

MARINE MAMMAL-FISHERIES INTERACTIONS: OPTIMUM SUSTAINABLE POPULATION V. OPTIMUM YIELD

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ABSTRACT

This paper will explore the delicate balance that exists between the goals and objectives of the Marine Mammal Protection Act and those of the Magnuson Fishery Conservation and Management Act from a legal as well as a scientific point of view. Specifically, this paper will focus on the fishery management plan as a method of incorporating the mandates of both statutes in the development of multi-species, ecosystem-oriented management programs that will ensure the "optimum" coexistence of marine mammals and fisheries.

INTRODUCTION

The Marine Mammal Protection Act of 1972 (MMPA) was enacted to protect species and population stocks of marine mammals from man-induced threats of depletion and extinction. The Act recognizes marine mammals to be significant functioning elements of the marine ecosystem and directs that marine mammals should not be permitted to diminish below a level designated as "optimum sustainable population." The MMPA also protects rookeries, mating grounds, and other marine mammal habitat areas. The Magnuson Fishery Conservation and Management Act of 1976 (FCMA) was enacted to conserve and develop to the greatest extent possible the United States' coastal and anadromous fishery resources. In promoting the development of domestic commercial and recreational fishing, the FCMA provides for the preparation and implementation of fishery management plans which are based upon national standards to result in the harvestable level designated as "optimum yield" on

a species by species basis.

Marine mammals and coastal and anadromous fisheries interact in three principal ways: (1) substantial numbers of marine mammals, primarily harbor seals, harbor porpoises, and Steller sea lions, are taken incidentally in the course of fishing operations; (2) harbor seals, Steller sea lions, and other marine mammals cause a significant amount of fish loss, fish damage, and gear damage to commercial and recreational fishermen; and (3) marine mammals and fishermen compete for some of the same species of fish and shellfish, such as pollock, salmon, and abalone. In spite of these and other conflicts, marine mammals and fishery resources must be managed in a cooperative manner in order for the "optimum" level of each to be achieved and maintained on a long-term basis. However, the MMPA, written from a protective point of view and in accordance with an ecosystem approach, may appear to be in conflict with the FCMA, written from a conservation and management perspective as based upon a species by species approach.

It cannot be refuted that "(b)ecause biological and operational interactions among living marine resources are increasingly significant, a comprehensive ecosystem approach to their management is needed."² Such an integrated system, thus, is necessary to advance the goals of the MMPA and the FCMA while reconciling the legal, scientific, and conceptual differences that exist between the policies of each Act.

MMPA v. FCMA

The MMPA protects the more than 100 species of marine mammals found within the jurisdiction of the U.S., specifically, "any mammal which (A) is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia and Cetacea), or (B) primarily inhabits the marine environment (such as the polar bear)...".⁵ In enacting such special legislative protection, Congress declared that

marine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and ... they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem. Whenever consistent with this primary objective, it should be the goal to obtain an optimum sustainable population keeping in mind the optimum carrying capacity of the habitat.⁴

Pursuant to this protective mandate, the MMPA establishes a moratorium on the taking and importing of marine mammals. However, the Act also provides for marine mammal management, as the moratorium can be waived if certain conditions are met and, once the optimum sustainable population level has been established for each species, permits may be issued for the limited taking of marine mammals (such as in the course of commercial fishing operations).⁵ According to Bean, the MMPA mandates new requirements not previously found in wildlife protection laws. He states that these new goals indicate "a turning away from species-oriented and harvest-oriented management toward ecosystem management."⁶ Further, he holds that the MMPA "necessarily assumes that a healthy ecosystem offers the best chance of achieving the maximum satisfaction of the diverse interests now being recognized as being properly served by wildlife law."⁷

In extending the U.S. fishery jurisdiction to 200 nautical miles, the FCMA provides for exclusive fishery management authority over all coastal and anadromous species, fish being defined as "finfish, mollusks, crustaceans, and other forms of marine animals and plant life other than marine mammals, birds, and highly migratory species."⁸ Recognizing that the U.S. fishery resources are a valuable national asset, Congress found that "(f)ishery resources are finite but renewable. If placed under sound management before over-

fishing has caused irreversible effects, the fisheries can be conserved and maintained so as to provide optimum yields on a continuous basis."⁹ In accordance with this directive, the Act provides for a national fishery management program to prevent overfishing, to rebuild overfished stocks, and to insure conservation so that the full potential of these resources can be realized. The Act also requires the development of fishery management plans, which provide conservation and management measures for each species, as the mechanism for achieving and maintaining the optimum yield from each species on a continuing basis. Thus, the FCMA represents a comprehensive wildlife management scheme which is different from that of the MMPA, the FCMA nonetheless being similar to the MMPA in that it mandates new goals for living marine resources and provides for new mechanisms to accomplish these goals.

It is in this context that marine mammal-fisheries conflicts occur from a biological as well as a conceptual point of view. To quote Hammond, "(t)he main concern appears to be whether it is in fact possible to harvest certain fishery resources at optimum yield levels while at the same time allowing the marine mammal populations ... to be maintained at or above levels allowing maximum productivity."¹⁰ Further, the problem at hand is one of translation, as appropriate legal standards are needed to reflect such biological interactions while protecting the present uses and future options of all marine resources. Such a legal conflict was demonstrated in Committee for Humane Legislation, Inc. v. Richardson, a 1976 case involving the incidental taking of marine mammals in the course of commercial fishing operations. Enforcing the strong protective mandate of the MMPA, the court first stated that "(t)he language of the Act itself ... clearly indicates that Congress enacted the MMPA for one basic purpose: to provide marine mammals ... with necessary and extensive protection against man's activities."¹¹ Further, the court held that the MMPA was not intended as a "balancing act" between the interests of the fishing industry and marine mammals: "The interests of the marine mammals come first under the statutory scheme, and the interests of the industry, important as they are, must be served only after protection of the animals is assured."¹² How, then, can the policies of the MMPA be coordinated with those of the FCMA from the biological and legal as well as conceptual points of view?

THE CONCEPT OF OPTIMUM:
CONFLICT OR COORDINATION?

Enacted by different Congresses and for different purposes, the MMPA and the FCMA employ different approaches in the management of living marine resources which, in spite of such a legislative separation, freely interact. Nafziger has commented that

(b)ecause the FCMA was designed generally to operate independently of the MMPA, the goals and standards of the two Acts differ. The most troublesome ostensible distinction in terminology is with respect to the species population level each statute seeks to sustain: the MMPA's management goal is to maintain the population of each marine mammal species at its Optimum Sustainable Population (OSP), while the FCMA seeks an Optimum Yield (OY).¹³

Nafziger therefore asserts that since each Act fails to clarify its relationship to the other, each tends to contribute to a fragmented, incremental approach to ocean resource management.¹⁴

Pursuant to the protection and management goals of the MMPA, "it is clear that OSP has the central role to play in the operation of the Act."¹⁵ OSP is defined as "the number of animals (of a population stock) which will result in the maximum productivity of the population or the species, keeping in mind the optimum carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element."¹⁶ Resulting from a "synthesis of the managerial and protectionist philosophies," Gaines and Schmidt state that the Act's population policy "is at once the most intricate and the most poorly articulated component of the Act: poorly articulated in its purpose, intricate in its implementation."¹⁷ In response to comments such as this, the Act's population policy was clarified by regulation to better reflect the biological principles embodied by the concept of OSP:

Optimum sustainable population is a population size which falls within a range from the population level of a given species or stock which is the largest supportable within the ecosystem to the population level that results in maximum net productivity. Maximum net productivity is the greatest net annual increment in population numbers or biomass resulting from additions to the population due to reproduction and/or growth less losses due to natural mortality.¹⁸

OSP, thus, is a legal term intended to incorporate the two major components of population assessment, namely, carrying

capacity and net productivity. The term goes one step further, though, by elevating each component to a higher, more protection-oriented level.

Turning to the FCMA, the term "optimum" is used in a different manner, emphasizing the overall yield from a fishery instead of a certain population level. The Act defines OY as that yield (1) which provides the greatest overall benefit to the nation in terms of food and recreational benefits and (2) which is based upon the biological concept of maximum sustainable yield (the largest average annual yield that can be taken continuously from a stock under existing environmental conditions) "as modified by any relevant economic, social, or ecological factor."¹⁹ The concept of OY has also been clarified by regulation: The concept of optimum yield is broader than the consideration of only the stocks of fish. ... Optimum yield: (A) Recognizes resource uses and values other than harvesting; ... (C) Considers social and economic factors as important criteria in setting harvest rates; ... and (E) Considers the present extent and condition of the habitat as well as long term changes.

...
The optimum yield for a particular fishery will seldom, if ever, be a constant quantity over time since the condition of the fishery resource and the desires of the users may change. Periodic adjustments of harvest quotas, rates, and methods may be needed.²⁰

The concept of OY is therefore dependent upon the conservation and management objectives of each fishery management plan, each objective being assigned a relative weight to incorporate the FCMA's national standards as well as regional needs. Thus, OY allows for flexibility, permits a variety of interrelationships among objectives, and prevents fisheries from being managed in accordance with a single objective.²¹

Beginning from a conceptual point of view, Nafziger points out several conflicts embodied in the population policies of the FCMA and the MMPA. He first states that OY is defined as a point of optimum harvest that is based upon economic as well as non-economic values, whereas OSP is defined as a range that is needed for a desired level of stock size that is based upon biological population standards.²² Also, he points out that OY allows for different management goals and objectives, which, for instance, could permit a non-desirable species of fish to

be reduced below the maximum net productivity level in order for a more desirable species to flourish. On the other hand, OSP protects all marine mammal species in accordance with the same goals and objectives and prevents any marine mammal species from being reduced below maximum net productivity.²³ Further, the FCMA is defined in accordance with the overall economic and recreational benefit to the Nation, its conservation and management standards defined to include all measures needed to rebuild, restore, and maintain fishery resources to ensure continuous OY. The MMPA, in accordance with an ecosystem approach, is oriented toward a different kind of national benefit, its conservation and management standards defined to include all measures to increase and maintain marine mammal populations at OSP.²⁴

In terms of biological differences, it is important to note that marine mammals occupy a much higher trophic level than do fish and that, in spite of a much longer lifespan, these species are more prone to extinction than are fish due to their low reproductive capabilities. Fish species are more elastic in their reproductive abilities and are much more adaptable to environmental change. Further, the quality of scientific data that is available for fisheries far exceeds that currently available for marine mammals.²⁵ Therefore, from a biological point of view, "what works for fish may not work for marine mammals."²⁶

The conflicts between the FCMA and the MMPA from a legal point of view directly follow from the conceptual and biological differences mentioned above. As the population standards of the MMPA are more definite as well as more stringent than those of the FCMA, "any taking must follow the procedures provided in the MMPA, and cannot reduce any marine mammal species below its maximum net productivity, even though OY might allow for a further reduction."²⁷

In spite of these differences in population policies as demonstrated by the term optimum, the term does allow managers to take into account traditional economic factors as well as a variety of nontraditional non-economic values, which should lead to a more integrated system of ecosystem management that "requires a consideration of the entire biomass when deciding upon an appropriate level of exploitation."²⁸ The management schemes of the two Acts do overlap, though, both directly and indirectly. In terms of the taking of marine mammals once OSP has been established, the MMPA requires that such taking be based upon all relevant factors, which

include impacts upon (1) existing and future marine mammal population levels, (2) the marine ecosystem, and (3) the conservation, development, and utilization of fishery resources.²⁹ Each Act also indirectly requires the consideration of the other. For example, regulations implementing the MMPA state that "(n)othing in this part ... shall be construed to relieve a person from any other requirements imposed by a statute or regulation of the United States, including any applicable statute or regulations relating to wildlife and fisheries ..."³⁰ The FCMA requires all fishery management plans to be "consistent with the national standards, the other provisions of this Act, and any other applicable law..."³¹ and such plans must include an analysis of "existing applicable Federal laws and policies which may constrain implementation of the recommended measures and provisions of specified fishery data."³²

In accordance with a biological as well as a conceptual approach, it is Hammond's thesis that the two Acts are not in conflict and that multi-species, ecosystem-oriented fishery management plans, as mandated by the FCMA-MMPA overlap, are possible. Hammond holds that

(t)he concept of OY in the FCMA and maximum productivity in the MMPA are like two sides of the same coin. The FCMA focuses on the potential yield from a given resource population level, while the MMPA emphasizes the production required to support that yield as well as non-consumptive uses of the resource. A discussion of potential yield is not separable from a discussion of the productivity of a resource. Consideration of productivity merely shifts emphasis from the amount of the resource that can be removed to what makes the yield possible in the first place.³³

Thus, Hammond concludes that "(i)t seems clear that with appropriate ecological considerations, OY for a fishery can be consistent with support of maximum net productivity of predator populations such as marine mammals."³⁴ By incorporating such ecological factors as the predation of fish by marine mammals, other forms of interspecific competition, and the effects of environmental impacts into fishery management plans, the biological basis of the plans will be strengthened while the mandates of each Act are furthered. Also, such a multi-species, ecosystem approach would promote the productivity of each fishery resource while satisfying other current and future interests in the living as well as the nonliving resources of the marine environment.

CONCLUSION

In a recent study completed by the Comptroller General of the U.S. on the implementation of the MMPA, it was found that

(b)ecause (the) FCMA is not clear as to whether or to what extent, the interests of fisheries must give way to marine mammals and whether marine mammals must be considered in fishery management plans, we recommend that the Congress amend both the FCMA and the MMPA to clarify the extent to which the interests of each law must be considered in fulfilling the objectives of the other.³⁵

In response, the National Oceanic and Atmospheric Administration (NOAA), the agency responsible for the implementation of the FCMA as well as the majority of marine mammal programs, found that the different objectives and approaches found in the two Acts are not necessarily inconsistent and that these differences are resolvable.³⁶ Also, the Marine Mammal Commission (MMC), an independent agency in the executive branch responsible for coordinating marine mammal research programs, reviewing the policies of the MMPA, and making recommendations on the administration of the Act, agreed with NOAA's recommendation, finding that no legislative clarification was needed at the present time. Instead, the MMC suggested that Congress should direct NOAA and the other Federal agencies involved in the implementation of the two Acts to develop further guidelines and regulations to address these issues before resorting to a legislative approach.³⁷

In whatever manner these issues are addressed, the interactions between marine mammals and fisheries demonstrate the overall complexity of the marine ecosystem and the need for all living marine resources to be managed in a coordinated way. However, biological and conceptual differences between the goals and objectives of the MMPA and the FCMA have led to legal difficulties in the effective implementation of the two Acts. In promoting a consistent approach among all laws and policies relating to the management of living marine resources, a multi-species, ecosystem approach based upon scientific data is needed to insure that all ecological needs are considered in the development of appropriate legal mandates.

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