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A SUMMARY OF ISSUES INVOLVING MARINE MAMMALS AND HIGHLY MIGRATORY SPECIES

by

JOHN WARREN KINDT*

I. INTRODUCTION

The conservation and protection of marine mammals is one of many serious problems relating to exploitation of the living resources of the ocean. While other problems, for example the management of fish stocks and the protection of anadromous, catadromous, and highly migratory species, receive a great deal of attention in the Convention on the Law of the Sea (LOS Convention), negotiated by the Third U.N. Conference on the Law of the Sea (UNCLOS III), the problem of marine mammals is addressed directly in only two provisions. Certainly, varying political and economic interests impede negotiation of a comprehensive international protective regime; however, the LOS Convention provisions are inadequate and may, in the end, only confuse the issue.

American concern for marine mammal protection is expressed primarily in the Marine Mammal Protection Act of 1972 (MMPA). Other U.S. legislation affecting marine mammals includes:

a. the Fish and Wildlife Coordination Act of 1958 (FWCA),
b. the Estuarine Areas Act of 1968,
c. the National Environmental Policy Act of 1969 (NEPA),
d. the Clean Air Act Amendments of 1970,
e. the Coastal Zone Management Act of 1972 (CZMA),
f. the Federal Water Pollution Control Act of 1972 (FWPCA),
g. the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), and

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2Compare id. arts. 64 (referring to annex I), 65, with id. art. 120 (referring back to article 65).
In general, these acts aim at regulating the habitat of marine mammals, thereby contributing to conservation indirectly. In addition, marine mammals may eventually be protected in marine sanctuaries, U.S. wilderness areas, wildlife refuge systems, or even the wild and scenic rivers.

For the purpose of discussing the issues at UNCLOS III, marine mammals may be conveniently divided into four major categories:

a. seals, sea lions, and walruses;

b. dolphins and porpoises;

c. whales;

d. other marine mammals, including
   1. dugongs and manatees
   2. sea otters, and
   3. polar bears

Dolphins, porpoises, and whales have somehow become categorized as "highly migratory species" under article 64, annex I, of the LOS Convention. However, whales, dolphins and porpoises are taxonomically classified as "cetaceans," and they should more properly be considered as a distinct group apart from other migratory species, because cetaceans (particularly whales), unlike fish species, are highly migratory on a "global" basis.

Just as regionally migratory fish and porpoise stocks require a series of regional organizations for effective conservation and management throughout their range, whale stocks require a single international organization for their global conservation and management. . . . It does not seem too much to ask that there be at least one article promoting effective protection for whales in a treaty of from 400 to 600 articles.

This problem will be analyzed in detail later in discussing the UNCLOS III provisions, but the absurdity of the "highly migratory" categorization is easily highlighted. If the cetaceans can be categorized as highly migratory species and grouped with tuna in annex I, seals could and should be included in a category of "semi-" or "quasi-highly migratory species." Similarly, polar bears would become "nonhighly migratory species" or perhaps even "land-based" or "coastal zone species." The point is that the inclusion of cetaceans in annex I ignores not only their biological differences with tuna, but also their special problems involving over-exploitation.

4LOS Convention, supra note 1, art. 64, annex I.
A rational ocean policy has several goals: (1) security; (2) management (avoidance, reduction and settlement) of conflict; (3) promotion of efficiency and fair access in ocean use; (4) protection of the environment; (5) promotion of ocean knowledge; and (6) maintenance of a favorable legal order (which impacts on all of the other five goals). "Protection of the environment" specifically includes as one of its subgoals the "effective conservation of cetaceans on a global basis, consistent with widespread concern for their protection, and with reasonable provision for the preservation of native cultures (as, for example, the taking of Bowhead whales by the Alaskan Inuits provided such taking is not permitted to impinge on effective conservation); ...". "Maintaining a favorable legal order" requires, as one of its two subgoals, the "regional management of highly migratory fish stocks (such as tuna) on conditions assuring fair access and effective conservation within and beyond zones of coastal fishery jurisdiction ... [and the] global management of cetaceans (whale and porpoise) pursuant to an effective International Cetacean Commission [as a successor organization to the International Whaling Commission] under conditions ensuring effective conservation within and beyond zones of national jurisdiction; ...". These goals are a common interest of each of the 160 nations which participated in UNCLOS III, and they should be accepted and implemented internationally.

II. THE PROTECTION OF MARINE MAMMALS

A. Seals, Sea Lions, and Walruses

The order pinnipedia includes three families:

a. phocidae (the hair seals or the earless seals),
b. otariidae (sea lions, and the fur seals or the earred seals), and
c. odobenidae (walruses).

While these marine mammals are basically ocean-oriented, they cannot live completely independent of land-like cetaceans.

In the late nineteenth century elephant seals were approaching extinction, but in 1911 Mexico provided them with protection in their last sanctuary, Guadalupe Island off Baha, California, and the elephant seals have since increased in numbers. However, by the mid-1970s several of the hair seal species were exploited to the point where they became endangered.

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Moore, A Foreign Policy For The Oceans, in The Oceans And U.S. Foreign Policy 1, 2-4 (Center for Oceans Law and Pol'y, Apr. 1978).

Id. at 4.

See R. Harrison & J. King, Marine Mammals 100-03 (2d ed. 1980) [hereinafter cited as Harrison & King].

See Coggins, supra note 14, at 6.

Id. at 7.

Id. at 6.
The two major international conventions which provide limited protection for seals are:

a. the Interim Convention on the Conservation of North Pacific Fur Seals;\(^2\) and

b. the Convention for the Conservation of Antarctic Seals.\(^4\)

Typical of the pressures endured by all seals is the well-publicized yearly clubbing of harp seals (*Pagophilus groenlandica*), which will be examined as a representative example.

Harp seals constitute one of the more numerous types of pinnipeds, and they breed on ice floes in the early part of the year in three distinct breeding areas: (1) off the northeast coast of Newfoundland and in the Gulf of St. Lawrence; (2) in the Greenland Sea between Iceland and Spitzbergen; and (3) in the White Sea off the Russian Arctic coast.\(^5\) Although the adult seals are often hunted for blubber, meat and oil, "it is the infant pup with its snow-white pelt that appeals both to public sentiment and to the furrier."\(^6\) Within a week or two after the pups are born, the hunters come.\(^7\) In what seems a brutal and inhumane scene to observers, the sealers smash the skulls of the newborn animals with wooden clubs. Within 2 weeks, over 50 percent of the pups may be dead.\(^8\)

At one time, the Canadian seal hunt was unrestricted, but the decline of the seal population in the late 1950s — from an estimated 3.3 million to 1.25 million — led to the imposition of quotas on the number of seals which could be killed annually.\(^9\) In 1969, the first quota was imposed, limiting the hunt to 50,000 animals in the Gulf of St. Lawrence and 200,000 in the waters off Newfoundland and Labrador. The quota was subsequently reduced to 150,000, where it remained until 1976, when it was further reduced to 127,000 (although about 41,000 more seals were taken). The quota was raised to 170,000 in 1977.\(^10\) In 1979, the quota stood at 180,000.\(^11\)


\(^{28}\)See Lavigne, supra note 19, at 129-30.

\(^{29}\)Raloff, supra note 27, at 202; see Lavigne, supra note 26, at 130. The other harp seal herds may have fared even less well than Canada's. The White Sea population, once numbering 4 million animals, may now have as few as 220,000 animals. The Greenland Sea group, once numbering 1 million, is now about 100,000. See R. MCCLUNG, HUNTED MAMMALS OF THE SEA 136 (1978) [hereinafter cited as McCLUNG].

\(^{30}\)McCLUNG, supra note 29, at 140.

\(^{31}\)Raloff, supra note 27, at 202. See *More Than A Numbers Game*, CLOSE-UP REP., Feb. 1980, at 3 (stating
The debate involving the killing of harp seals focuses on three basic issues: (1) whether the hunt is necessary for the maintenance of a stable seal population; (2) the extent to which it benefits the region’s economy, and (3) whether the method of killing the pups is humane.

Proponents of the harp seal hunt argue that a periodic reduction in the size of the harp seal herd is essential for keeping the population within ecological limits. Allegedly, the hunt also contributes needed income and food to an economically depressed region. Proponents of the hunt highlight the fact that the Canadian government has issued regulations to insure that the pups are killed as humanely as possible and has conducted extensive research on harp seals to ensure the continued existence of the species. Conversely, opponents of the hunt argue that it contributes nothing to any wildlife management need. It is claimed that, unless a moratorium on the killing of baby harp seals is declared, the species will face ultimate extinction. Opponents also claim that the money the Canadian government spends supporting the hunt is greater than the amount of income which it generates. Accordingly, the brutal killing of harp seals for garments should be halted, and international pressure should be exerted on other countries to ban the import of seal furs and other seal products.

It is not unreasonable to extrapolate from the situation involving the harp seals and to extend these arguments to other, more-endangered species of pinnipedia. “Less well known to the public . . . [during the harp seal hunts of the early 1970s] was the fact that the United States government had conducted a harvest of Pacific fur seals similar to the harvest of their Atlantic cousins.”

B. Dolphins and Porpoises

The words “dolphin” and “porpoise” are often used interchangeably sometimes resulting in confusion. Most taxonomists consider dolphins (of the fami-
ly *delphinidae*) and porpoises (*phocoenidae*) to constitute two separate “families,” though a few taxonomists consider *phocoenidae* to be a subfamily of *delphinidae.* For purposes of the present analysis, dolphins and porpoises will be considered to constitute two separate families. However, dolphins and porpoises are both cetaceans.

In 1978, the slaughter of 1,000 bottlenose dolphins occurred on the small Japanese island of Iki. Approximately 2 years later, there were two new massive Japanese dolphin kills. The incident in 1980 involves both the Iki islanders and the nearby Goto islanders, and between 1,000 and 2,000 dolphins were reportedly killed. The inhabitants of these islands claim that the dolphins cost them over $2.5 million per year in lost revenues on yellowtail and squid, and the inhabitants have vowed to exterminate them.

Despite the Japanese hunting, the longest running battle in recent years has involved attacks by conservationists on the domestic and foreign tuna industry, and in particular, on the use of seine nets. Tuna fishermen have been using seine nets since 1916, although baitfishing was the principal method of fishing until the late 1950s, when nylon nets were introduced. The development of nylon nets allowed the tuna fishermen to utilize seine nets to a greater degree than had been possible before. Use of the seine nets has also allowed the fishermen to take advantage of the “tuna/dolphin phenomenon.” For some as yet unknown reason, yellowfish tuna and dolphins are often found together. When tuna fishermen sight dolphins, a skiff is launched with a seine net attached. The skiff circles the dolphins along with the tuna, and the net is closed around them. The net is then pulled together at the bottom which captures both the tuna and the dolphins. Inevitably, many dolphins become entangled in the net, or the net itself may roll up, trapping the dolphins inside. Being mammals, the dolphins then drown.

The International Management of Whales, Dolphins, and Porpoises: An Interdisciplinary Assessment (Part Two) 6 Ecology L.Q. 574, 611 n.749 (1977) [hereinafter cited as Scarff II].


*Whymant, supra note 41, at 55.

*Jordan, Porpoises and Purse Seines, OCEANS, May-June 1974, at 6, 6 [hereinafter cited as Jordan].


*Jordan, supra note 45, at 6.

*International Aspects, supra note 46, at 643.

*Id. at 644.
In 1950, the United States and Costa Rica established the Inter-America Tropical Tuna Commission (IATTC) to protect marine resources and regulate fishing.\textsuperscript{50} Seven other countries subsequently joined, although two countries (Ecuador and Mexico) later withdrew.\textsuperscript{51} The purpose of the IATTC is to conduct scientific studies of tuna, billfish, and baitfish and to make recommendations to its member countries.\textsuperscript{52} Similar aims are propounded by the Convention for the Conservation of Atlantic Tunas,\textsuperscript{53} of which the United States is also a signatory.

The United States has sought to reduce dolphin mortality and to protect other marine mammals via the Marine Mammal Protection Act.\textsuperscript{54} The MMPA requires that each species be maintained at the, admittedly nebulous, "optimum sustainable population" (OSP).\textsuperscript{55} The MMPA has made some progress in reducing dolphin mortality by controlling the U.S. tuna fleet. Since the MMPA is designed to maintain all dolphin stocks, the possible solution for both fishermen and conservationists is the development of entirely new methods for catching tuna, or improvement of the existing seining technique. The latter approach has received much attention in the past few years. With the advent of the \textit{Bold Contender} system\textsuperscript{56} and subsequent improvements, dolphin mortality dropped from approximately 300,000 deaths per year in 1972\textsuperscript{57} to 27,000 deaths in 1977.\textsuperscript{58} Although the \textit{Bold Contender} system has not been made mandatory, some of its components have (for example the apron and raft system, which reportedly reduces the mortality rate by 60 percent).\textsuperscript{59}

While these advances have been implemented by the U.S. domestic fleet, foreign fleets have not been quick to adopt similar measures. While it is highly unlikely that many foreign countries will voluntarily do so, U.S. control of the market for yellowfins coupled with the MMPA's import restrictions on fish caught in violation of its guidelines should encourage other countries to implement their own conservation programs.\textsuperscript{60} Such implementation has in fact oc-
curred; the governments of the Congo, New Zealand, Senegal, and Spain have advised their fleets that they must follow U.S. procedures for releasing dolphins. 61 This situation constitutes one of those rare cases in which unilateral action encouraged individual countries to provide complete protection. An international approach probably would not have been as successful. 62 For example, article 65 of the LOS Convention gives each coastal State the power to "prohibit, limit or regulate the exploitation of marine mammals" 63 found within its economic zone. 64

However, reliance on unilateral action by the United States or any other country is dangerous. The problem is "international in scope and cannot be solved by unilateral United States action." 65 Furthermore, unilateral action may hinder joint efforts to decrease dolphin mortality. 66 Unilateral measures could well result in irreconcilable conflicts between the increasing number of nations fishing for tuna 67. Finally, unilateral actions could encourage domestic fishing fleets to reregister under foreign flags, enabling them to circumvent an individual country's domestic regulation. 68

One possible solution is a total ban on purse seining. However, such a ban would be economically impractical and impossible to enforce. 69 A concomitant approach recognizes the impracticality of a total ban on seining and hopes for the development of improved technology. 70 Another proposal would establish an international organization to oversee the management of marine mammals. The most widely accepted plan would recognize the IATTC as the organization which was best equipped to take control. 71 Supposedly, this organization would establish minimum standards while allowing each nation to impose stricter regulations within its own economic zone. 72

Most scholars appear to favor an international regime to promote marine mammal conservation, but the lack of any serious effort to protect dolphins worldwide evinces the real priority given to this problem. The United States is the only country which has conducted any significant equipment or behavior

61 Id. at 692.
62 Scarff II, supra note 39, at 613.
63 LOS Convention, supra note 1, art. 65.
64 See Dolphin Conservation, supra note 39, at 688.
65 Dolphin Conservation, supra note 39, at 686.
66 See International Aspects, supra note 46 at 659.
67 Dolphin Conservation, supra note 39, at 692.
68 Id. at 683.
69 See id. at 690. See also Leeper, Major Research Effort Probes Tuna-Porpoise Bond, BIOSCIENCE, Sept. 1976, at 533, 534 (1976) [hereinafter cited as Leeper]; Fishermen Appeal Ruling, NATL PARKS & CONSERVA-
71 See Leeper, supra, note 69, at 533.
72 Dolphin Conservation, supra note 39, at 697.
73 Id. at 689.
research aimed at protecting dolphins. Even so, U.S. actions alone cannot save the dolphin. While dolphins are in the economic zone of a protecting State they are safe, but after leaving the economic zone they are no longer protected. It must be remembered that the elimination of any species is undesirable and could have a synergistic effect on other vital stocks. Eliminating any species entails unknown consequences which may ruin an entire ecosystem. Therefore, while improved technology and a redefined status for marine mammals are necessary steps, they should be viewed as only a part of a more encompassing plan to educate and to enlist the cooperation of the international community in saving the dolphin.

C. *Whales*

1. Delimitation of Problems and Goals

Whales, like dolphins and porpoises, are cetaceans. As a general rule, cetaceans are highly migratory; however, no cetaceans (except perhaps delphinidae as part of a "dual management system") should have been included in annex I, supplementing article 64 of the LOS Convention. Article 64 allows for "optimum utilization" of "highly migratory species." Cetaceans should have been completely protected under a separate provision — except for takings for bona fide scientific or conservation purposes, or by native populations utilizing traditional methods. However, application of article 64 would probably result in a total ban on the taking of whales, since whale populations are and will probably continue below optimum levels. International quotas can be set only when the quota can be taken without causing an overall decline in global whale populations. In other words, whale populations must be allowed to increase until they reach their "natural" optimum size.

This interpretation of article 64's "optimum utilization" requirement makes obvious sense. Even if the number of whales killed annually steadily declines, the whale population may not be able to reproduce itself due to threats from unexpected diseases or increased marine pollution. These are threats which only a total ban (combined with stricter controls on pollution) can guard against, since reduced populations are especially vulnerable.

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73 Id.
74 Id. at 688.
75 See Scarff I, supra note 40, at 389.
76 Id.
77 LOS Convention, supra note 1, art. 64, annex I
78 Id.
79 These exceptions are modeled after the protections established under the Polar Bear Agreement. See footnotes 149-50 infra and accompanying text.
80 See LOS Convention, supra note 1, art. 64.
The major agreements specifically regulating whaling are:

a. the Convention for the Regulation of Whaling,81
b. the Convention for the Regulation of Whaling with Schedule of Whaling Regulations, (Whaling 1946 Convention),82 and
c. the Protocol to the Convention for the Regulation of Whaling Signed Under Date of Dec. 2, 1946.83

The Whaling 1946 Convention established the International Whaling Commission (IWC). In addition, the Convention on International Trade in Endangered Species of Wild Fauna and Flora44 has been applied to three species of whale.85

The protection of whales has been an issue for over half a century since early warnings in 1925.86 During the 1970s and early 1980s, the movement to protect and conserve whales gained considerable strength.87 However, even after the IWC ban on whaling, the zero-mortality goal desired by conservationists88 may be difficult to attain because of the institutional limitations inherent in international regulation. In any event, it has been recognized that “[b]enefits accrue to the cetaceans only when destructive human activities such as whaling, pollution, and fisheries for shared prey species are reduced or stopped.”89

2. Historical Background

In 1946, the IWC was organized basically to accomplish two objectives:90 (1) the promotion of whaling industry interests; and (2) the conservation of global whale stocks. One of the tangible results of regulation was the agreement to prohibit the hunting of gray whales except by aborigines (i.e., native populations) or for scientific purposes.91 However, until the early 1970s, kill quotas were set by the ecologically unsound “blue whale unit” (BWU) method. Each whaling company’s limit was set in BWUs. One blue whale was deemed


86Dobra, Cetaceans: A Litany Of Cain, 7 B.C. ENVTL. AFF. L. REV. 165, 171 (1978) [hereinafter cited as Dobra].

87See id. at 171-176.

88Id. at 181-83.

89Scarff II, supra note 39, at 597.

90Dobra, supra note 86, at 171-72.

91Storro-Patterson, Gray Whale Protection, OCEANS, July-Aug. 1977, at 45, 47.
to equal 2.0 fin whales or to equal 2.5 humpback whales or sei whales. Unfortunately, this method failed to analyze the complexity of whale ecology — referring instead to general species and geographical location. Accordingly, this method led to the depletion of such species as the bowhead, right, and blue whales. Thus, until the early 1970s, the IWC never proved effective in preventing the continued extermination of whales, and instead the IWC generally promoted the interests of the whaling nations.

Cetaceans also come within the terms of three of the four 1958 law of the sea conventions. These treaties are designed to protect “living resources” in general, and they do not contain specific provisions dealing with cetaceans. In addition, they have never been ratified by such major whaling nations as Chile, Japan, Peru, and the USSR. They have therefore remained ineffective in protecting “cetacean resources.” Despite its weaknesses, “the IWC remains the sole international organ capable of any effective regulation of whaling.”

In 1972, the Report of the United Nations Conference on the Human Environment (Stockholm Report) recommended a 10-year moratorium on commercial whaling and called for a strengthening of the IWC. For years, the IWC rejected a moratorium, but during its 31st annual meeting in July of 1979, the IWC conceded in part, by establishing for 10 years an “International Whale Sanctuary” covering the entire Indian Ocean north of 55°S latitude. Before this breakthrough the IWC had abolished the unsound BWU approach and imposed quotas by species. In 1982, the IWC finally voted for a total ban on whaling, which consisted of a three-year phase out of whaling to be completed in 1986.

During the early 1970s, the United States protested the IWC’s traditional position against the moratorium, and as a result, in 1972 the United States enacted the MMPA which prohibits taking marine mammals from waters un-
nder the jurisdiction of the United States and the import into the United States of any marine mammal taken in violation of the MMPA (unless a special permit is obtained from the Secretary of Commerce). The United States also passed the Endangered Species Act of 1973, and the "Pelly Amendment" to the Fishermen's Protective Act of 1967. Under the Pelly Amendment, the President may ban imports of all fishery products from a country which conducts fishing operations in a manner or under circumstances which diminish the effectiveness of an international conservation program. During the late 1970s, this U.S. domestic legislation was instrumental in the change of attitude within the IWC toward conservationist goals.

3. Trends and Conditioning Factors

The effectiveness of IWC efforts has gradually improved as a result of the growth of the conservation movement worldwide, particularly the conservationist efforts of U.S. organizations. These trends caused the IWC to strengthen its whaling regulations. In 1977, the U.S. government formally decided to forbid foreign whaling within 200 miles of the United States. Meanwhile, the IWC reduced the commercial quota for all whales from 37,300 in 1974 to 14,553 in 1980 (which is 9.2 percent less than the 15,883 killed during the previous season). In 1979, the IWC banned all whaling by factory ships (except for minke whaling in the Antarctic) and established the new International Whale Sanctuary. The culmination of this trend was the 1982 IWC vote which was designed to phase out whaling completely.

4. Policy Alternatives and Recommendations

Scientists and conservationists have validly criticized the IWC's many deficiencies. However, cetacean conservation might be better served by pressuring the IWC to continue to take more conservation-oriented positions than by creating an entirely new agency. While the IWC vote to ban whaling was a historic turning point, there are many remaining ecological problems involving

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1. See MMPA, supra note 3, § 1361 et seq.
2. Id. at § 1361(a).
whales. These problems should be addressed by either the IWC or a successor organization (e.g., an International Cetacean Commission).

In 1974, the U.S. argued that "the IWC, in a modified form, should continue to have general management authority over whales and, additionally, should be granted management authority over small cetaceans," on the grounds that: (1) the "IWC has existed for thirty years and therefore possesses valuable institutional momentum," and (2) the "IWC has shown itself responsive to the needs of industry and therefore is more likely to retain the cooperation of whaling nations than a new, more 'protectionist' international body." Historically, three draft proposals were put forward to modify the IWC. These proposals were designed to strengthen the IWC and to change its role, for example, by restricting the transfer of whaling equipment from IWC member nations to nonmember nations.

To provide improved scientific advising of the IWC, the "Working Group on Management of Whales" was established by the Survival Services Commission of the International Union for the Conservation of Nature and Natural Resources. The major tasks of the Working Group were: (1) to examine the existing mechanisms for whale management; and (2) to recommend specific conservation and management procedures as well as basic objectives and principles.

It was hoped that some deficiencies in the IWC's management and conservation efforts could be corrected by UNCLOS III. Unfortunately, the UNCLOS III negotiations ignored the opportunity and did not deal effectively with the problem of cetaceans. In addition, the differing interests of the whaling nations may make future international cooperation difficult.

"Whatever action is taken by other countries and international organizations, the responsibility of the United States in the formulation and enforcement of a global protection program is undeniable." It has been suggested that U.S. influence might be increased by using the powerful import restriction provisions in the MMPA and the Pelly Amendment, because the U.S. seafood market is vast and because access to it is vital for foreign fishery nations. Since the emphasis of the IWC on cetacean protection has been shifting to

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114 See Scarf II, supra note 39, at 618.
115 Id.
116 Id.
117 Id. at 619.
118 See id. at 619-26.
119 Id. at 630.
120 See id. at 608-13.
121 Dolphin Conservation, supra note 39, at 699.
122 See Dobra, supra note 86, at 181-82.
small cetaceans, such as dolphins and porpoises, it is argued that the United States should also amend regulations to further reduce small cetacean kills in the tuna industry. Another problem for the United States is that the taking of bowhead whales by the Alaskan Eskimos needs continual monitoring. Due in part to the bowhead situation, in 1979 the U.S. representatives to the IWC ignored the Scientific Committee’s advice for quotas in 1980, somewhat impairing the negotiating position of the United States. Fortunately, this problem did not appear to affect the 1982 vote by the IWC to ban commercial whaling.

D. Other Marine Mammals

Included in this grouping are polar bears, the sea otters, and the dugongs and manatees. Each of these marine mammals will be examined separately.

1. Sirenians: Dugongs and Manatees

Of all marine mammals, dugongs and manatees are probably the most dependent on land, and they are closely associated with the coastal ecosystem, although they never venture onto land themselves. Dugongs are found in the Indian Ocean from the east coast of Africa to the Malaysian Archipelago. Their range also extends along the northern coasts of Australia, in the Gulf of Carpentaria and in the Torres Strait. Manatees inhabit the warm waters along the east coast of the Americas, stretching from Florida to Guyana and Brazil. One species is found off the west coast of Africa. Since they will normally be found within national baselines, they live basically within “internal waters.” Even outside of the baselines, they will almost always be within 12 miles of the coast and thus within the Territorial limit.

Dugongs are hunted by the Australian aborigines, and manatees are hunted by the people of Central America and South America. In 1972, the

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123See Dolphin Conservation, supra note 39, at 695.
124Dobra, supra note 86, at 181.
125See Recent Development, Aboriginal Exemption To The International Whaling Convention, 6 AM. INDIAN L. REV. 249, 249 (1978).
126Sperm Whales, supra note 101, at 2.
127See Larsen, Progress In Polar Bear Research And Conservation In The Arctic Nations, 4 ENVTL. AFF. 295 (1975) [hereinafter cited as Larsen].
128See Coggins, supra note 14, at 9.
129HARRISON & KING, supra note 19, at 169-70.
130Id. at 152-53.
131Id. at 153.
132See LOS Convention, supra note 1, arts. 2-16.
133Id.
134Coggins, supra note 14, at 9.
Florida manatees were included on the federal list of endangered species, because coastal development was directly and indirectly killing them and because herbicides were destroying their food supply. So much pressure is being exerted on the dugongs and manatees that an immediate international ban on killing them needs to be imposed. While limited killing of the bowhead whale is still permitted by traditional cultures dependent on the bowheads (such as the “umealits” of Alaska), there should be a complete ban on killing dugongs and manatees. Dugongs and manatees suffer more than other marine mammals from the pressures of “land-based pollution,” particularly: (1) oil; (2) organic contaminants, inhibitors, and poisons; (3) plastics; (4) heavy metals; and (5) industrial and municipal wastes. Whales are highly migratory, spending a large portion of their time in the high seas areas, and are therefore not as directly affected by these pollutants (although the pressure placed upon them by whalers has historically been enormous).

2. Sea Otters

Like dugongs and manatees, sea otters are generally found in coastal waters and are subject to coastal-state sovereignty. Sea otters are also under pressure from land-based pollution, but they have made a good comeback since the nineteenth century when the demand for their pelts caused them to be hunted to near extinction, their resurgence is largely a result of a 1910 U.S. ban on hunting in the Aleution Islands and a 1911 Treaty with Japan, Russia, and the United Kingdom. For years the United States has tried domestically to protect sea otters, but abalone fisherman often kill sea otters as abalone eaters, not recognizing the importance of sea otters in the food chain. Even so, sea otters do not appear to be in any immediate danger of extinction, since estimates put their numbers above 100,000.

3. Polar Bears

The polar bear (ursus maritimus) is the most land-based of the marine mammals and must be protected by those individual nations governing the territories in which it is found, namely, Canada, Denmark, Norway, the United States, and the USSR. Representatives from these five nations met at the First
International Scientific Meeting on the Polar Bear in Fairbanks, Alaska, in 1965.144 The USSR prohibited the killing of polar bears in 1956,145 but the other four nations were slow to follow this lead. In the mid-1970s estimates placed the number of polar bears at between 8,000 and 20,000.146

Given this disparity in estimates, and given the fact that the Canadian and Norwegian kills together averaged 1,000 bears per year,147 the hunting of polar bears for trophies had to be prohibited.148 Accordingly, the five nations met in 1973 in Oslo, and drafted the Agreement on the Conservation of Polar Bears (Polar Bear Agreement).149 All of the participating countries subsequently signed this agreement. Under the Polar Bear Agreement, the five countries may not capture or kill polar bears except:

a. for bona fide scientific purposes;
b. for conservation purposes;
c. for prevention of serious disturbance of the management of other living resources; or
d. by local people utilizing traditional methods in the exercise of their traditional rights.150

For the future, it is necessary "to study the incidence of toxic chemical components from industry and agriculture, such as polychlorinated hydrocarbons (PCB's) and heavy metals, which are already present in polar bear tissue throughout the Arctic, sometimes in surprisingly high concentrations."151 In addition, "[h]igh levels of DDT and other pesticide residues have recently been confirmed in polar bear tissue; the polar bear habitat is located about as far away from significant DDT sources as any place on the globe."152 The global impact of land-based and air-borne pollution on all life forms is a matter for urgent international action.


As indicated earlier, the special problems of cetaceans were not adequately addressed at UNCLOS III. Although cetaceans are highly migratory, their classification with all other highly migratory species in article 64 of the LOS Convention is ridiculous.153 Cetaceans should be classified with the other ma-

144Larsen, supra note 127, at 295.
145Id. at 297; Coggins, supra note 14, at 10.
146Larsen, supra note 127, at 298; see Coggins, supra note 14, at 9-10 (estimating the number of polar bears at 10,000 to more than 20,000). See also Dep't Interior, Status Report on Marine Mammals, 39 Fed. Reg. 27, 922, 27, 922-23 (1974) [hereinafter cited as Marine Mammals Report].
147Larsen, supra note 127, at 296-97. In 1970, over 1,300 bears were killed in the Arctic. Id. at 302.
148See id. at 301.
150See id. arts. 1-5, 7.
151Larsen, supra note 127, at 305.
152Coggins, supra note 14, at 11; see Marine Mammals Report, supra note 146, at 27, 924.
153See LOS Convention, supra note 1, art. 64, annex I. See footnotes 15-18 supra and accompanying text.
rine mammals in specific provisions; the negotiators at UNCLOS III ignored their responsibility in this area by providing only a general provision, article 65, to govern marine mammals. For example, the 10-year moratorium on the taking of whales found in Recommendation 33 of the Stockholm Report should have been included in the LOS Convention with exceptions similar to those enumerated under the Polar Bear Agreement. The exception for taking by indigenous peoples should be allowed only if there is strict monitoring. However, the exception in the Polar Bear Agreement allowing takings for prevention of serious disturbance to other living resources should not have been included since it is too broad and could easily be abused. It can be argued that this recommendation has been precluded by the 1982 IWC vote which essentially banned whaling, but the limited membership of the IWC, combined with other administrative problems, necessitates more international action.

The exclusions and poor draftmanship of the LOS Treaty provisions in this area will undoubtedly create future problems. Annex I which lists the "highly migratory species" regulated by article 64 is a good example. Cetaceans should probably not be included in annex I at all. As it is they are treated in a haphazard and confusing manner. Annex I contains the following biological categories:

15. Dolphin: *Coryphaena hippurus; Coryphaena equiselis*

17. Cetaeans: Family *Physeteridae; Family Balaenopteridae; Family Balaenidae; Family Eschrichtiidae; Family Monodontidae; Family Ziphiidae; Family Delphinidae.* If the family *delphinidae* (dolphin) is included under "cetaceans," there should be no necessity for including the separate category of "dolphin." Most importantly, porpoises are not even mentioned in annex I. Although some taxonomists list the family *phocoenidae* (porpoise) as a subfamily of *delphinidae,* this is the minority viewpoint. The more scientific approach would have been to list the family *phocoenidae* in the "cetacean" category of annex I. It is difficult to know whether any species of *phocoenidae,* and if so which ones, were meant to come within the protections of articles 64 and 65.

While dolphins and whales are included in annex I, adequate conservation demanded an LOS Convention moratorium on commercial whaling and regulation of dolphin stocks under a "dual management" regime. By includ-

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18See LOS Convention, *supra* note 1, art. 65.


20See footnotes 77-79, 149-50 *supra* and accompanying text.

21LOS Convention, *supra* note 1, annex I. The "dolphin" species *Coryphaena hippurus* (sometimes called the dorado) and *Coryphaena equiselis* (the pompano dolphin) included in annex I are actually fish and not mammals. See B. GRZIMEK, 5 GRZIMEK'S ANIMAL LIFE ENCYCLOPEDIA 103 (1974).


23See footnotes 77-79, 99-101, 149-50 *supra* and accompanying text.
ing dolphins and whales in annex I, it can be argued that dolphins and whales may still be killed by nonmembers of the IWC, since article 64 allows for “optimum utilization” of annex I species. While it can also be argued that, until whale populations increase, any utilization is suboptimal, protection could have been assured by writing a moratorium provision into the LOS Convention.

Dolphins are not “optimally utilized” when killed simply because they inconveniently get caught in tuna nets. Since dolphins are not an economic resource per se, which fishermen wish to exploit, “optimum utilization” of dolphins requires that they be utilized for tracking tuna. Thus, “optimum utilization” means that the dolphins should be released from tuna nets so that they may locate more tuna.161

Including cetaceans under article 64 also suggests that they are under the jurisdiction of regional organizations rather than an international organization such as the IWC.162 Protecting cetaceans is one goal which can best be achieved through an international approach. For example, the moratorium on whaling still allowed those countries which disagreed to exploit whales to extinction.

Some problems163 in articles 53 and 54 of the Revised Single Negotiating Text (RSNT)164 (which correspond to articles 64 and 65 of the LOS Convention)165 have been remedied. Even so, other problems remain:

[Language in the text suggests that any international management organization would not have management jurisdiction within the 200-mile economic zones. Thus, over one third of the world’s oceans would not be subject to management by any international organization; and, while the provision exists for any nation to impose more stringent conservation measures within its own economic zone, as the United States has recently done with respect to whaling, the provision also exists for any coastal nation to remove all conservation restrictions. In this context it should be remembered that Chile, which was the first modern nation to claim a 200-mile fishery zone, did so originally to protect its own whaling industry.166

160See footnotes 80-83 supra and accompanying text.
161See footnotes 45-49 supra and accompanying text.
162See Pijanowski, Comments on Fisheries and the Law of the Sea, MARINE TECH. SOC’Y J., July-Aug. 1977, at 34, 35 [hereinafter cited as Pijanowski].
163See Id. at 35.
165Compare LOS Convention, supra note 1, arts. 64-65; with RSNT, supra note 164, arts. 53-54.
166Pijanowski, supra note 162, at 35.
The changes in the LOS Convention from the RSNT strongly support the interpretation that an international organization such as the IWC is to regulate all whaling, and the focus of article 65 of the LOS Convention is clearly on "conservation." However, all doubts could be eliminated by deleting the "cetaceans" from annex I. This change definitely needs to be made or the welfare of the cetaceans will be severely impaired.

Since several of these suggestions may be impractical given the 1978-82 trends at UNCLOS III, a shift in position is necessary regarding cetaceans. According to the internationally accepted classifications used for marine mammals, it appears that all of the cetacean families are included in annex I — except for the families platani stidal and phocoenidae (and by some classifications stenidae). The river dolphins, platani stidae, stay in fresh water and estuarine areas, are not "highly migratory," and should not be included in annex I. Of the six species of phocoenidae, two species are coastal and little is known about the four remaining species — except for the Dall's porpoise (phocoenoides dalli) which is highly migratory and is caught incidentally by the Pacific salmon fishing industry. The tuna fishing industry incidentally catches all of the dolphin species found in the family delphinidae.

Instead of removing all cetaceans from annex I, an alternative would be to leave the family delphinidae and to add the Dall's porpoise to annex I. This classification would create a "dual management system" in which "regional organizations" would manage the delphinidae and the Dall's porpoise in the first instance under article 64 of the LOS Convention, but overriding jurisdiction would be in an International Cetacean Commission (as a successor organization to the IWC) under article 65. Under this alternative, all other cetaceans would be managed exclusively by the International Cetacean Commission, and therefore, the other cetacean families would be deleted from annex I. Except for delphinidae, all of the other cetacean families listed in annex I of the LOS Convention migrate "globally" and it is specious to try and conserve or manage them under the regional organizations of article 64. Naturally, coastal States should be permitted to prevent the taking of cetaceans within their economic zones; however, such a prohibition on the taking of highly migratory species (e.g., tuna) would not be permissable absent authorization by a regional organization under article 64 (or by some future international organization).

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167See LOS Convention, supra note 1, art. 65.
168Id. annex I.
169Id. art. 64.
170Id. art. 65.
171Id. annex I.
172Id. art. 64.
173Id. arts. 64-65.
Accordingly, there are four major goals in eventually modifying article 65 and article 64, annex I. First, it should be emphasized that within its economic zone a coastal State can impose higher conservation standards for cetaceans than existing international standards. Thus, the “full utilization” or “optimum utilization” requirement of article 62 does not apply to cetaceans within the economic zone of a coastal State.\textsuperscript{174} Even if this interpretation is challenged, “optimum utilization” of cetaceans necessarily means a moratorium on catching them so that they can recover from past overexploitation. Article 65 of the LOS Convention meets this objective and this aspect of article 65 should be retained in any renegotiated article. With regard to the United States, the MMPA provides an example of coastal-State protection for cetaceans which is greater than the international standards of 1980.

Secondly, article 65 needs to protect cetaceans by utilizing one authoritative “international organization” (instead of many “international organizations”).\textsuperscript{175} The “international organization” should be understood to mean the IWC, because it is evolving from an organization primarily directed at whaling into an organization primarily concerned with cetacean conservation — a successor International Cetacean Commission. Such an approach was utilized in article 211 governing vessel-source pollution.\textsuperscript{176} In article 211 the singular “international organization” is understood to mean the International Maritime Organization (IMO),\textsuperscript{177} which during the late 1970s evolved from the Intergovernmental Maritime Consultative Organization (IMCO). Continued use of the plural “international organizations” in article tuna-oriented organizations such as the CEP group. It is essential that the singular “international organization” be utilized in article 65,\textsuperscript{178} and that all cetaceans except delphinidae (and the Dall’s porpoise) be deleted from annex I.\textsuperscript{179} Article 120 of the LOS Convention, which extends the application of article 65 from the economic zone to the high seas, highlights this problem.\textsuperscript{180} Therefore, the continued inclusion of the whales in annex I provides no fallback if article 65 cannot be renegotiated, undercuts the IWC (and any successor organization), and leads to confusion as to the management of whales by regional “tuna” organizations.

Thirdly, “protection, conservation, and management” should be the standards governing marine mammals instead of the looser conservation standards for fish stocks of “maximum sustainable yield” (MSY) or “optimum yield” (OY). Former Ambassador at Large, Elliot Richardson believes that article 61

\textsuperscript{174}\textsuperscript{Id} art. 62.
\textsuperscript{175}\textsuperscript{Id} art. 65.
\textsuperscript{176}\textsuperscript{Id} art. 211.
\textsuperscript{177}\textsuperscript{Id}.
\textsuperscript{178}\textsuperscript{Id} art. 65.
\textsuperscript{179}\textsuperscript{Id} annex I.
\textsuperscript{180}\textsuperscript{Id} art. 120.
of the LOS Convention establishes a minimum conservation standard beneath which no country could go when regulating marine mammals — regardless of whether a particular country is a member of the IWC. However, a different and potentially dangerous interpretation is that article 65 removes even the minimal article 61 conservation standard from marine mammals. The article 61 standard is marginal even for fish stocks and it is allegedly self-fulfilling since a coastal State supposedly has an interest in protecting and conserving those fish stocks primarily under its jurisdiction. However, whales are a "common pool" problem since they are migratory on a global basis, and the article 61 standard is therefore both ineffective and inappropriate. Annex I does not solve this problem by providing a fallback to article 64, because article 65 will clearly take precedence with regard to marine mammals.

At a minimum, international standards for the protection and conservation of cetaceans (as distinguished from all marine mammals) should be binding both within and beyond the economic zone (subject only to an exception for "higher" conservation standards implemented by coastal States). Article 65 fails in meeting this goal because it permits coastal State preeminence in "ignoring" as well as "setting" standards. If article 65 is not modified to remedy this situation, some extreme coastal States will probably attempt to prevent international (IWC) standards from applying in their economic zones. Article 65 should be modified to ensure that conservation standards which are no less effective than international standards will apply within and beyond the economic zone. This approach has already been utilized in such provisions as article 208 (governing pollution from seabed activities) and article 211 (governing vessel-source pollution). A synergistic effect of utilizing this approach is that it also binds countries who are not members of the IWC.

While a member of the U.S. Delegation to UNCLOS III, George Taft indicated that the primary concern of the United States in this area was merely to ensure that the conservation standard of article 61 was applicable to marine mammals. However, the United States did incorporate some of these goals by reintroducing its revised article 65 at the Ninth Session of UNCLOS III. The U.S. revision stated that:

Nothing in this Part restricts the right of coastal State or the competence of an international organization, as appropriate, to prohibit, limit or

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regulate the exploitation of marine mammals more strictly than provided for in this Part. States shall cooperate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organizations for their conservation, management and study.\textsuperscript{189}

This revision "was supported (or not objected to) in informal Committee II and Plenary and was included in the ICNT, Rev. 2."\textsuperscript{190} Environmentalists also wanted an "interpretative statement" included as part of the U.S. article 65 proposal; however, a misunderstanding involving George Taft resulted in no "interpretative statement" being presented to Committee II. Considering the ease with which the U.S. revision was accepted, this lack of coordination was particularly unfortunate.\textsuperscript{191} The "interpretative statement" provided for many of the concerns and objectives indicated earlier.

To alleviate the remaining problem areas, another revised article 65 should be considered, and the revision should read as follows:

\textit{Article 65}

\textit{Cetaceans and Other Marine Mammals}

1. Nothing in this Convention restricts the right of a coastal state or the competence of an international organization, as appropriate, to prohibit or more strictly regulate or limit the exploitation of marine mammals.
2. States shall cooperate with a view to ensuring conservation of marine mammals and shall in particular work through the competent international organization for the conservation, protection and study of cetaceans, both within and beyond the exclusive economic zone.
3. States shall establish regulations, measures and procedures for the conservation and protection of cetaceans applicable to vessels flying their flag and activities within the economic zone subject to their jurisdiction. Such laws, regulations and measures shall at least have the same effect as that of generally accepted international regulations, methods and procedures established through the competent international organization.

In addition, all cetaceans should be deleted from annex I except for the family \textit{delphinidae}, and Dall's porpoise (\textit{phocoenoides dalli}) should be added to annex I as part of a dual management system. If these proposals are unacceptable, then as a minimum, the "interpretative statement" should be incorporated into the record of the negotiations or the successor to Committee II. Otherwise, the protection, conservation and management of cetaceans and other marine mammals will remain seriously impaired.

\textsuperscript{189}Id.
\textsuperscript{190}Id.
\textsuperscript{191}Id.
APPENDIX I

Cetacean Families Included and Excluded from Annex I of the LOS Convention

A. Cetacean Families Included in Annex I:

*Dolphin:* Coryphaena hippurus; Coryphaena equiselis; A fish of southern waters.

*Cetaceans:* Family *Physeteridae* which includes the Sperms:
Sperm Whale-Physeter catodon
Pygmy Sperm Whale — Kogia breviceps/K. simus

Family *Balaenopteridae* which includes the Rorquals:
Minke Whale-Balaenoptera acutorostrata
Sei Whale-Balaenoptera borealis
Bryde’s Whale-Balaenoptera edeni
Blue Whale-Balaenoptera musculus
Fin Whale-Balaenoptera physalus
Humpback Whale-Megaptera novaeangliae

Family *Balaenidae* which includes the Rights:
Bowhead Whale-Balaena mysticetus
Right Whale-Eubalaena glacialis
Pygmy Right Whale-Caperea marginata

Family *Eschrichtiidae* which includes the Grays:
Gray Whale-Eschrichtius gibbosus

Family *Monodontidae* which includes the White Whales:
Beluga Whale-Delphinapterus leucas
Narwhal-Monodon monoceros

Family *Ziphiidae* which includes the Beaked Whales:
North Sea Beaked Whale-Mesoplodon bidens
Strap-toothed Whale-Mesoplodon layardi
Antillean Beaked Whale-Mesoplodon europaeus
True’s Beaked Whale-Mesoplodon mirus
Camperdown Whale-Mesoplodon grayi
Blainville’s Beaked Whale-Mesoplodon densirostris
Stejneger’s Beaked Whale-Mesoplodon stejnegreri
Japanese Beaked Whale-Mesoplodon ginkgodens
Andrew’s Beaked Whale-Mesoplodon bowdoini
Hubb’s Beaked Whale-Mesoplodon carlhubbsi
Hector’s Beaked Whale-Mesoplodon hectori
Pacific Beaked Whale-Mesoplodon pacificus
Cuvier’s Beaked Whale-Ziphius cavirostris
Arnoux’ Beaked Whale-Berardius arnouxi
Baird's Beaked Whale - Beradius bairdi
Tasmanian Beaked Whale - Tasmacetus shepherdi
Northern Bottlenose Whale - Hyperoodon ampullatus
Southern Bottlenose Whale - Hyperoodon

*Family Delphinidae* which includes most Dolphins:
Common Dolphin - Delphinus delphis
Risso’s Dolphin - Grampus griseus
Bottlenose Dolphin - Tursiops truncatus / T. gilli
White-sided Dolphin - Lagenorhynchus obliquidens (Pacific)
White-beaked Dolphin - Lagenorhynchus albirostris
Dusky Dolphin - Lagenorhynchus obscurus
White-sided Dolphin - Lagenorhynchus acutus (Atlantic)
Falkland Island Dolphin - Lagenorhynchus thicoles
Hour-glass Dolphin - Lagenorhynchus cruciger
Sarawak Dolphin - Lagenorhynchus hosei
Pygmy Killer Whale - Feresa attenuata
Commerson’s Dolphin - Cephalorhyncus commersoni
Hector’s Dolphin - Cephalorhyncus hectori
Heaviside’s Dolphin - Cephalorhyncus heavisidei
White-bellied Dolphin - Cephalorhyncus eutropia
Orca (Killer Whale) - Orcinus orca
False Killer Whale - Pseudorca crassidens
Irrawaddy River Dolphin - Orcaella brevirostris
Pilot Whale - Globicephala melaena
Broad-beaked Dolphin - Peponocephala electra
Right Whale - Dolphin - Lissodelphis peroni borealis

B. Cetacean Families Excluded from Annex I:

*Family Stenidae* which includes Dolphins:
Rough-toothed Dolphin - Steno bredanensis
Boto Dolphin - Sotalia fluviatilis
Guiana River Dolphin - Sotalia guianensis
Chinese White Dolphin - Sotalia chinensis
Borneo White Dolphin - Sotalia borneensis
Speckled Dolphin - Sotalia centiginosa
Plumbeous Dolphin - Sotalia plumbea
Cameroon Dolphin - Sotalia teuszi
Rio de Janeiro Dolphin - Sotalia brasiliensis
Blue Dolphin - Stenella coeruleoalba
Spinning Dolphin - Stenella longirostris
Narrow-snouted Dolphin - Stenella dubia / S. graffmani
Bridled Dolphin - Stenella frontalis
Family *Phocoenidae* which includes Porpoises:
Harbor Porpoise- *Phocaena phocoena*
Spectacled Porpoise- *Phocaena dioptrica*
Black Porpoise- *Phocaena spinipinnis*
Black Finless Porpoise- *Neomeris phocaenoides*
Dall's Porpoise- *Phocaenoides dalli*
True's Porpoise- *Phocaenoides truei*

**APPENDIX II**

Marine Mammals Associated with Tuna Fishing

<table>
<thead>
<tr>
<th>Genus Species</th>
<th>Common Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globicephala Macrorhynchus</td>
<td>short-finned pilot whale, pothead, pilot whale</td>
</tr>
<tr>
<td>Steno bredanensis</td>
<td>rough-toothed dolphin</td>
</tr>
<tr>
<td>Lagenorhynchus obliquidens</td>
<td>Pacific white-sided dolphin</td>
</tr>
<tr>
<td>Lagenodelphis hosei</td>
<td>Fraser's dolphin, short-snouted whitebelly</td>
</tr>
<tr>
<td>Delphinus delphis</td>
<td>common dolphin, saddleback porpoise, whitebellied porpoise</td>
</tr>
<tr>
<td>Tursiops truncatus</td>
<td>bottlenose dolphin</td>
</tr>
<tr>
<td>Grampus griseus</td>
<td>Risso's dolphin, grampus</td>
</tr>
<tr>
<td>Stenella attenuata</td>
<td>spotted dolphins (probably two or more species)</td>
</tr>
<tr>
<td>Stenella dubia</td>
<td></td>
</tr>
<tr>
<td>Stenella frontalis</td>
<td></td>
</tr>
<tr>
<td>Stenella plagiodon</td>
<td></td>
</tr>
<tr>
<td>Stenella longirostris</td>
<td>spinner dolphin</td>
</tr>
<tr>
<td>Stenella coeruleoalba</td>
<td>striped dolphin, streaker</td>
</tr>
</tbody>
</table>
## APPENDIX III

### The Large Whales — Classification and Characteristics

<table>
<thead>
<tr>
<th>Suborder/Family/Species</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MYSTICETI</strong> (Baleen Whales)</td>
<td>All filter feeders, generally feeding on small zooplankton (krill, diatoms, and copepods); only slightly sexually dimorphic.</td>
</tr>
<tr>
<td>Balaenidae (large right whales)</td>
<td>Found only in extreme arctic waters.</td>
</tr>
<tr>
<td>Bowhead whale (<em>Balaena mysticetus</em>)</td>
<td>Slow swimmer, usually found close to shore.</td>
</tr>
<tr>
<td>Right whale (<em>Eubalaena glacialis</em>**)</td>
<td>Slow swimmer, migrates very close to shore, breeds and bears young in coastal lagoons of Baja California, feeds on benthic amphipods.</td>
</tr>
<tr>
<td>Eschrichtidae (gray whales)</td>
<td>Slow swimmer, migrates close to coasts.</td>
</tr>
<tr>
<td>California gray whale (<em>Eschrichtius robustus</em>)</td>
<td>Fast swimmers, normally found in deep waters, summer feeding in extreme polar waters.</td>
</tr>
<tr>
<td>Balaenopteridae (rorquals)</td>
<td>Similar to blue whale, summer feeding in polar waters.</td>
</tr>
<tr>
<td>Humpback whale (<em>Megaptera novaeangliae</em>)</td>
<td>Up to 60 ft. long, similar to fin whale but summer range more temperate.</td>
</tr>
<tr>
<td>Blue whale (<em>Balaenoptera musculus</em>)</td>
<td>Up to 50 ft. long, very similar to sei whale but range more tropical.</td>
</tr>
<tr>
<td>Fin whale (<em>Balaenoptera physalus</em>)</td>
<td>Smallest rorqual, not commercially taken until the 1970's.</td>
</tr>
<tr>
<td>Sei whale (<em>Balaenoptera borealis</em>)</td>
<td></td>
</tr>
<tr>
<td>Bryde's whale (<em>Balaenoptera edeni</em>)</td>
<td></td>
</tr>
<tr>
<td>Minke whale (<em>Balaenoptera acutorostrata</em>)</td>
<td></td>
</tr>
<tr>
<td>ODONTOCETI (Toothed Whales)</td>
<td>Feed on fish and cephalopods (squid); often highly social, sexually dimorphic.</td>
</tr>
<tr>
<td>Physeteridae (sperm whales)</td>
<td>Polygynous, very sexually dimorphic, slow to reach sexual maturity.</td>
</tr>
<tr>
<td>Sperm whale (<em>Physeter catodon</em>)</td>
<td></td>
</tr>
</tbody>
</table>

* a synonymous name for the gray whale is *E. gibbosus.*

** some taxonomists consider the southern right whales to be a distinct species (*E. Australis*). Like gray whales, some southern right whales migrate close to coasts and breed young in coastal lagoons.

### The Small Cetaceans — Classification and Characteristics

<table>
<thead>
<tr>
<th>Suborder/Family</th>
<th>No. of Species</th>
<th>Characteristics</th>
<th>Important or typical species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MYSTICETI</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balaenopteridae (rorquals)</td>
<td>1*</td>
<td>Pelagic, under IWC jurisdiction.</td>
<td>Minke whale (<em>Balaenoptera acutorostrata</em>)</td>
</tr>
<tr>
<td>Balaenidae (right whale)</td>
<td>1*</td>
<td>Unknown, rare, under IWC Jurisdiction.</td>
<td>Pigmy right whale (<em>Caperea marginata</em>)</td>
</tr>
<tr>
<td><strong>ODONTOCETI</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physeteridae (sperm whales)</td>
<td>2*</td>
<td>Tropical and subtropical, rare.</td>
<td>Pigmy sperm whale (<em>Kogia breviceps</em>)</td>
</tr>
<tr>
<td>Delphinidae (dolphins)</td>
<td>§ 33</td>
<td>Very diverse, coastal and pelagic, may occur in schools of up to 1000 individuals, most are small, but killer whales up to 30 feet in length.</td>
<td>Killer whale (<em>Orcinus orca</em>), Pilot whales (<em>Globicephala</em> spp.), Bottlenose dolphin (<em>Tursiops truncatus</em>), Striped and spinner dolphins (<em>Stenella</em> spp.)</td>
</tr>
<tr>
<td>Phocoenidae)** (porpoises)</td>
<td>6</td>
<td>Similar to dolphins, all are small.</td>
<td>Dall’s porpoise (<em>Phocaenoides dalli</em>)</td>
</tr>
<tr>
<td>Ziphiidae (beaked whales)</td>
<td>18</td>
<td>Pelagic, deep sea, most are rare, 16-35 feet long.</td>
<td>Bottlenose whales (<em>Hyperoodon</em> spp.), Beaked whales (<em>Mesoplodon</em> spp.), Baird’s beaked whale (<em>Berardius bairdii</em>)</td>
</tr>
</tbody>
</table>

* Only those members of a family which are considered small cetaceans are counted here.

** A few taxonomists consider the phocoenids to be a subfamily of Delphinidae.

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<table>
<thead>
<tr>
<th>Monodontidae</th>
<th>2</th>
<th>No. hemis. arctic waters only. Belugas locally abundant, narwhals uncommon.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platanistidae (river dolphins)</td>
<td>5</td>
<td>Found in internal or coastal waters, small.</td>
</tr>
</tbody>
</table>

Beluga
(Delphinapterus leucas)
Narwhal
(Monodon monoceros)

Ganges susu
(Platanista gangetica)

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## Summary of Marine Mammals


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Summary of Marine Mammals

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