Problems and Prospects for the Pelagic Driftnet

Robert Eisenbud
PROBLEMS AND PROSPECTS FOR THE PELAGIC DRIFTNET

Robert Eisenbud*

I. INTRODUCTION

Increasing attention is being given to the harmful effects of pelagic driftnets, particularly in waters of the North Pacific Ocean beyond coastal state jurisdiction.

The pelagic driftnet is a type of gillnet, a panel of plastic webbing that is suspended vertically in the water by floats at the top of the panel and weights at the bottom. As a passive fishing device, it entangles the gill plates and other body parts of fish and other creatures that swim into it. By adjusting the buoyancy of the net with floats and weights, the net can be suspended like a curtain at any depth in the water column and can be either anchored to fish in one place or left to drift with wind and current.

Gillnets have been used for centuries and need not be any more destructive than other fishing techniques if they are used selectively and in moderation. Adverse impacts can be minimized by effective regulatory measures such as mesh size and overall lengths of nets, as well as the season and area of use. Regular monitoring of the fishery can detect problems and provide a basis for the development of necessary remedial measures.

The situation changes, however, when plastic drift gillnets are utilized on a large scale in the open ocean beyond the regulatory reach of the coastal state. These pelagic driftnets, much longer than coastal gillnets, are not used selectively or in moderation.

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They are not biodegradable, are acoustically and visually "invisible" to fish and other animals, and are nearly unbreakable. As a result, fish, birds, and marine mammals become trapped and die from lack of oxygen. When properly set, such a pelagic driftnet is a devastatingly effective curtain of death through which nothing larger than the opening in the mesh can pass.

In the past decade, Japan, Taiwan and the Republic of Korea have developed extensive pelagic driftnet fisheries in the North Pacific Ocean. The rate of that development has far outpaced the development of necessary arrangements to monitor and evaluate the effects of those fisheries on the populations of fish, birds, and marine mammals that are not their target but nonetheless die each year in their nets. Reliable estimates of such non-target, incidental mortality are simply unavailable for the overwhelming majority of vessels engaged in the pelagic driftnet fisheries. The limited data that have been collected from a small fraction of the total number of fishing vessels reveal that hundreds of thousands of seabirds and thousands of marine mammals are incidentally killed and discarded each year. That mortality, by itself, might well be the cause for concern but it is even more troubling if the small sample upon which it is based is representative of the other pelagic driftnet vessels in the North Pacific. Concern about the magnitude and potential adverse impacts of such incidental taking as well as other aspects of the pelagic driftnet fisheries has led to a growing recognition of the urgent need to gather information with which to assess and then resolve the problems caused by those fisheries.

Drawing attention to this need, Greenpeace International submitted a paper to the World Conference on Fisheries Management and Development, convened by the Food and Agriculture Organization (FAO) of the United Nations during the summer of 1984 in Rome, Italy. Recognizing that the participants at the World Conference could not take actions that would legally bind their governments, Greenpeace suggested that the conference initiate an evaluation of the pelagic driftnet technique. The conference was urged to adopt a resolution conveying its concern for the problem and calling on participating governments to take the following actions: (1) establish effective arrangements for an impartial observer scheme and collection of information from pelagic driftnet operations at sea, and for the marking and registering of all pelagic driftnets by indicating the flag state and identity of
vessels using such nets; (2) undertake efforts through the International North Pacific Fisheries Commission and other organizations to collect, share, and evaluate information, develop legal and administrative frameworks, and take such other steps as may be necessary to prevent the adverse impacts of pelagic driftnet fisheries; and (3) refrain from investment in and development of any additional pelagic driftnet fisheries unless and until the major problems that result from such fisheries are resolved.

These were reasonable and moderate recommendations designed to gather more complete information to assess the nature and extent of the problems and resolve them. The conference devoted its efforts to the adoption of a broad policy document to guide rather than determine specific fisheries management decisions. Consequently, the conference did not take action on the resolution as an agenda item. The United States delegation did, however, distribute a Note to other delegations at the meeting expressing concern about the large numbers of non-target animals becoming entangled in pelagic driftnets as well as in other gear and debris. It was suggested that the subject be included in the agenda for meetings of the FAO's Committee on Fisheries. In response to the Note, the issue has been placed on the agenda for consideration at the April 1985 meeting of the Committee. Pelagic driftnets will almost certainly be the subject of discussion in other domestic and international fora as well.

This article discusses the problems caused by the pelagic driftnet fisheries and the prospects for their continued use. Section II briefly describes the pelagic driftnet fisheries of the North Pacific; Section III describes the problems they cause. Section IV then reviews a body of international and domestic law that could govern the problem. After finding that sanctions are likely to be available under current law, this article suggests that the prospects for the continued use of the pelagic driftnet in the North Pacific are dependent upon the extent to which these fishing nations recognize the problems they cause and resolve them.

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1 The Committee on Fisheries is a standing committee of FAO's Department of Fisheries which is authorized by Rule XXX(b) of the General Rules of FAO to "conduct periodic general reviews of fishery problems of an international character and appraise such problems and their possible solutions with a view to concerted action by nations, by FAO and by other intergovernmental bodies."
II. THE PELAGIC DRIFTNET FISHERIES OF THE NORTH PACIFIC

The pelagic driftnet fisheries of the North Pacific are conducted by vessels from Japan, Taiwan and the Republic of Korea and are composed of distinct fleets designed to catch specific species, such as salmon, squid, marlin, or sailfish. Each vessel in the fleet typically sets a long driftnet at dusk, which drifts with winds and currents near the surface. The net is hauled in at dawn every day during the fishing season. The duration of the fishing season varies from forty to more than seventy days of active fishing each year.

The Japanese conduct the only pelagic driftnet fishery designed to catch salmon. It includes a high seas fleet of four motherships and 172 catcherboats and a land-based fleet of 209 vessels which also fish on the high seas but must return to port with their catch rather than transferring it to motherships. Each of those 381 vessels sets a nine mile long, twenty-six foot deep net.\(^2\) Taken together, the salmon fleets set 3,429 miles of net every night. The Japanese pelagic driftnet squid fishery began in 1978 and involves 511 vessels, each of which sets a twenty mile long driftnet for a total of 10,220 miles of net every night. A third Japanese pelagic driftnet fishery targets marlin and other similar fish. It involves 600 vessels, each of which sets a six to seven mile long net for a total of 3,740 miles every day.\(^3\)

The Taiwanese pelagic driftnet fishery for squid involves 101 vessels, each of which sets a fourteen mile long driftnet for a total of 1,414 miles every night. The Taiwanese also conduct a pelagic driftnet fishery for sailfish and marlin but information on the number of vessels involved in that fishery is not available.\(^4\)

Finally, the 100 pelagic driftnet squid vessels of the Republic of

\(^2\) Recommended Decision of Administrative Law Judge: Final Decision, Issuance of Permit, and Final Rule on Regulations to Govern the Taking of Marine Mammals Incidental to Commercial Salmon Fishing Operations, 46 Fed. Reg. 27,056, 27,063 (1981) [hereinafter cited as ALJ]. All lengths of nets presented are in statute miles and have been converted from kilometers in original sources and rounded to the nearest full mile using the ratio of 1.6 km to 1 statute mile.

\(^3\) GOVERNMENT OF JAPAN, SUMMARY OF JAPANESE FISHERIES IN THE NORTH PACIFIC OCEAN, WORKING PAPER I/11. (This paper was presented to a workshop on the Fate of Impact of Marine Debris, Honolulu, Hawaii (Nov. 1984.).)

\(^4\) T.F. CHEN, HIGH-SEA GILL NET FISHERIES OF TAIWAN, WORKING PAPER I/12. (This paper was submitted to a workshop on the Fate and Impact of Marine Debris, Honolulu, Hawaii (Nov. 1984.).)
Korea each set a seventeen mile long driftnet for a total of 1,700 miles every night.\footnote{Y. Gong, Distribution and Abundance of Flying Squid Caught by Korean Gill Nets in the North Pacific, Working Paper 1/2. (This paper was submitted to a workshop on the Fate and Impact of Marine Debris, Honolulu, Hawaii (Nov. 1984).)}

Based upon available information, there are approximately 1,693 pelagic driftnet vessels fishing in the North Pacific setting at least 20,503 miles of net each day during the fishing seasons for a total of at least 1,065,510 miles each year.

III. PROBLEMS CAUSED BY PELAGIC DRIFTNETS

The remarkable effectiveness of the pelagic driftnet as a fishing technique may be its only virtue and is, at best, a mixed blessing. The direct impacts of its use in active fishing operations include overfishing of target species and the incidental taking and waste of non-target species of fish, marine mammals, and seabirds. Even when it is no longer used in active fishing operations, it causes adverse indirect impacts when entire nets or fragments are lost and continue to entrap and kill marine creatures.

A. Direct Impacts

Approximately 5,000 Dall's porpoise are entangled and die each year in the driftnets of the Japanese mothership salmon fleet. An equal or greater number die in the nets of the land-based salmon fleet.\footnote{ALIJ, supra note 2, at 27,065; L.L. Jones & L. Actor, Progress Report for 1983 Field Research on Dall's Porpoise Incidentally Taken in the Japanese Salmon Gillnet Fishery, Ad Hoc Committee on Marine Mammals, International North Pacific Fisheries Commission (1983).}

The bills, feet, and wings of seabirds become entangled in driftnets when they swim into the net while feeding on fish below the surface of the water. In the early 1970s, the Danish high seas salmon driftfnet fishery in the northwest Atlantic Ocean was estimated to be killing over 500,000 diving seabirds each year. That mortality, in conjunction with hunting, exceeded the annual net recruitment to the seabird populations and caused their decline until the fishery depleted the salmon stocks so severely that it closed in 1976.\footnote{Christensen & Lear, Bycatches in Salmon Driftnets at West Greenland in 1972, 5 MEDD. GRNL. No. 205, 1-29 (1972).}
kills up to 5,500 Dall's porpoise each year also kills between 250,000 and 750,000 seabirds each year. The nets are set near the nesting colonies on the Aleutian Islands of murres, puffins, shearwaters, and auklets which may well be in decline as a result of this high level of mortality. These Japanese vessels constitute only ten percent or less of all the pelagic driftnet vessels fishing the North Pacific; there is little or no information available about the incidental take of ocean life by the other fleets. If the mothership salmon fleet is at all representative, however, the potential total incidental kill by the combined fleets is enormous.

The incidental take by pelagic driftnet fisheries also includes non-target salmon. Concern about the potential incidental catch of large numbers of North American-origin salmon by the squid and other pelagic driftnet fleets has led to increasing demands for observation and regulation of those fisheries to prevent the catch of such salmon. Despite the staggering amount of pelagic driftnet deployed by Japan, Taiwan, and Korea in the North Pacific, however, only the Japanese salmon fishery is subject to direct regulation by treaty and only the mothership fleet, the smaller segment of that fishery, is subject to an impartial international observer scheme. The remaining fleets are subject to no treaty or international observer scheme. Moreover, there is little or no observation or enforcement by even the flag state.

The inherent nature of the pelagic driftnet technique also causes substantial "non-catch mortality" of target fish. After becoming entangled and dying, a significant proportion of fish fall from the net as it drifts overnight in the water. In the case of the Japanese mothership salmon fleet, for example, it is estimated that one immature salmon is killed but not retrieved from the driftnet for everyone that is brought aboard the catcher boat; additionally, one adult salmon is killed and lost for every three that are brought aboard. Even if it is assumed, conservatively, that all of the approximately 9.5 million salmon caught by that fleet in 1983 were adults, that loss rate resulted in the "non-catch mortality" and waste of more than three million additional fish during 1983.

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8 ALJ, supra note 2, at 27,067; Graham, An Incidental Catch, AUDUBON (Mar. 1982).
B. Indirect Impacts

In addition to the direct impacts resulting from actively fished pelagic driftnets, the technique results in additional indirect impacts when the netting itself, no longer actively fished, is lost, abandoned, or thrown away.

It is estimated that an average of 0.06 percent of the Japanese salmon driftnet is lost and not recovered from the water during each set of the net. While seemingly negligible, this rate of loss results in a substantial amount of net floating at sea. When applied to the setting of at least 20,503 miles of net each night and 1,065,510 miles each fishing season, the 0.06 percent rate of loss means that at least twelve miles of net are lost in the water each night and at least 639 miles are left to float in the North Pacific each and every year.

Unintentional shedding is not the only source of untended driftnets. United States government personnel in surveillance aircraft have observed the abandonment of entire pelagic driftnets by fleeing vessels that had been fishing illegally in restricted or prohibited waters of the North Pacific Ocean. The nets, with floats and weights intact but identifying markers and radio beacons removed, are left to fish relentlessly.

The lost and abandoned plastic netting is not biodegradable; consequently, the nets “ghost fish,” drifting unseen and untended, until they wash ashore or sink with the weight of barnacles, seaweed, and algae. Marine mammals, seabirds, and fish become entangled and die in such “ghost fishing” nets. The propellers and shafts of fishing and other vessels become entangled as well, causing economic loss and endangering human lives. Examination of one such abandoned salmon driftnet revealed ninety-nine dead seabirds and more than 200 salmon entangled in just a portion of the net. It is estimated that at least 50,000 northern fur seals also become entangled and die each year in lost and discarded nets and debris which include at least some pelagic driftnetting. Mortality due to entanglement is suspected as the chief cause of the continuing decline of the fur seal population.

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12 Statements to Robert Eisenbud by U.S. government officials.
which, if not reversed, will reduce the current population by half within the next decade.\textsuperscript{14}

Finally, while lost and abandoned "ghost nets" may fish for months or even years before washing ashore or sinking, the plastic pelagic driftnet is apparently far less durable when actively fished. The nets stretch, abrade, and generally deteriorate as a result of the daily sets and hauls of the heavily loaded nets and this leads to yet another undesirable result. The Japanese replace their pelagic salmon driftnets after only one season of use, and this is apparently not atypical.\textsuperscript{15} Unless effective recycling technologies and markets are developed and utilized, the pelagic driftnet technique results in the annual disposal of thousands of miles of plastic netting. The disposal of that non-biodegradable plastic poses environmental and health problems. Additionally, the substantial replacement cost of the net constitutes a significant expense that is likely to lead to increased fishing effort, pressure on fish stocks, and resistance to conservation measures in order to generate offsetting revenues.

IV. REMEDIAL MEASURES AND THE LEGAL CONTEXT

Although only the Japanese salmon fishery is subject to direct regulation by treaty, all pelagic driftnet fisheries appear to affect living resources in the North Pacific that are subject to varying levels of protection under international and domestic law. Reliable information is needed to assess the impacts of pelagic driftnet fisheries on those resources and to resolve the problems that are identified. The provisions of that body of law appear to provide for the imposition of sanctions by the United States if efforts to assess and resolve the problems of pelagic driftnets are not adequate.

A. International North Pacific Fisheries Commission

In May 1952, the United States, Japan, and Canada executed the International Convention for the High Seas Fisheries of the North Pacific Ocean.\textsuperscript{16} The purpose of the Convention was to


\textsuperscript{15} NATIONAL MARINE FISHERIES SERVICE, U.S. DEPARTMENT OF COMMERCE, FINAL ACTION PLAN, DALL'S PORPOISE PROGRAM, 16 (1984).

promote and coordinate scientific studies relating to the fishery resources of the North Pacific Ocean and to conserve those resources, especially salmon, by regulating the Japanese high seas mothership and land-based salmon fisheries which had developed following World War II. That Convention was amended by a Protocol in 1976 to reflect the establishment by each of the parties of 200 mile fishery conservation zones (FCZ) and to minimize the interception by the Japanese fleets of salmon originating in North America upon which Canadian and U.S. coastal fisheries are dependent. The Protocol reduced the total area in which Japanese salmon fishing could be conducted while permitting Japanese vessels to fish for salmon within a portion of the U.S. FCZ.

The International North Pacific Fisheries Commission (INPFC) meets annually to promote, coordinate, and review the results of scientific research on fishery resources of the North Pacific Ocean. The commission also recommends, when necessary, amendments to the Annex to the Convention which sets forth measures applicable to Japanese salmon fishing operations. Decisions of the commission, including those relating to any changes in the conservation measures set forth in the Annex, may be made only by the unanimous vote of the three parties.

The problems caused by pelagic driftnets have been identified and discussed at previous meetings of the commission. At its most recent meeting, the pelagic driftnet received heightened attention, as representatives of both the United States and Canada expressed serious concerns about the adverse impacts of Japanese driftnet fishing operations and those of non-party nations. Those concerns resulted from "startling new information" about the harvest of Central Alaska-origin chinook salmon by the Japanese land-based fishery and its significant adverse impact on the stock. Further information suggested that Japanese squid driftnet vessels fished in areas where salmon and steelhead trout occur; that vessels of non-party nations (presumably Taiwan)

17 T.I.A.S. 9842.
18 For a more complete discussion of the Protocol and its Annex, see supra note 2, at 27,062.
19 Supra note 17, at art. II. 5, III.
20 Id. at art. II. 3.
were harvesting large quantities of salmon on the high seas; and that lost and abandoned driftnets were adversely affecting salmon and other marine life.\textsuperscript{22}

The U.S. representative, describing the Japanese pelagic driftnet fisheries as "an inefficient and wasteful method of harvesting salmon," called for efforts to eliminate high seas interceptions of North American salmon stocks, prevent Japanese squid driftnet vessels from fishing in areas where salmon occur, and insure that non-party fishing operations are "ended permanently."\textsuperscript{23} The Canadian representative expressed similar "grave concern" about the high seas driftnet fisheries, describing the "ghost fishery" from lost and abandoned driftnets and the non-party driftnet fishing operations as threats to the conservation of salmon on the high seas.\textsuperscript{24}

Notwithstanding those expressions of grave concern, no action was taken by the commission to amend the Annex, adopt resolutions, or otherwise resolve the problems. The intensity of those expressions, however, suggests that the dialogue will continue at the next annual meeting of the commission and that discussions at the scientific, management, and political levels will be conducted in preparation for that meeting.

\textbf{B. Pelly Amendment}

The provisions of the Pelly Amendment to the Fishermen's Protective Act of 1967\textsuperscript{25} could be useful to U.S. officials in their efforts to gain agreement by other nations to at least some remedial actions. The Pelly Amendment requires the Secretary of Commerce to certify to the President when the Secretary determines that nationals of a foreign country, directly or indirectly, are conducting fishing operations in a manner or under circumstances which diminish the effectiveness of an international fishery conservation program.\textsuperscript{26} The President, upon receipt of such a certification, may prohibit the importation into the U.S. of the offending nation's fishery products for as long as he determines appropriate and to the extent consistent with the General

\textsuperscript{22} See, e.g., Address by U.S. Commissioner D.C. Alverson, Address by Canadian Commissioner D.F. Miller, INPFC Doc. No. 2854, 7-8, 14 (1984).

\textsuperscript{23} Id. at 8.

\textsuperscript{24} Canadian Statements on Agenda Items 7, 9, INPFC Doc. No. 2855.


\textsuperscript{26} Id. at § 1978(a)(1).
Agreement on Tariffs and Trade.\textsuperscript{27} Within sixty days following a certification, the President is required to notify the Congress of any action taken by him pursuant to such certification and to inform it of the reasons for his actions if he fails to prohibit the importation of fish or if the prohibition does not cover all the fish products of the offending nation.\textsuperscript{28}

The prospect of certification and imposition of sanctions on imports of fishery products has proven to be a valuable influence in negotiations between the U.S. and nations from which it imports fishery products. Indeed, it has been so effective in the past that the five nations certified since passage of the amendment in 1971 agreed to comply with the provisions of the international fishery conservation program, obviating the need for imposition of sanctions. Discussions with three nations about the possibility that they might be certified achieved the same result even before certifications were made.\textsuperscript{29}

The provisions of the amendment, its legislative history, and practice suggest that the Protocol and its Annex discussed previously constitute "an international fishery conservation program" within the terms of the amendment\textsuperscript{30} and that fishing operations by a member or non-member of the INPFC would be certifiable if they diminish the effectiveness of that program.\textsuperscript{31} The goal in

\textsuperscript{27} Id. at § 1978(a)(4).
\textsuperscript{28} Id. at § 1978(b).
\textsuperscript{29} Japan and the U.S.S.R. were certified in November 1974 for taking minke whales in excess of quotas established by the International Whaling Commission (IWC) and thereby diminishing its effectiveness. No sanctions were imposed because both nations agreed to adhere to strengthened IWC conservation measures. Chile, Peru, and the Republic of Korea, none of them members of the IWC, were certified in December 1978 for harvesting whales in excess of quotas established by the IWC and thereby diminishing its effectiveness. No sanctions were imposed because all three governments agreed to join the IWC and subject their whaling activities to its conservation measures. Spain, the Republic of Korea, and Taiwan (a non-member) were subsequently advised that their whaling activities were being reviewed for potential certification and all three governments remedied the offending actions. See E.H. Buck, Use of Pelly and Packwood-Magnuson Amendments, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS (Oct. 30, 1981).
\textsuperscript{31} Buck, supra note 29, at 2-5. The Pelly Amendment was enacted in response to a perceived need to provide for sanctions against Denmark, the Federal Republic of Germany, and Norway, all of which had filed objections to and were not complying with a ban on high seas salmon driftnet fishing which had been established by the International Convention for the Northwest Atlantic Fisheries to which they were parties. See Fishermen's Protective Act-Amendment, H.R. REP. No. 92-468, 92d Cong., 1st Sess., reprinted in 1971 U.S. CODE CONG. & ADM. NEWS 2409-27, 2415.
fisheries negotiations, as in all such international negotiations, is to achieve agreement without the use of sanctions. The prospect or threat of sanctions under the Pelly Amendment during negotiations to achieve agreement is obviously preferable to the actual imposition of sanctions which may not achieve the desired result and may adversely affect the bilateral relations between the two nations as well as domestic business and consumer interests dependent on the prohibited imports. For this reason, it would appear prudent and desirable for the United States to advise Japan, Taiwan and the Republic of Korea, all of which export fishery products to the U.S., of the potential applicability of the Pelly Amendment to at least some of their pelagic driftnetting operations in the North Pacific Ocean.

Information discussed at the recent meetings of the INPFC, for example, suggest that Taiwan's high seas driftnet fishery is adversely affecting salmon stocks and is thereby diminishing the effectiveness of the INPFC's international fishery conservation program. The interception of North American-origin salmon by Japanese driftnet squid fleets as well as its land-based salmon fleets, may also be diminishing the effectiveness of that program. All three nations—Japan, Taiwan, and the Republic of Korea—have had some experience with the amendment. They should be advised that the problems relating to their pelagic driftnet operations must be addressed and resolved in order to avoid difficulties that might otherwise arise under the amendment.

C. Magnuson Fishery Conservation and Management Act

The Magnuson Fishery Conservation and Management Act established a 197 mile wide exclusive Fishery Conservation Zone (FCZ) contiguous to the three mile territorial sea within which the United States exercises exclusive management authority over most forms of marine animal and plant life. Although no foreign government has a right to fish within the FCZ, a foreign government may be granted an allocation or share of the portion of "optimum yield" for any species that will not be harvested by

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22 See text and note at notes 22-24.
34 Id. at § 1811.
35 Id. at §§ 1802(6), 1812(1).
vessels of the United States.\textsuperscript{36} Determinations of the available level of foreign fishing and allocations of any such surplus to foreign governments are made annually. Japan, Taiwan and the Republic of Korea have been permitted to fish within the FCZ through these allocations.

When determining allocations among foreign nations, the provisions of the act direct the Secretary of Commerce and the Secretary of State to consider, among other things whether such nations have cooperated with the United States in fishery research and such other matters as the Secretaries deem appropriate.\textsuperscript{37}

As in the case of potential certification and sanctions under the Pelly Amendment, U.S. government officials could advise the nations conducting pelagic driftnet operations in the North Pacific Ocean that their efforts to address and resolve the problems relating to those operations will be considered in the allocation decision and that the extent of their allocations to catch fish within the United States FCZ may be adversely affected if those efforts are not satisfactory.

\textbf{D. Marine Mammal Protection Act and North Pacific Fisheries Act}

The provisions of the Annex to the INPFC Protocol previously discussed exempted until June 9, 1981 vessels of the Japanese mothership salmon fleet from the requirements of the Marine Mammal Protection Act (MMPA) which would otherwise have applied to their incidental taking of marine mammals during salmon fishing operations within the FCZ. During that period, the United States and Japan were to conduct research to determine the effect of the fishery on populations of marine mammals and seek to reduce or eliminate the incidental take of marine mammals.\textsuperscript{38} The North Pacific Fisheries Act was amended to implement those and other provisions of the Protocol and its Annex.\textsuperscript{39}

The MMPA\textsuperscript{40} imposes a moratorium on the taking of marine mammals within the United States FCZ. The moratorium may be

\begin{itemize}
  \item \textsuperscript{36} Id. at § 1821.
  \item \textsuperscript{37} Id. at § 1821(e)(I)(E)(vii) & (viii).
  \item \textsuperscript{38} Supra note 17, at Annex para.(1)(c).
  \item \textsuperscript{39} 16 U.S.C. §§ 1021-1035 (1982).
\end{itemize}
waived and permits may be issued for incidental taking of marine mammals if the Secretary of Commerce finds, after a hearing on the record, that the affected population is at its optimum sustainable population (OSP) level and will remain at that level notwithstanding the proposed taking. In addition, the MMPA requires that any such incidental taking that is permitted be reduced to "insignificant levels approaching a zero mortality and serious injury rate." Following a hearing on the record, the Commerce Department issued a permit to the Japanese mothership salmon fleet to take up to 5,500 Dall's porpoise, 450 northern fur seals, and 25 northern sea lions in the course of fishing operations within the FCZ during each of the 1981 through 1983 fishing seasons. The duration of the permit was extended through the 1986 fishing season by an amendment to the North Pacific Fisheries Act in 1982. That amendment also required, in relevant part, that in order to be eligible for a permit for the 1987 and subsequent fishing seasons, the salmon vessels fishing under that permit must have adopted such gear or techniques as are determined by the Secretary of Commerce to "offer the most practicable and effective opportunity for reducing porpoise mortality."

The statutory extension of the permit obviated the need for a hearing on the record and findings by the Secretary in order to authorize incidental taking after the 1983 fishing season. Such a hearing and findings will, however, be required before the 1987 fishing season. The adoption of modified gear required by the Secretary in accordance with the amendment has thus far produced no significant reduction in the incidental take of Dall's porpoise and several of the issues relating to OSP for Dall's porpoise have not yet been resolved. Denial of a permit to take marine mammals within the FCZ would prevent the mothership

41 Id. at §§ 1371(a), 1373(a), 1374. OSP is defined at 16 U.S.C. § 1362(8) and 50 C.F.R. 216.3. For a thorough discussion of the MMPA, see M. BEAN, THE EVOLUTION OF NATIONAL WILDLIFE LAW (2d ed.) 281-317 (1983).

42 Id. at § 1371(a)(2).

43 ALJ, supra note 2, at 27,060.


47 ALJ, supra note 2, at 27,059, 27,067.
salmon fleet from fishing in the zone because the vessels could not ensure that they would not incidentally take marine mammals. Considering that an average of sixty-eight percent of the Japanese mothership salmon fleet's catch has occurred within the zone,\textsuperscript{48} the application is likely to be vigorously opposed if the issues relating to Dall's porpoise and other aspects of the fishery have not been satisfactorily resolved by the time of the hearing.

\textbf{E. Migratory Bird Treaty Act}

Finally, consideration should be given to the law relating to the annual incidental killing of hundreds of thousands of seabirds in the Japanese mothership salmon driftnet fishery and the high probability that equal or greater numbers also die in other pelagic driftnet fisheries in the North Pacific Ocean.

Of the sixteen species of seabirds incidentally taken by the Japanese mothership salmon fleet,\textsuperscript{49} thirteen are listed on the Annex to the Convention for the Protection of Migratory Birds and Birds in Danger of Extinction and Their Environment—an agreement between the United States and Japan. The taking of those species is therefore prohibited under the Convention.\textsuperscript{50} Despite this clear prohibition of international law, it is not enforced against Japanese salmon vessels by either the United States or the Japanese government.

The Convention is implemented by the Migratory Bird Treaty Act\textsuperscript{51} which vests jurisdiction over migratory birds in the Department of Interior.\textsuperscript{52} Based on legal memoranda prepared by its Assistant Solicitor for Fish and Wildlife, the Department has determined that the incidental taking of the listed migratory seabirds by Japanese fishermen is a violation of the act but that such takings can only be prosecuted when they occur within the three mile territorial waters of the United States.\textsuperscript{53} Since none of

\begin{itemize}
\item \textsuperscript{48} Id. at 27,066.
\item \textsuperscript{49} Id. at 27,067.
\item \textsuperscript{50} 25 U.S.T. 3329; T.I.A.S. 7790.
\item \textsuperscript{51} 16 U.S.C. §§ 702-711 (1982).
\item \textsuperscript{52} Id. at § 704.
\item \textsuperscript{53} Memorandum of December 11, 1980 from Assistant Solicitor, Fish and Wildlife to Chief, Division of Law Enforcement concerning Extraterritorial Application of Section 2 of the Migratory Bird Treaty Act; Memorandum of March 27, 1981 from Assistant Solicitor, Fish and Wildlife to Office of Migratory Bird Management concerning U.S.-Japan Migratory Bird Treaty.
\end{itemize}
the Japanese salmon vessels fish within these three miles, the violations are never prosecuted.

The legal memoranda rely for their conclusions primarily upon the absence in section 703 of the act of a clear expression of congressional intent to apply its prohibitions extraterritorially\(^54\) and upon a series of cases addressing extraterritorial application of statutes in the absence of such an expression.\(^55\) Those cases are cited in support of the rule that extraterritorial application may be implied only if limiting the section's application to the territory of the U.S. would greatly curtail its scope and usefulness and create a large immunity for violations by U.S. citizens in foreign countries. The memoranda then argue that since U.S. citizens in Japan and its territorial sea are subject to the laws of Japan, there is no large immunity created by limiting application of the prohibitions to the lands and territorial sea of the U.S. and a clear expression of congressional intent is required to rebut the presumption against extraterritorial application.

The problem with this analysis is that it misses or avoids the point. All but one of the cases cited by the memoranda in support of the rule against extraterritorial application of the prohibition involved conduct by U.S. citizens in a foreign country or its territorial sea. The remaining case involved conduct by a U.S. citizen on the high seas where no other law applied. The Supreme Court held that the prohibitions were applicable extraterritorially.\(^56\) None of the cases cited by Interior involved conduct by foreign nationals such as Japanese mothership salmon fishermen in violation of U.S. law within the FCZ of the United States. Even under the rule cited in the agency opinion, a large immunity for violations by Japanese fishermen within the FCZ has resulted and extraterritorial application may be implied. It is therefore not at all clear that the cases cited require a clear expression of congressional intent in order to justify application of section 703's prohibitions to such conduct.

Although the merits of Interior's decision might well be debated, it would appear that an amendment to the act, providing a clear expression of intent, would be preferable to what might

\(^{54}\) That section states that except as otherwise provided: "it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill ... any migratory bird...."


otherwise be a prolonged debate with uncertain results. While clarifying the extraterritorial reach of the act, such an amendment could require remedial actions and timetables for their implementation, data and observers, and other measures to assess and resolve the problem short of prosecution.

V. PROSPECTS FOR THE PELAGIC DRIFTFNET

Recent efforts to identify and resolve the problems resulting from the pelagic driftnet are long overdue. Further efforts are probably essential if a major controversy—similar to that resulting from the tuna-porpoise controversy in the 1970s—is to be avoided.

While additional data are essential, information already available suggests that the pelagic driftnet fisheries kill a staggering number of animals each year with potentially grave impacts on the living resources of the North Pacific Ocean. If the incidental kill of hundreds of thousands of seabirds and thousands of porpoise in the Japanese mothership salmon fishery is representative of other fleets, the total mortality is enormous and may well threaten the survival of the affected bird and marine mammal populations. Effective salmon conservation is also jeopardized by the non-catch mortality and waste of millions of fish each year in salmon driftnets, ghost nets and extensive fisheries that do not target but nonetheless catch them.

These and other problems have led to increased demands for data on the effects of pelagic driftnets and efforts to resolve the problems they cause. At the broadest international political level, Greenpeace International has urged the Food and Agriculture Organization of the United Nations to evaluate the pelagic driftnet technique and facilitate the collection of data and remedial measures. The United States has also called for an examination of the problems by the FAO’s working level Committee on Fisheries. While these efforts will undoubtedly serve to increase awareness of the problems, they are unlikely, by themselves, to yield resolution of the problems in the near future.

At the regional level, the International North Pacific Fisheries Commission provides a mechanism for direct regulation of the Japanese salmon fleets and a forum for discussion of the other fleets as they affect the conservation of salmon. Both the U.S. and Canada have expressed concern about the problems caused by pelagic driftnet fisheries before the Commission, which appears to
be the appropriate international forum despite the fact that Japan is the only pelagic driftnetting nation that is party to the Convention and the requirement that any decision by the Commission be unanimous.

If, as is likely, such efforts are not entirely successful, several domestic statutes offer the United States means by which to influence the behavior of pelagic driftnetting nations. Embargoes may be imposed on fish products under the Pelly Amendment if the Secretary of Commerce determines and certifies that the driftnet fisheries of Japan, Taiwan or Korea are diminishing the effectiveness of the INPFC by adversely affecting the conservation of salmon. The allocations granted to each of those nations to fish within the FCZ may be reduced or denied under the Magnuson Fishery Conservation and Management Act if the Secretaries of Commerce and State determine that driftnet fisheries are adversely affecting salmon or for any other reason such as the adverse impacts of their fisheries on seabirds. The incidental taking of marine mammals within the FCZ by the Japanese mothership salmon fleet is subject to regulation under the Marine Mammal Protection Act and North Pacific Fisheries Act. That fleet will require a permit under the Marine Mammal Protection Act in order to fish within the FCZ after 1986. Finally, the Department of the Interior has determined that the incidental take of seabirds by the same fleet within the FCZ would constitute a violation of the Migratory Bird Treaty Act but cannot be prosecuted because it occurs beyond the three mile territorial sea of the United States. Amending the statute to provide for its extraterritorial application is desirable.

Scientific, political and legal developments have not kept pace with the rapid development of pelagic driftnet fisheries in the North Pacific. It has become increasingly clear, however, that there is a pressing need for reliable information on the effects of the fisheries and for resolution of the problems they cause. Inadequate effort to resolve the problems can be expected to result in demands for sanctions and other measures under existing laws and for additional legislation where necessary to sharply curtail or eliminate those fisheries. The prospects for continued use of the pelagic driftnet are therefore very likely to depend on the extent to which discussions and other efforts in the near future generate adequate information and vigorous remedial action by the nations conducting the pelagic driftnet fisheries.