheries that do not have approved Council plans. The ASMFC is layered on top of the New England, Mid-Atlantic and South Atlantic Fishery Management Councils as well as all the Atlantic states. According to Bittleman, further fragmentation is created by the jurisdictional boundaries between state and federal authority that lead to piecemeal fishery management. This fragmentation is enhanced with anadromous species, and as Watters notes, contributes to the difficulty of managing with multiple layers of jurisdiction. Pointing to another structural dimension of management, Fluharty describes the

unique "inside-outside" structure of the North Pacific Fishery Management Council caused by investment ties between the Pacific Northwest and Alaska fisheries.

Coordination of interrelated fisheries, of fishery and nonfishery authorities, and of states and the federal government are also issues that relate to the effectiveness of management operations. Watters argues for much more coordination and cooperation overall, expressed in incentives for stewardship, protection of the public trust, increased public participation in decisionmaking, and incentives for cooperation in regulatory implementation. At the same time, he cautions that crafting meaningful public participation is difficult. Addressing state-federal coordination, Bittleman argues that the boundaries between federal and state jurisdictions are becoming increasingly artificial, and that the development of federal-state cooperative management over jurisdictions has been slow and ineffective. In addition, there continues to be a disjunction between political jurisdictions and ecosystem boundaries. In contrast, Fluharty reports a positive step toward ecosystem management taken by the North Pacific Fishery Management Council in its addition of ecosystem consideration to all FMPs to account for the resource needs of Stellar's sea lions and marine birds.

Property Rights: Who has rights to fishery resources? What form do those rights take? These are questions that are asked implicitly through a number of fishery management issues described in these papers. Despite the fact that fish are a publicly owned resource, the role played by the public in management is interpreted differently across regions, as Shelley, Atkinson, Dorsey, and Brooks point out, in all regions, the race for fish that took place under open access management has directed attention to mechanisms that will limit the numbers of people with access rights to the fishery. Under open access, fisheries have developed many problems, including excess capacity, short seasons, landings gluts, unsafe fishing practices, and an unstable business planning environment.

Conflicts over rights of access are now being played out between commercial and recreational interests, gear groups, fishing businesses of different sizes, inshore and offshore fisheries, and states and the federal government. Fluharty describes the Comprehensive Rationalization Process (CRP) that is intended to address these issues in the North Pacific. Pocalyko identifies some of the practical difficulties of implementing rights-based management programs in fisheries with a long

history of open access. Creed and McCay show how issues of equity underlie the small versus large conflict in proposed systems of individual property rights known as individual transferable quotas (ITQs) in the Mid-Atlantic. According to Shelley, Atkinson, Dorsey, and Brooks, the same attributes of ITQs that make them attractive to managers—consolidation and privatization—make them threatening to some fishery sectors and are the basis for the strong resistance to their implementation in some areas. Bittleman describes the South Atlantic conflict over jurisdictional rights to manage fisheries that exist in both state and federal waters. Paul discusses the difficulty of national fishery management in the international context of the Western Pacific. Conflicting rights also exist between individuals and the public and between short-term and long-term interests.

PROSPECT

As of August 1996, the revision of the FCMA is still in process. While its final form is not set, there are indications about the direction the reauthorized act will take. Taking a prospective view, the papers address several of the implications of this new act.

Conservation: The increased emphasis on conservation that is likely to be a foundation of the new act will favor biological productivity over social or economic goals. Just and Hager note that the proposed amendments diminish the role of economics in setting TACs and elevate the importance of ecosystem effects, and in doing so strengthen conservation considerations. Iudicello, Burns, and Oliver point to the role mainstream environmental groups have played in elevating the public awareness of conservation issues and bringing pressure to bear on Congress. Creed and McCay note that the definition of Optimum Yield (OY) will change from Maximum Sustained Yield (MSY) *modified* by relevant social, economic or ecological factors, to MSY *reduced* by relevant social, economic, or ecological factors, a pro-conservation change that Iudicello, Burns, and Oliver indicate is designed to prevent fishing above MSY. Watters argues that the FCMA should not allow overfishing to occur even where social and economic factors support larger harvests. Shelley, Atkinson, Dorsey, and Brooks propose measures to help alleviate the tendency for Councils to think in the short term rather than in the long term by having the FCMA provide increased federal oversight and opportunity for judicial review.

Creed and McCay and Fluharty argue that despite their good intent, efforts to improve the biological health of fish populations may be compromised by new provisions that limit the regional council's abilities to control and reduce fishing capacity. Similarly, Bittleman warns of the danger of more liberal interpretation of federal powers in the name of conservation that infringes on state jurisdictions. An example of this potential lies in the revised definitions of bycatch noted by Godsell and Thompson, which remove from the "bycatch" category any fish that are marketed. Joining the unease about increased federal powers, Cihon and Larkin argue that drastic changes to the FCMA are not needed to meet conservation goals in the Caribbean context, where strengthened Council authority and responsibility to deal with habitat issues would be sufficient.

Fishery Operations: It is likely that the reauthorized FCMA will contain stronger provisions for reducing bycatch. Watters argues for expanded observer programs to monitor bycatch, a position echoed in several other papers. In contrast, Godsell and Thompson identify a situation where congressional action has hindered Council efforts to reduce red snapper bycatch in the Gulf of Mexico shrimp fishery. The authors argue against federal actions that limit a region's ability to craft solutions appropriate to its context. Godsell and Thompson welcome, however, the emphasis on fishing communities and protection of small-scale fishing that is likely to exist in the revised act. Several papers are pessimistic about the likelihood that the new legislation will address the widespread overcapitalization problem. As a particular example, the proposed five-year moratorium on developing individual quota (IQ) programs removes and important tool from management use, and is likely to further exacerbate the overcapacity problem.

Management Operations: The reauthorized legislation is, as Fluharty notes, both an opportunity and a threat to management. It is likely to affect management operations through attention to coordination issues and placing more emphasis on conservation. Creed and McCay point out the likely changes to the structure of decisionmaking: Congress may engage in more micromanagement, and power may shift from the regions back to the federal government. Under these changes, the flexibility and power of the regional councils to create opportunities for regional innovation will be reduced.

Improved coordination between states and the federal government, between fishery and nonfishery interests, and between

national and international interests will be essential for future fisheries management. The extent to which the reauthorized FCMA will accomplish this is unclear. Bittleman argues that we can do better than allowing state regulation of fisheries only in cases where it does not interfere with federal FMPs. She suggests that the Coastal Zone Management Act (CZMA) is a model of more cooperative management that would benefit both states and federal fisheries. In addition, Shelley, Atkinson, Dorsey, and Brooks point out that there are changes in management approach that do not require FCMA changes but rather a different interpretation of its provisions, such as the management for sustainability throughout the process of fishery development.

Property Rights: The new legislation may preempt many Council choices, and thus accomplish a shift in management rights from the regional periphery to the federal center. Creed and McCay indicate that in addition to a redistribution of rights, the new legislation prohibits the development of private quasi-rights systems, at least in the short term. The moratorium on the use of individual quotas may also be detrimental to the development of needed management capacity Pocalyko identifies for the Gulf of Mexico shrimp fishery. Finally, on a broader level, there are likely to be conflicts between rights systems established for commodity production and those proposed for the restoration of ecological services.

CONCLUSION

In retrospect, the 1976 FCMA was a bold innovation in U.S. fisheries management. It was an experiment in democracy that has played out over time in both positive and negative ways. The strengths of the Act have been its reflection of regional fishery distinctions, its emphasis on democratic representation, and its recognition of the many types of knowledge useful to management decisions. The Act's weaknesses have been related to these strengths. Regional needs have sometimes led to short-term exploitation at the expense of conservation. Democratic representation has sometimes led to the capture of the process by vested interests. And the diversity of knowledge used in management has often led to confused management objectives.

In prospect, it is not yet fully clear how the reauthorized FCMA will address the weaknesses of fishery management. The Act's revisions have the potential to strengthen the conservation base of U.S. fishery

management, but in doing so they may also undermine some of the benefits of decentralized regional control. The papers in this special issue identify and highlight a range of issues currently under debate, giving a clear picture of the regional contexts that give rise to the issues within which the debate is carried on.

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