Obstacles to Protecting Marine Biodiversity through Marine Wilderness Preservation: Examples from the New England Region

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Abstract: *The amount of terrestrial protection achieved for biodiversity through designation of no-take public wilderness areas in the United States is much greater than no-take protection in the nation's National Marine Sanctuary System. With the exception of a small area in the Florida Keys, no permanent reserve in the United States protects marine biodiversity from commercial fishing with gear that has strong effects on marine habitats and which has been identified as one of the major threats to marine biodiversity. A recent national poll has shown that public support does exist for conservation of the marine environment and protection of marine biodiversity. The New England region provides examples of the obstacles that such support may face in regions with a long history of commercial exploitation of marine species. I discuss the overall influence that the commercial fishing industry in New England has had on marine conservation efforts in the region, contrast the public's perception of marine versus terrestrial wildlife species, and describe the nature of the media's coverage of the commercial fishing industry and fisheries management issues in the region. I propose the creation of a national no-take marine wilderness preservation system as a way to achieve protection of marine biodiversity as a separate goal from sustainable fisheries management in New England and other, similar regions in the United States.*

Obstáculos para la Protección de la Biodiversidad Marina Mediante la Preservación de la Vida Silvestre: Ejemplos de la Región de Nueva Inglaterra

Resumen: *La cantidad de protección para la biodiversidad terrestre alcanzada a través de la designación de áreas públicas de "no-toma" de vida silvestre en los Estados Unidos es mucho mayor que aquella en las zonas de "no-toma" del Sistema de Santuarios Nacionales Marinos. Con la excepción de un área pequeña en los cayos de Florida ninguna reserva permanente de los Estados Unidos protege la biodiversidad marina de la pesca comercial con equipos que tienen fuertes efectos en los hábitats marinos y los cuales han sido identificados como una de los mayores amenazas a la biodiversidad marina. Una encuesta nacional reciente ha mostrado que existe soporte público para la conservación del ambiente marino y la protección de la biodiversidad marina. La región de Nueva Inglaterra provee ejemplos de los obstáculos que dicho soporte enfrentaría en regiones con una historia larga de explotación comercial de especies marinas. Discuto la influencia global que la industria de la pesquería de Nueva Inglaterra ha tenido sobre los esfuerzos de conservación marina en la región, contrasto la percepción del público de las especies de vida silvestre marina comparadas con las terrestres y describo la naturaleza de la cobertura de los medios sobre asuntos relacionados con la industria pesquera y el manejo de pesquerías en la región. Propongo la creación de un sistema de preservación nacional de "no-toma" de la vida silvestre marina como una forma para obtener protección de la biodiversidad*

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marina como una meta separada del manejo sustentable de pesquerías en Nueva Inglaterra y otras regiones similares de los Estados Unidos.

Introduction

Public support for conservation has resulted in substantially more environmental protection on land than has been achieved at sea. A comparison of protected-area coverage on land and sea in the United States shows that there is approximately 1500 times more designated protection for no-take wilderness on U.S. lands than for no-take protection in U.S. waters. Twenty percent of the land area in the United States is under federal jurisdiction. Of this area, 22% (421,507 km^2) is currently designated as no-take, no-impact wilderness in the National Wilderness Preservation System (U.S. Department of Interior 1995).

In contrast, the U.S. territorial sea—within which the federal government has jurisdiction over all living marine resources—is eight times as large as the nation's public land area (Ehler & Basta 1984). One-third of one percent of this area (46,550 km^2) has been designated as the U.S. National Marine Sanctuary System (National Marine Sanctuary Program 1996). Of this area, only 285 km^2 located in the Florida Keys National Marine Sanctuary are being managed as no-take sanctuary protected areas. These sanctuary protected areas cover approximately 0.002% of the territorial waters of the United States and are the only areas of any significant size permanently protected from the disturbance caused by commercial fishing activity (Blades 1997; National Marine Sanctuary Program 1997). Yet the commercial extraction of large numbers of individuals from targeted marine populations and the inadvertent by-catch and habitat damage that results from that extraction have been identified as among the "most critical" factors currently affecting marine biodiversity (National Research Council 1995).

Despite the disparity in levels of protection between the terrestrial and marine environments, there is evidence that public support for ocean protection does exist in the United States. A national poll conducted in 1996 for the Pew Charitable Trust's SeaWeb Program showed that 84% of the public believed ocean protection was part of society's responsibility to future generations (SeaWeb 1996). But a number of obstacles are involved in achieving a greater level of protection for the marine environment.

New England provides several examples of the problems involved in protecting marine biodiversity in a region with a long tradition of commercial fishing with gear that has strong habitat effects. These examples may help us to anticipate the challenges likely to be faced in establishing no-take marine reserves to protect marine biodiversity—both in New England and in other regions of the United States.

Influence of Commercial Fishing on New England's Marine Environmental Policies

In New England the economic interests of the commercial fishing industry have generally superseded marine conservation efforts, even including regulatory attempts to achieve sustainable levels of catch for the industry through implementation of the Fishery Conservation and Management Act of 1976 (FCMA). Understanding the commercial fishing industry's history of influencing marine environmental policy in New England helps identify some of the problems that efforts to protect marine biodiversity in the region are likely to face in the future (Massachusetts Offshore Groundfish Task Force 1990).

It should be noted that segments of the region's commercial fishing industry have had varying responses to proposed regulations; there have been instances when a group or individual within the industry has been in favor of particular marine conservation measures. Here, I consider the overall effect of the influence that the commercial fishing industry has had on marine regulations in New England.

Depletion of commercial groundfish populations—primarily cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), and yellowtail flounder (*Pleuronectes ferrugineus*)—has become the most widely publicized feature of New England's offshore marine environment over the past decade. Commercial fishing industry representatives in New England consistently lobbied to weaken and delay regulations that would have been sufficient to prevent overfishing during the first two decades of management under the FCMA. Consequently, development of fishery management regulations proceeded so slowly that, after 20 years, populations of commercial groundfish species had declined to such an extent that measures were necessary to prevent their complete collapse (New England Fishery Management Council 1996). Nevertheless, target allowable catches continued to be exceeded in the Gulf of Maine at a level corresponding to an annual mortality rate of over 60%, and portions of Georges Bank were completely closed to commercial groundfishing (Cushman 1996; New England Fishery

Management Council 1996; Commercial Fisheries News 1997).

Besides the groundfish crisis, two other marine environmental issues achieved prominence in New England in recent decades: the dispute over oil exploration and oil leasing on Georges Bank and the designation of the 2181-km^2 Stellwagen Bank National Marine Sanctuary in 1993. Representatives of the commercial fishing industry participated in the debates surrounding both these issues, even though the issues did not specifically involve regional fisheries management policy.

Oil drilling on Georges Bank was perceived as a major pollution threat to the region's marine ecosystem, a concern that was shared by both environmental groups and the commercial fishing industry. The issue provided an opportunity for conservationists to join sides with fishermen as allies against a common threat (Morrison 1979*a*; Fordham 1996). This alliance succeeded in preventing offshore oil drilling in New England.

The designation of a marine sanctuary in the region was historically more problematic, however (Morrison 1979*b*; Peters 1983). Concern about potential fishing restrictions became a central issue in the designation process for Stellwagen Bank, one of nine areas originally considered for sanctuary status under 16 U.S.C. 1434, the Marine Protection, Research, and Sanctuaries Act, and the only federal marine reserve in the region to date. Sanctuary designation was achieved only on the condition that no restrictions on commercial fishing activity would be imposed there.

When proposed marine conservation measures in New England have been used to limit fishing activity—either through direct management controls to achieve sustainable levels of catch or through attempts to establish permanent reserves to protect part of the marine habitat from the impacts of fishing activity—the majority of the region's industry representatives have opposed such efforts (Duchene 1993; Shelley et al. 1996).

These examples support the observation that New England's commercial fishing industry has been the dominant force influencing the region's marine environmental policies. The following statement, made by a leader of a New England fishermen's organization in reaction to conservation regulations recently proposed for the region, is indicative of the political power that the industry has with respect to the marine environment: "If they don't do something that is supported by the fishermen, it ain't gonna happen" (Richardson 1997).

Public Perception of Marine Wildlife and the Validity of Scientific Data

Balancing the commercial fishing industry's influential position in New England requires at least an equally strong and visible public constituency for marine conservation, one whose concerns extend beyond the economic well-being of the commercial fishing industry and the sustainable productivity of the region's fisheries. Several obstacles inhibit the development of this constituency in the region.

Unlike terrestrial wildlife, most commonly known marine species in New England are usually considered food. Most people rarely venture into the underwater marine environment, and they tend to see marine species only in the seafood case at the supermarket. Recognizing this inherent human detachment from marine life as an impediment to support for marine conservation, the National Audubon Society's Living Oceans Program has chosen to address the public's terrestrial wildlife bias as part of its program, adopting the motto that "fish are wildlife, too" (Safina 1993).

SeaWeb's public opinion poll found that 61% of respondents do not view scientific knowledge as relevant to their concerns about the ocean, or even as a valid criterion for government decision making about the marine environment (SeaWeb 1996). In New England the uncertainty inherent in the scientific method has made scientific data extremely vulnerable in the face of the economic harm that has been predicted by the region's commercial fishing industry in response to proposed government regulation (Holmes & Stone 1994; Speer et al. 1997).

Adding to the public relations problem that many wild marine species have is the image of the fisherman as one of contemporary society's last rugged individualists (Boeri & Gibson 1976; Egan 1994; Earle 1995). In New England this image repeatedly has resulted in the industry's opinion on the condition of groundfish populations being viewed as more credible than scientific data and has created a fisherman-versus-scientist stereotype in both regional and national media (Holmes & Stone 1994).

On 2 April 1997, for example, the NBC Nightly News ended its broadcast with a story about new U.S. regulations on total allowable catch for sharks, in which it was reported that "scientists say several species . . . have had their populations cut in half in just 15 years." The reporter then interviewed a shark fisherman on his boat, who had the opportunity to say "on the one hand we see the stocks improving, and on the other hand we keep hearing from the government that they're not." The reporter added that "fishermen call that another one of the federal government's fish stories. . . ."(National Broadcasting Company 1997).

An additional factor affecting public perception of marine conservation measures is the position taken by many elected officials in New England, who have portrayed themselves as "protecting" their constituents from what is called excessive government regulation—including fisheries management regulations (Seeleye

1994; Shelley et al. 1996). Federal agencies, on the other hand, are not usually empowered to defend their actions but merely to impart information.

New Developments in Managing New England's Marine Environment

The 1976 Fishery Conservation and Management Act was amended by the Sustainable Fisheries Act in the fall of 1996. The Sustainable Fisheries Act (which renamed the FCMA as the Magnuson-Stevens Fisheries Conservation and Management Act) is considered a major step in creating a new framework for achieving sustainable levels of take in the commercial fisheries of the United States, preventing the recurrence of overfishing, reducing by-catch, and protecting essential fish habitat in the future. In its lobbying efforts on behalf of the act, the Marine Fisheries Conservation Network stressed the idea that sustainable fisheries would be good for the environment and good for the economy (Marine Fish Conservation Network 1995). Nevertheless, National Oceanic and Atmospheric Administration Fisheries' release of final national standard guidelines for implementation of the act in May 1998 has already been interpreted by the National Audubon Society as weakening provisions that were to prevent overfishing and to rebuild fish populations (Ocean Wildlife Campaign 1998).

The Sustainable Fisheries Act (16 U.S.C. 1801) may benefit noncommercial marine biodiversity in New England to the extent that essential fish habitat encompasses a sufficient and representative diversity of marine ecosystems. But the way in which essential fish habitat is managed in the future will be critical to the amount of habitat protection—and thus biodiversity protection—that can be accomplished as part of sustainable fishery management. On the other hand, the act continues to support the targeting of previously unexploited species of marine life for commercial use. Protection of noncommercial marine biodiversity is not within the scope of the act; it is unreasonable to expect it to be a Marine Biodiversity Protection Act.

Meanwhile, federally funded support for hunting previously untargeted forms of marine biodiversity in New England—intended to support economic vitality in the region's commercial fishing industry—threatens the populations of a growing list of marine species such as dogfish (*Squalus acanthias*), sculpins (Family Cottidae), hagfish (*Myxine glutinosa*), and skates (Family Rajidae). Also included on this list in the New England region are goosefish or monkfish (*Lophius americanus*), wolffish (*Anarhichas lupus*), chimeara (*Hydrolagus affinis*), and lancetfishes (Family Alepisauridae). Industry utilization of previously unexploited species affects their associated marine communities in ways that would not be acceptable to the public or even legal in the terrestrial environment (Plante 1994; New England Fishery Management Council 1997; Speer et al. 1997). People who would be outraged to find blue herons or raccoons in the meat section at the supermarket are willing to accept the hunting and marketing of previously unexploited species of marine life (Broad 1995; Earle 1995; Rivlin 1996).

In addition to passage of the Sustainable Fisheries Act, a new trend in management theory has emerged that is being considered as a possible way to develop more-effective fisheries management regulations in the future. Consensus building between resource users and government regulators and the sharing of regulatory authority and management decisions are major features of this decentralized comanagement approach to marine resource management (Taylor & Alden 1998). Although this approach may be feasible in resolving resource allocation and gear conflict issues among competing segments of the industry, it does not in itself guarantee that conservation of marine biodiversity will become a priority in decision making.

A Strategy for Protection of Marine Biodiversity Based on the New England Experience

The situation in New England suggests that support for establishing a marine reserve system in an area with a strong tradition of commercial marine resource exploitation is likely to require an attractive, popular presentation of the concept of marine wilderness. This concept would need to compete successfully with the nearly exclusive emphasis on commercial fishing that currently characterizes marine environmental politics in such regions. Designating parts of the territorial sea as a national marine wilderness preservation system would enable the protection of marine biodiversity to occur in its own right, rather than allocating the whole marine environment to the commercial fishing industry for use as a source of products.

Effective protection of marine biodiversity may thus warrant its own legislative mandate, a National Marine Wilderness Preservation Act, much as the terrestrial Wilderness Protection Act in the United States created the National Wilderness Preservation System and thereby secured the benefits of an "enduring wilderness" while protecting terrestrial biodiversity independently of multiple-use management in the National Forests or the user-oriented management of the National Park System.

If marine conservation efforts are directed toward the establishment of such a marine wilderness preservation system, it may be possible to create a network of no-take reserves that protect core areas of biodiversity in the ocean as well as enhance the overall abundance of fish

populations of commercial value. The benefits of New Zealand's marine reserves and the rapid resurgence of fish populations in the no-take coral reef reserve in the Netherlands Antilles bolster the case for a genuinely nonextractive reserve network in the marine environment (Ballantine 1994; Roberts 1995; Bohnsack 1996).

New England's example suggests that, in this region and others like it, protection of marine biodiversity should be a separate, primary goal rather than a by-product of fisheries management. An explicit emphasis on marine biodiversity protection through wilderness designation would allow a public that is increasingly concerned about the ocean environment to support marine conservation as an objective independent of the goals of sustainable fishery management.

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