Migratory Species in International Law

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ABSTRACT

This article reviews the legal status of migratory species, whether terrestrial or marine, and the treaties which have been concluded for the preservation and management of these resources. It underlines the three general requirements that must be met if the conservation of migratory populations or stocks is to be effective: the resource must be managed as a unit; exploitation, when allowed, should be rational; all relevant ecological factors must be taken into consideration. Appropriate implementation mechanisms and institutions are also essential.

INTRODUCTION

Migration may be defined as a cyclical, and therefore predictable, phenomenon whereby certain animals perform periodic movements between two separate geographic areas, one area usually being where they breed.

There are terrestrial, fresh water, and marine migratory species. Terrestrial species include certain mammals, such as many bats, a few ungulates, a large number of birds, and even some insects such as the monarch butterfly. Most of these species migrate between a breeding area where conditions are particularly favorable for the raising of their young at a certain time of the year, usually in the spring or summer, and a wintering area where they can find, at that time of the year, the food that they require. Certain species, however, such as bats, do not feed

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1. Many insectivorous bats are migratory. Their movements are, however, still poorly known. Some seem to fly over considerable distances to their wintering quarters.

2. Migratory ungulates include caribou, several species of gazelles, and other antelopes such as the Siberian saiga. The American buffalo was migratory. Elephants may also migrate in certain parts of Africa.


4. The monarch butterfly breeds in Canada and in the United States. In the fall the insects travel several thousand miles to hibernate in very large numbers in a small mountainous area in the central part of Mexico. Pacific coast populations hibernate in California in the city of Monterey.
during the winter but congregate in large numbers to hibernate at specific sites.

Fresh water species include many fish as well as certain other aquatic animals such as river turtles and dolphins. Their migrations are governed by biological requirements, in particular the location of appropriate spawning or breeding grounds where specific ecological conditions prevail.

Marine migrants comprise many cetaceans and fishes, some crustaceans and a few pelagic mollusks such as squids. Most species migrate between coastal areas and the open sea. Some, like mullets and many shrimps, reproduce themselves in the ocean and spend their adult life near the coast or in inshore areas such as lagunas and mangroves where they feed. Others, such as seals, sea birds, and sea turtles, breed on land and migrate to feeding areas in the sea. A relatively small number of highly migratory species such as whales and tunas perform very long migrations in the ocean and often never come near the shore.

There are also certain species which spend their adult life in the high sea and migrate to fresh waters to spawn, sometimes at considerable distance from the coast. They are called anadromous species. Examples are sturgeons, shads, and salmon. A particular characteristic of these species is that the fish generally return to the rivers where they were born. Others spend their adult life in fresh or brackish waters but go to the open sea to spawn. They are called catadromous species. Examples are eels and chanos, an Indo-Pacific species.

From a legal point of view, migratory animals may be grouped into four categories.

i) Where the migration is entirely performed within the limits of national jurisdiction of a State, the status of the animals concerned is, in principle, the same all along their migration route. Thus, the effect of the extension of the exclusive economic zone (EEZ) by many countries to a distance of 200 miles from the baseline has brought under exclusive national jurisdiction many migratory populations which were moving periodically between the territorial sea and the high sea.

Problems may, however, arise in federal States when jurisdiction over wildlife, or certain categories of wild animals, is vested in the federated states. In such cases, the legal status of migratory species may vary from state to state. With regard to marine species, there

5. Examples of migratory river turtles are species which live in the Amazon and Orinoco river basins in South America.

6. Examples are the Ganges and Indus river dolphins and the Amazon dolphin.

7. Most species of sea turtles have a worldwide distribution in the warmer areas of the globe. They often travel considerable distances in the sea but return to the same beaches to lay their eggs. There are probably periodic movements of turtles between their nesting beaches and feeding areas. Most of these are still, however, poorly known.
may also be areas which are under federal jurisdiction. In the United States, for instance, marine species are under state jurisdiction in the territorial sea and under federal jurisdiction in the fishery conservation zone.

ii) A second category contains those species which migrate between areas under the jurisdiction of different States. These include all terrestrial migrants which cross international jurisdictional limits during their migratory journey. Examples of these are fresh water species in international lakes and rivers and marine animals moving between adjacent internal waters, territorial seas, or EEZs.

iii) The third group of migratory species comprises all animals which migrate between areas under national jurisdiction and the high seas. Many anadromous and catadromous species belong to that category as well as most species of seals, sea birds, and sea turtles, and certain cetaceans like the gray whale. In a small number of cases, several jurisdictional limits are crossed by these migrants during their journey. Examples are certain North-East Pacific salmon which have to go through United States waters before ascending the Canadian rivers where they spawn, and the anadromous fish of the Danube which have to cross several States before they reach the Black Sea.

iv) The fourth group only contains those marine species which never leave the high sea. It is doubtful, however, that this category actually exists as it is unlikely that the animals concerned, as for instance the great whales or the tunas, will never be found in an EEZ.

Clearly, no particular international problems arise as a result of migrations which are entirely confined within the jurisdictional limits of a State or the high sea. From the point of view of international law, migratory species may therefore be defined, in line with article I.1.(a) of the Convention on the Conservation of Migratory Species of Wild Animals signed at Bonn on June 23, 1979 (Bonn Convention), as species which cyclically and predictably cross one or more national jurisdictional boundaries. This definition includes species migrating between areas under

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8. When they are crossing parts of the high seas in the course of their migration, a rather frequent eventuality for migratory birds, migratory animals have no status and become common property.

9. There are certain fish populations originating from areas under national jurisdiction which migrate over considerable distances in the high seas to reach their feeding areas in waters under the jurisdiction of another State. The most familiar example of such a migration is that of the Atlantic salmon. Members of this anadromous species migrate from Western Europe and North Eastern America to their feeding areas off the western coast of Greenland.

10. It could be argued that species inhabiting the Antarctic continent also belong to this category. As all territorial claims over that continent are frozen under the Antarctic Treaty of 1959, so, it would seem, should be sovereign rights over wild animals.

THE LEGAL STATUS OF MIGRATORY SPECIES

Introduction: The Principles of National Sovereignty and of Freedom of Fishing on the High Seas

States have sovereign rights over all animals which happen to be present on their territory at any moment in time. This generally recognized principle of law is, however, not embodied in any specific international instrument. It is merely a consequence of the universal recognition of the sovereignty of States over their natural resources. With regard to animals occurring in the EEZ of a State, the sovereignty of the State concerned has been explicitly established by article 56 of the United Nations Convention on the Law of the Sea.\textsuperscript{12}

The fact that a State has sovereign rights over all wild animals on its territory and in its EEZ does not, however, necessarily mean that it is the owner of these animals. This is a matter which is dealt with by national legislation as a consequence of these sovereign rights. In some countries, wild animals continue to be \textit{res nullius} as they were in Roman law. Increasingly, however, national legislation tends to provide for state or public ownership of such animals unless they have been lawfully obtained by private persons by hunting, trapping, fishing, or collecting.\textsuperscript{13}

The consequence, however, of the existence of sovereign rights over wild animals is that States have exclusive jurisdiction \textit{ratione loci} over them in all areas under their jurisdiction and no jurisdiction outside their national jurisdictional limits. As a result, animals that migrate from one jurisdiction to another are subject, in succession, to the sovereign rights and jurisdiction of all the States along their migration route. Conversely, where no State has sovereign rights, that is to say in the high seas, animals become international \textit{res nullius} that anybody may exploit, over-exploit, or destroy as he pleases. This latter principle is embodied in international law under the name of freedom of fishing in the high seas.

As long as conservation and management problems did not arise, the absurdity of the system was of little or no importance. It became apparent as early as the beginning of this century, however, that certain species, particularly marine species, would disappear, at least as economic re-


\textsuperscript{13} Examples of recent legislation abandoning the \textit{res nullius} concept in favor of State or public ownership of wild animals are: the Italian Game Act of December 27, 1977, the Brazilian Wildlife Conservation Act of January 3, 1967, and the wildlife acts of several African States, Canadian provinces, and Australian federated states (e.g. Zaire, British Columbia, Queensland).
sources, if no conservation measures were taken throughout their ranges, irrespective of jurisdictional zones.

In the absence of a rule of international law conferring upon migratory species a special legal status in recognition of their international nature, restrictions to the exercise of sovereign rights may only be voluntary, through the conclusion of treaties whereby Range States of particular species, as States exploiting these species on the high seas, agree to accept certain conservation obligations.  

Although existing principles of international law cannot be affected by the conclusion of such treaties and, therefore, the legal status of migratory species remains unchanged, it is nonetheless significant that many States have now accepted to limit the effects of these principles in the interest of conservation and, in doing so, to provide practical solutions to complex problems.

The very fact that a relatively large number of treaties have now been concluded in many parts of the world to provide a certain degree of protection to an increasing number of migratory species is a clear proof that the particular requirements of these species together with the necessity of concerted action for their conservation and management is now broadly recognized. One may, however, wonder whether more effective conservation action could not result from the development and adoption by the world community of a specific legal status for migratory species from which rules could be derived that would be binding upon all States. Three possibilities seem to be open in this respect: internationalization, nationalization, and the use of the shared resources concept.

**Internationalization**

Internationalization must be understood as meaning that sovereignty over a species would be vested in the world community and no longer in individual States. Conservation and management decisions would be

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14. Such obligations may either be laid down by the treaty itself or be the subject of decisions taken subsequently by an international body established under the treaty. As, under international law, no State can be bound against its will; these decisions either require a consensus (Convention on the Conservation of Antarctic Living Resources, art. XII.1), or when they may be adopted by a majority vote (which is normally the case), they must then be confirmed by the parties before they become binding. Confirmation may take the form of a formal approval of a Commission recommendation (e.g. Pacific Salmon Treaty of January 28, 1985, art. IV.5 and 6), or may merely be provided tacitly. In this latter case, a decision becomes binding upon a party if that party has not lodged an objection to the decision within a prescribed period of time. This system has been widely used in treaties relating to the conservation and management of living resources (e.g. International Whaling Commission, art. V.3). It has many advantages. In particular, it allows for quick action on the part of a treaty governing body and for a simple procedure enabling parties to express their will not to be bound by such a decision if they so wish. In the absence of objections, decisions enter into force automatically for all parties.
taken by an international body and would be applicable to all jurisdictional zones, including of course the high sea.

Clearly, such a radical solution would meet with insuperable obstacles if it would ever be proposed for the management of terrestrial and fresh water migratory species as it would be completely incompatible with the principle of national sovereignty. With regard to marine species, however, it was felt at one time that it could constitute a more rational and perhaps acceptable substitute to the principle of the freedom of fishing on the high seas. Leonard, as early as 1944, proposed the creation of an International Fisheries Office empowered to take conservation measures. In the event of an objection to any of these measures on the part of a State, the matter was to be referred to a World Commission whose decisions would have been binding. Subsequent proposals to establish an International Fisheries Authority were made during the preparation of the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the Sea and of the 1982 United Nations Convention on the Law of the Sea. None of these proposals met with any success.

A certain degree of internationalization has, however, been achieved for two groups of marine species: whales and highly migratory species, particularly tunas.

**Whales**

The International Whaling Convention has two particularly noteworthy features: it is open to all States and it applies to all waters where whaling is prosecuted.

As a result of the accession to the convention, in the course of time, not only of all whaling nations but also of an increasing number of non-whaling States, including certain land-locked States such as Switzerland, the decisions taken by the International Whaling Commission are now no longer the expression of whaling interests but rather the reflection of international public opinion. The opening of the convention to all States is not fortuitous. It results from the deliberate will of the signatories to consider whales as an international resource to be managed by the com-

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15. It could be argued that the European Economic Community (EEC) has achieved a considerable degree of internationalization with regard to fisheries and the protection of birds as all member countries have to comply with the regulations and directives adopted on these matters by the Council of that organization, or by the EEC Commission. This is, no doubt, correct. On the other hand, it should be recognized that this has only been possible because of the very nature of the EEC, which has preempted the power of its Member States in many fields and is therefore able to act in these fields as a separate political entity, whose decisions are binding on Member States.


munity of nations in the interest of mankind as a whole. This precedent, however, was not followed in other treaties. States are now afraid that in an open convention, a majority of parties that are not exploiting a resource would be able to stop all harvesting against the will of the minority. The Bonn Convention and the Convention on the Law of the Sea have both now established that only the Range States of a migratory species, and States fishing for the resource in the high sea, are entitled to take joint conservation measures. In deference, however, to the whaling precedent, the Bonn Convention makes an exception to this rule with regard to cetaceans. Whereas agreements to be concluded under the convention are open only to the Range States of the species concerned, agreements relating to cetaceans must be open to accession to non-Range States (article V.4.(8)).

In contrast with many other conventions dealing with marine living resources, the International Whaling Convention applies to all waters, including the EEZ, internal waters, and the territorial sea. This right to regulate whaling wherever it is prosecuted, which has been conferred by the convention upon the International Whaling Commission, has now been recognized by the Law of the Sea Convention at least as regards the EEZ. Article 65 of the convention specifies that the rules established by the convention regarding the EEZ do not restrict the competence of an international organization to prohibit, limit, or regulate the exploitation of marine mammals more strictly than otherwise provided by the treaty for other categories of species. In addition, the same article lays down an obligation for all States to work through "the appropriate international organizations" (that is, the IWC) for the conservation, management, and study of cetaceans.

Highly Migratory Species

Two conventions regulating the taking of tuna were concluded before the Law of the Sea Convention was negotiated: the Inter-American Tropical Tuna Convention of May 31, 1949 and the International Convention for the Conservation of Atlantic Tuna of May 14, 1966. Both have a regional character and do not, therefore, cover the whole range of these highly migratory species. Both, however, cover the territorial sea in the geographical area to which they apply. The Inter-American Tropical Tuna Convention is only open to accession by States fishing for tuna in the Eastern Pacific. The Atlantic Tuna Convention, like the Whaling Convention, is open to all States. In practice, however, accession remained limited to States exploiting the resource. Tuna do not give rise to the

same international interest as whales. The internationalization of the re-
source is still in its infancy.

The whaling and tuna conventions were concluded in recognition of
the special requirements of certain highly migratory species. The matter
was subsequently taken up by the negotiators of the Law of the Sea
Convention, with the consequence that highly migratory species are now
the subject of specific rules under that treaty. These rules, however, as
no real change has been made to the legal status of these species, fall
short of establishing a universal and coherent system of international
management of these resources.

First, highly migratory species are not defined. The convention merely
refers to a list of species contained in an annex. As the convention does
not provide for a simplified procedure to amend the annex, any amend-
ment thereto would have to follow the same procedure as an amendment
to the convention itself. It is, therefore, highly improbable that the list
will ever be amended when the need arises.

More important, however, is the fact that article 56 of the convention,
which asserts the sovereign rights of coastal States over the living re-
sources of their EEZ, does not make any exception for highly migratory
species. As a consequence, under article 61, coastal States are empow-
ered, as they are for any other resource of their EEZ, to determine by
themselves what should be the maximum allowable catch of these species
in that area. The convention, therefore, does not provide for a special
status for highly migratory species. It provides, however, for certain
specific obligations. The coastal State and the States fishing for these
species in the area of the high sea adjacent to the EEZ must cooperate
with a view to ensuring conservation and promoting the objective of
optimum utilization of highly migratory species throughout the region,
that is both within and beyond the EEZ (article 64). With regard to all
other straddling stocks, the States concerned must only seek to agree
upon the measures necessary for the conservation of these stocks in the
adjacent part of the high sea, but not in the EEZ (article 63). This
difference of treatment between the two categories of species could be
considered as indicative of an underlying trend towards a real interna-
tionalization of highly migratory species. As the Law of the Sea Con-
vention stands, however, the sovereignty of the coastal States over these
resources in their EEZ continues to prevail.

Disputes have, however, arisen on the very existence of these rights.
The United States maintains that highly migratory species constitute an
international resource which cannot be the subject of such rights and has,
as a consequence, listed six species of tuna which may not be subject to
regulatory measures by the Federal Government in the fishery conser-
MIGRATORY SPECIES IN INTERNATIONAL LAW

vation zone of the United States. Conflicts inevitably occurred when United States fishing vessels were arrested while fishing for tuna in the EEZ of other countries, particularly in Latin America and the South Pacific. The solution probably lies in the conclusion of specific treaties between the United States and the other States concerned which, without resolving the question of the existence of sovereign rights, would provide practical solutions to the problem.

An example of such a treaty is provided by the extremely interesting Eastern Pacific Ocean Tuna Fishing Agreement, which establishes a system of international licenses and fees for the taking of tuna both on the high seas and within the EEZs of the parties. The agreement, however, does not apply to the territorial sea. The fees so collected are distributed among the parties in proportion to the tuna taken in their EEZ each year. The agreement carefully reserves the juridical position of the parties with regard to jurisdiction over highly migratory species beyond the 12 mile limit of the territorial sea. At the same time, it establishes a truly international regime for tuna resources in the agreement area. Thus internationalization, which appeared to have been completely superseded by the Law of the Sea Convention as a conservation and management system for marine migratory species, seems to be regaining momentum.

Nationalization

Nationalization should be understood as the extension of the sovereign rights, or at least of the exclusive jurisdiction, of a State over wild animals outside areas under the jurisdiction of that State. As a result, conservation and management decisions regarding the animals concerned would be made by that State, and all other Range States, or States fishing for the resource on the high seas would have to comply with these decisions. Clearly, and even more so than in the case of internationalization, this concept would at present be impossible to apply to terrestrial and fresh

21. The Fishery Conservation and Management Act of 1976 (1976) provides that "[t]he exclusive management authority of the United States shall not include nor shall it be construed to extend to highly migratory species." The regulations adopted under the Act, however, limit this exemption to six species of tuna (50 C.F.R. 601.2(j) (1987) and 50 C.F.R. 601.11(b)(2)(i) (1987)). Fishing for other highly migratory species such as, for instance, the Atlantic swordfish, is federally regulated (50 C.F.R. 630 (1987)).


23. Mar. 15, 1983, U.S. Senate, Treaty Doc. No. 98.3, available at I.U.C.N. Environmental Law Centre, TR 2732 (signed at San Jose, Costa Rica). This agreement was initially concluded between Costa Rica, Panama and the United States but is open to all coastal States in the Convention area, to Member States of the Inter-American Tropical Tuna Convention and to any other State upon unanimous approval by the Agreement Council. It applies to the Eastern Pacific Ocean from 40° North to 30° South latitude. It does not apply to the EEZ of non-party States or to the territorial sea of any State. Twelve species of tuna or tuna related fish are subject to the Agreement.
water migratory species, as it would imply a waiver of sovereign rights that no State would be prepared to accept. With regard to marine species in the high sea, however, where what would be at stake would not be sovereign rights but freedom of fishing, several attempts to nationalize animal populations were made in the past. Although these attempts have been generally unsuccessful, they eventually resulted in the adoption in the Law of the Sea Convention of innovative rules, particularly with regard to anadromous and catadromous species.

The Doctrine of Sole Ownership

Certain states have claimed in the past that certain animals breeding on their shores or in their rivers, but spending most of their life cycle at sea, were their property and remained so even after they had left their national waters and reached the high sea. They further claimed, as a consequence, that they were entitled to regulate the taking of these species on the high seas by other nations.

A first and famous dispute arose at the end of the last century in respect of the Bering Sea fur seals. The seals breed almost exclusively on the Pribiloff Islands, which belong to the United States. Sealing on the high sea by British boats had developed to such an extent that the seal population had become severely depleted. The United States then declared that the animals were their property and that pelagic sealing should cease. British boats were seized and their captains fined. The dispute was eventually submitted to arbitration. The British held on the basis of customary law that the seals were *ferae naturae* universally regarded as *res nullius* until they were caught. The court of arbitration ruled in 1893 that "[the United States had not any right of protection or property in the fur seals frequenting the islands of the United States in the Bering Sea when such seals are found inside the ordinary three mile limit."

The 1893 award seems to have settled the legal matter of the ownership of animals in the high sea for some time. In 1937 Japanese fishing boats started to take salmon of American origin off the Alaskan coast. Public opinion demanded that salmon be declared the property of the United States, but the Federal Government did not take up this claim. The problems, however, remained.

The Principle of Abstention

An agreement between the four North Pacific coastal States—Canada, Japan, Russia, and the United States—was eventually concluded to preserve the seals. Under this agreement all four parties accepted to abstain

24. 1 Moore’s Digest of International Law 910, 913, 914 (1906).
25. T.S. No. 564, 104 British and Foreign State papers 175 (1911).
from taking the resource in the sea. The United States was, however, entitled to harvest the seals on the Pribiloff Islands when they came ashore to breed. In exchange for their abstention, the three other parties received an annual compensation in the form of a percentage of the value of the skins thus obtained.

Although the legal status of the species outside national jurisdictional boundaries was not affected by the agreement, the fact that Range States had agreed not to exercise their rights to take the species on the high sea provided a practical solution to the problem.

The North Pacific salmon dispute was temporarily resolved after the Second World War by the conclusion of the North Pacific Fisheries Convention. Under this treaty, Japan agreed to abstain from fishing for salmon east of 175° longitude, the line which was considered at the time as the western limit of the range of salmon of North American origin. In this case, however, no compensation was provided to Japan in exchange for her abstention. Subsequently, Japan repeatedly requested a revision of the convention on the grounds that the principle of abstention was not a recognized principle of international law. When the first United Nations Conference on the Law of the Sea met in Geneva in 1958 to codify, inter alia, the law of fisheries, this position was endorsed by a large majority of States. As a result, the abstention principle was not embodied in the treaty adopted by the conference.

Another major dispute arose after the discovery in the early sixties of the feeding areas of the Atlantic salmon off the coast of Greenland. Until that time, salmon were mostly caught in the rivers, estuaries and coastal waters of their countries of origin, and their migration routes and areas of concentration in the ocean were completely unknown. A particular feature of the feeding areas discovered is that they are used by salmon of both European and North American origin. As soon as the feeding grounds were discovered, commercial fisheries for the species started to develop very fast in Greenland.

A bitter controversy immediately arose between countries of origin, such as Canada, the United States, the United Kingdom, and Sweden, which were often spending large sums on conservation and restocking in their rivers, and Denmark, and to a lesser extent, Norway, which were operating large fisheries for the species in the sea. The doctrine of sole ownership and the abstention principle were invoked once again. Eventually, Denmark and Norway agreed to phase out their high sea salmon fishery in the area and Denmark further agreed to stabilize its catches in the territorial sea of Greenland. The abstention principle was thus revived.


One could ask, of course, whether abstention must be equated to nationalization as it only implies on the part of a State to commit itself not to fish for a certain species in a certain area of the high sea. From a strictly legal point of view, this commitment does not, obviously, result in any corresponding transfer of rights to the State of origin of the resource. In practice, however, the implementation of the principle has had as a consequence that the State of origin has enjoyed a monopoly or quasi monopoly on the resource, subject to the limitations established by common agreement of the Range States (the best example is perhaps that of the North Pacific fur seals). Nationalization was therefore achieved in fact, if not in law.

Nationalization in the New Law of the Sea

The Exclusive Economic Zone

The extension of national fisheries jurisdiction beyond the traditional boundary of the territorial sea has, in law, brought about the nationalization of a very large number of stocks, as more than 95 percent of marine species live in the vicinity of the coastline or on the continental shelf.

According to the Law of the Sea Convention, coastal States now enjoy sovereign rights over all living resources in their Exclusive Economic Zone (article 56) which may extend to a distance of 200 miles from the baseline (article 57). As a result, all conservation and management decisions relating to these resources in the EEZ may be taken unilaterally by the coastal States concerned. Nationalization is, therefore, in principle fully achieved. There is, however, one exception. When the coastal State does not have the capacity to harvest the entire allowable catch, which it has itself determined, it must give other States access to the surplus of that catch (article 62.2). This rule applies to all living resources of the EEZ, including highly migratory species, the only exception being marine mammals.

With regard to the latter, coastal States are exempted from the obligation to give access to the surplus to other States (article 65). They may, therefore, if they so wish, completely prohibit the taking of marine mammals, or of any species of these animals, in their EEZ. For those species that never leave the EEZ, such as many seals, nationalization is, therefore, now perfect.

Anadromous and Catadromous Species

Articles 66 and 67 of the Law of the Sea Convention provide for extremely innovative rules concerning anadromous and catadromous species. Their intent is obviously to find a solution to the recurring problem that had arisen in respect of salmon and to forestall any future difficulties
that could occur in the future with regard to species which are habitually resident in the waters of a coastal State.

Article 66.1 lays down the principle that "States in whose rivers anadromous stocks originate shall have the primary interest in and responsibility for such stocks."

Article 67.1 provides that "[a] coastal State in whose waters catadromous species spend the greatest part of their life cycle shall have responsibility for the management of the species and shall ensure the ingress and egress of migratory fish."

For both categories of species, the consequence of these principles is that fishing shall be prohibited to all States on the high seas (articles 66.3.a and 67.2). This also applies to States of origin. An exception is, however, provided to cater for the problem of existing fisheries where such a prohibition would result in "economic dislocation" for a State other than the State of origin of an anadromous stock. Even in such cases, however, the State of origin has a considerable degree of control over the harvesting of the stock on the high seas by other States as the States concerned "[m]ust maintain consultations with a view to achieving agreement on terms and conditions of such fishing, giving due regard to the conservation requirements and the needs of the State of origin in respect of these stocks" (article 66.3.a). Furthermore, "[e]nforcement of regulations regarding anadromous stocks beyond the Exclusive Economic Zone shall be by agreement between the State of origin and the other States concerned" (article 66.3.d).

Admittedly, the convention purposely refrains from determining the exact nature of the rights of coastal States over anadromous and catadromous species outside national jurisdictional boundaries. It proceeds rather in a negative way by specifying that the freedom to fish on the high sea does not, subject to the "economic dislocation" provision, include the right to catch anadromous or catadromous species. As a result, these species are now protected beyond national jurisdictional boundaries. In other words, the abstention principle has now been recognized as a principle of international law.\(^{28}\)

Nationalization is, however, not perfect as there are cases where an anadromous or a catadromous species may occur in the course of its migration in the EEZ of another coastal State. In such cases, the States into or through whose waters the fish migrate continue to enjoy sovereign

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\(^{28}\) Admittedly, the abstention principle is now applicable to all States, including the State of origin, with regard to the exploitation of anadromous stocks in the high seas. This rule indeed provides for an apparent equality of treatment which may have made it more acceptable. It does not, however, affect the interests of any State of origin since no restrictions are applicable to its EEZ except for the general obligations not to overfish and to give access to the surplus to third States.
rights on those animals. The convention provides, however, for an obligation for these States to cooperate with the State of origin with regard to the conservation and management of these stocks, for anadromous species (article 66.4), or to regulate by agreement between the States concerned the management, including harvesting of such fish, for catadromous species (article 67.3).

As a counterpart to their quasi monopoly, States of origin of anadromous stocks, and coastal States in whose waters catadromous species occur have "responsibility" for these stocks or species (articles 66.1 and 67.1). The obligations resulting from this "responsibility" are not, however, specified. It could, and should, nonetheless, be assumed that these States have not only the obligation to prevent the over-exploitation of these species in their EEZ, but also to refrain from actions that could adversely affect them on land, such as the destruction of their habitat or the construction of impassable dams. This interpretation is borne out by article 67.1, which provides that coastal States shall ensure the ingress and egress of catadromous species. There is no corresponding provision, however, for anadromous stocks for no apparent reason.

To sum up, the legal status of anadromous and catadromous species has not changed. Fish of these species continue to be res nullius in the high sea, and remain the subject of sovereign rights in areas under national jurisdiction. Their legal regime is now, however, very different, as they are in principle protected from taking in international waters.

A major ambiguity remains. The convention does not provide a definition of anadromous and catadromous species and only refers to the waters where these species occur. Thus, article 66.1 expressly refers to "the rivers where anadromous species originate." As a result, anadromous species spawning in other waters, such as lagunas, or other coastal inshore habitats, are clearly excluded from the species covered by this article. Whether or not rivers should be understood as including estuaries is unclear. The matter is important as many marine species use estuaries to spawn. With regard to catadromous species, article 67.1 merely refers to the waters where these species spend the greatest part of their life cycle. In addition to rivers and lakes, these waters could include many coastal areas, including lagunas and mangroves where many marine species spend their adult life. If this interpretation is correct, article 67 would apply to a large number of species. Potential sources of conflicts have not, therefore, been completely eliminated.

Although the Convention on the Law of the Sea is not yet in force, the terms of article 66 have already been used as a basis for the conclusion of a Convention for the Conservation of the Atlantic Salmon,29 which

provides for a final settlement of the earlier dispute. This convention applies to all salmon stocks which migrate beyond areas under the fisheries jurisdiction of Atlantic coastal States north of 36° of latitude. Fishing for salmon is prohibited not only on the high seas, but also in the EEZs of the parties. An International North Atlantic Salmon Organization is empowered to adopt binding regulatory measures in all areas where fishing remains authorized.

The Shared Resources Concept

The Slow Development of the Concept

Internationalization and nationalization can operate successfully in only a limited number of cases and clearly cannot be applied to the conservation and management of terrestrial migratory species. One should wonder, therefore, whether there is any other approach which could be followed in an attempt to resolve or at least to alleviate the present conflict between the principle of national sovereignty and the conservation requirements of migratory species. The gradually emerging concept of State responsibility with regard to shared resources may provide an answer to that question.

According to conventional international law, in the absence of a treaty prescribing the contrary, there is nothing that prevents a State from overexploiting or destroying in any way a migratory species on its territory, even though other Range States of the same species may at the same time be making considerable efforts and incurring large expenses to preserve it. If, on the other hand, each Range State of a migratory species were to be considered responsible for the health of that species, vis-à-vis all other Range States as the temporary host of a shared resource, the principle of national sovereignty would continue to be respected. However, conservation action would have to be taken, if required, in order to render this responsibility effective. The obligation of a Range State would not, however, be to take specific conservation measures, unless a treaty otherwise requires, but to achieve a certain result, namely to maintain or restore the species to a favorable conservation status whatever the means chosen to reach this end, which would be left to its discretion.

The shared resources concept does not appear as such in the principles adopted by the United Nations Conference on the Human Environment in Stockholm in 1972. Principle 21, however, provides that “States have . . . the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment

30. Fishing for salmon is, however, authorized in the EEZ of the Faeroe Islands and in the Western Greenland area where the fish congregate. In this latter case, however, it is limited to an area within 40 nautical miles of the baseline.
of other States or of areas beyond the limits of national jurisdiction." 31

This principle must be read in conjunction with principles 2, 3, and 4 which deal with the safeguarding of renewable natural resources and, in particular, of wildlife. A violation of these principles with regard to migratory animals must then be considered also as a violation of principle 21 since, clearly, such animals form a part of the environment of all their Range States.

In 1975, the Governing Council of the United Nations Environment Program (UNEP) established a working group of experts to prepare draft principles of conduct for the conservation and harmonious utilization of shared natural resources. 32 These principles, 33 inter alia, take up principle 21 of the Stockholm Conference and specifically provide that it applies to shared natural resources. Other principles deal with cooperation among States sharing the same resource. Principle 12 specifically provides that States are responsible for the fulfillment of their international obligations in the field of the environment concerning the conservation and utilization of shared resources. These principles do not seem to have been adopted so far by the United Nations General Assembly. 34

The extremely slow progress in the development of the shared resources concept from the theoretical point of view is probably indicative of the difficulty involved in adopting general principles where important national economic and social interests are at stake. So far shared resources have not been defined and, it would seem, purposefully so. It is, however, generally understood that they include transboundary waters and river basins. It was to be expected, therefore, that some States would manifest considerable reluctance to accept the idea that their freedom to use these

32. The Intergovernmental Working Group of Experts on Natural Resources Shared by Two or More States was established under UNEP Governing Council Decision 44 (111) of April 25, 1975, in conformity with U.N. General Assembly Resolution 3129 (XXVIII) of December 13, 1973.
33. Draft principles of conduct in the field of the environment for the guidance of States in the conservation and harmonious utilization of natural resources shared by two or more States (U.N.E.P. Doc. IG.12/2, reproduced in 4 Envtl. Pol’y & L. at 48).
34. The report of the Group of Experts and the Draft Principles contained therein were approved by the Governing Council of UNEP on May 5, 1979 (decision 6/14 of the Governing Council). By Resolution 34/186 of December 18, 1979, the General Assembly requested all States to use the principles as guidelines and recommendations in the formulation of conventions regarding shared resources. So far, however, the General Assembly itself does not seem to have adopted the Draft Principles. Uncertainties, moreover, remain as to the scope of the shared resources concept. The Working Group had been specifically asked to refrain from providing any identification or definition of shared resources. The extent to which the Draft Principles were intended to cover migratory species is, therefore, unclear. A resolution of the European Council of Environmental Law, a non-governmental group, adopted on October 18, 1975, specifically recognizes migratory species as shared resources (European Council of Environmental Law, Resolutions 1975-1981, Erich Schmidt Verlag, Berlin, resolution 2, at 14).
waters could be restricted if the shared resource concept ever became a principle of international law. With regard to migratory species, the acceptance of the principle would seem to be easier, as the example of several recent international agreements will show.

Migratory Species as Shared Resources in International Conventions

Marine Species

With regard to marine species, the new Convention on the Law of the Sea establishes a requirement for cooperation between coastal States harvesting the same stock in adjacent EEZs or between coastal States and States exploiting on the high seas a stock which is straddling these two zones. The cooperation requirement also applies to highly migratory species, marine mammals, and anadromous and catadromous species. In other words, the cooperation obligation laid down by the convention applies to all shared resources, except to those which are confined to the territorial sea or internal waters.

Terrestrial Species

Although the first treaty on the protection of birds was signed as early as 1902, migratory species were not specifically referred to in an international agreement until the Convention for the Protection of Migratory Birds was concluded in 1916 between the United Kingdom (acting for Canada) and the United States. Since that time, eight other bilateral treaties have been signed for the protection of migratory birds and a requirement for international cooperation for the protection of migratory species appears in several more general conservation conventions. The first of these was the Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere which required parties to "[t]ake appropriate measures for the protection of migratory birds of economic or aesthetical value or threatened with extinction" (article VII).

Most of the regional conservation treaties signed after that date also make specific references to migratory species. This is the case of the Convention on Conservation of Nature in the South Pacific, the Convention on the Conservation of European Wildlife and Natural Habitats, 39

and the Protocol concerning Protected Areas and Wild Fauna and Flora in the East African Region.40

None of these conventions, whether bilateral or multilateral, provides for a particular status for migratory species. They generally, however, contain obligations requiring parties to adopt conservation measures for these species, including restrictions on their harvesting, and sometimes for the establishment of protected areas.

The Bonn Convention itself, although it lays down specific rules as to how species listed on its appendices should be preserved, does not provide for a specific status for all migratory species deriving from the migratory nature of the resource. The "travaux préparatoires" show, however, that the matter had not been ignored by the drafters of earlier versions of the convention. Article II.1 of the draft originally prepared by the International Union for the Conservation of Nature (IUCN) in 1975, at the request of the Federal Republic of Germany, read: "A migratory species as a common resource shared by all the States with spheres within its range shall be conserved and managed through the joint action of all such States for their mutual benefit." In addition, the third paragraph of the preamble also referred to migratory species as shared resources forming part of the common heritage of mankind. In the draft which was subsequently submitted to the diplomatic conference, the reference in the preamble to shared resources had been dropped, and article II.1 had been redrafted to read: "All migratory species are a natural resource of their Range States to be conserved and managed through the concerted action of these States for their mutual good and for the good of mankind as a whole. Whenever possible such actions shall be the subject of agreements between the Range States." At the diplomatic conference even this innocuous provision met with the opposition of certain delegations and was, as a result, further amended. The text in force at present merely provides that "The Parties acknowledge the importance of migratory species being conserved and of Range States agreeing to take action to this end and, whenever possible and appropriate, paying special attention to migratory species the conservation status of which is unfavourable, and taking individually or in cooperation appropriate and necessary steps to conserve such species and their habitat."41 Thus, the shared resources concept remains absent from


The opposition to draft article II.1 which occurred at the Conference was, it would seem, mostly due to the fear that the fundamental principle which it embodied might be used as a precedent for other natural resources, such as water.
MIGRATORY SPECIES IN INTERNATIONAL LAW

most international instruments dealing with migratory species. There are, however, some exceptions.

Paragraph 5 of the preamble to the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat, also called the Ramsar Convention, reads: "Recognizing that waterfowl in their seasonal migrations may transcend frontiers and so should be regarded as an international resource." The intent of this carefully drafted sentence, however, is not to state a principle of international law, but merely to express a wish.

Paragraph 3 of the preamble to the EEC Council Directive on the Conservation of Wild Birds goes somewhat further in that it states that migratory species constitute a common heritage and that their conservation implies common responsibilities. The most important treaty in this regard, however, is undoubtedly the ASEAN Agreement on the Conservation of Nature and Natural Resources which is the first international convention to recognize that migratory species are shared resources and which lays down binding obligations as a result of this recognition.

Article 19 of the agreement takes up most of the principles developed by the UNEP Working Group on shared resources. It lays down a general obligation for parties to cooperate for the conservation and harmonious utilization of shared resources, with regard more particularly to migratory species. Paragraph 3 of that article specifically provides for an obligation to cooperate "[w]ith a view to the conservation, management and, where applicable, regulation of the harvesting of species which constitute common resources by virtue of their migratory character, or because they inhabit shared habitats."

The difference between this treaty and earlier ones, in particular the Bonn Convention, is that the obligation to cooperate applies to all migratory species, irrespective of whether or not they are listed in an appendix and that each party has the right to require other parties to perform their obligations. In other words, it is the migratory nature of the resource which gives rise to the obligation to cooperate in its management, just like in the Law of the Sea Convention where the obligation arises from the existence of a shared stock.

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EEC directives are not directly applicable by Member States as are EEC regulations. They are, however, binding on Member States as to the results to be achieved. Member States remain free to adopt the measures they consider to be the most appropriate to that end. Several Member States have now been censured by the EEC Court of Justice for lack of compliance with the terms of the Birds Directive.
At the time of writing this agreement was not yet in force. ASEAN is the Association of South East Asia Nations, an international organization composed of Brunei, Indonesia, Malaysia, the Philippines, Thailand, and Singapore.
For the time being the ASEAN Agreement is unique in this respect. An amendment to the African Convention on the Conservation of Nature has now however, been proposed by an OAU meeting of experts with a view to incorporating into the convention a provision relating to cooperation in the "[c]onservation, development and management of resources of common interest to two or more countries." Admittedly, migratory species are not specifically mentioned, but there is no doubt that the new provision is intended to include them.

THE INTERNATIONAL MANAGEMENT OF MIGRATORY SPECIES

The Present Coverage of Migratory Species by International Conservation Instruments

Introduction

Treaties dealing specifically with the conservation of migratory species are not very numerous. Apart from the Bonn Convention and the International Whaling Convention, both of which have a worldwide field of application, and several regional conventions which contain general provisions applicable to migratory species, there are only a relatively small number of treaties dealing with certain species in particular geographic areas.

One should, however, also take into consideration conventions which, although they do not contain specific rules regarding migratory species as such, do provide for conservation obligations in relation to species listed on their appendices, many of which are migratory. These include regional conservation instruments such as the Agreed Measures for the Conservation of Antarctic Fauna and Flora, the African Nature Convention of 1968, and the Nairobi Protocol of 1985 on Protected Areas and Wild Fauna and Flora in the East African Region. This latter instrument contains a short list of specially designated migratory species in the management of which parties undertake to cooperate.

Finally, mention should also be made of two worldwide conservation conventions which, although they also do not address specifically the


The "Agreed Measures" were adopted at the Third Antarctic Treaty Consultative Meeting (Recommendations III–VIII, Brussels, June 2–13, 1964). Recommendations made by the Antarctic Treaty Consultative Meetings become binding after they have been approved by all the parties. In this case, however, the parties agreed to apply the measures on an interim basis pending their official entering into force (Recommendations III–IX). The "Agreed Measures" provide, inter alia, for the protection of native mammals and birds and for the establishment of protected areas in Antarctica.
matter of conservation of migratory species as such, have nonetheless a major importance for the preservation of many of these species. These are the Convention on International Trade in Endangered Species47 and the Ramsar Convention, one of the main purposes of which is to encourage the preservation of wetlands which are important for migratory water birds along their migration routes.

Conservation measures available in international law for the preservation of any particular migratory species may, therefore, be embodied in different treaties. Although there are instances of duplication, these treaties by and large complement each other. They must, therefore, be considered together to assess the full range of conservation measures applicable to any particular species. Thus, harvesting restrictions may be imposed by a regional convention, whereas trade controls will be governed by CITES, and habitat protection by the Ramsar Convention.

A review of the international instruments applicable to certain species or groups of species may, therefore, be of interest to allow for a more detailed assessment of the present coverage of migratory species by conservation conventions.

**Terrestrial Migratory Species**

Although many terrestrial mammals perform local migrations, conservation measures are usually provided by national legislation or under certain global or regional conservation conventions. Few species have been the subject of particular agreements related to the migratory nature of the resources.

The Bonn Convention lists a small number of terrestrial mammals on its appendices. Eleven species (including the jaguar, the mountain gorilla, the Grévy zebra, the kouprey, the yak and several gazelles) are listed on appendix I. Two entire families of bats, the African elephant, the vicuña, the African oryx, and the Asian population of *Gazella gazella* appear on appendix II. At its first meeting in 1985, the Conference of the Parties to the convention decided to instruct the Secretariat to take appropriate measures to develop an agreement under the convention for European species of bats. At the time of writing, a first draft had been prepared and submitted to Range States for their consideration with a view to its conclusion in 1989. Other treaties applying to terrestrial migratory mammals concern the vicuña and a migratory population of caribou in Arctic North America.

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The Convention on International Trade in Endangered Species of Wild Fauna and Flora was signed at Washington on March 6, 1973. Appendix I to the convention lists endangered species in which commercial trade is prohibited. Appendix II lists species trade in which is authorized under a strict permit system.
The Convention for the Conservation and Management of the Vicuña\textsuperscript{48} applies to the whole range of this animal in the Andes. It prohibits the taking of this animal as well as trade in its products. There is an obligation to establish protected areas and to carry out research on the vicuña and its ecology.

The very recent Agreement between Canada and the United States on the Conservation of the Porcupine Caribou Herd\textsuperscript{49} deals with all aspects of the conservation and management of this resource of considerable importance for the subsistence of local users.

**Migratory Birds**

**Global Treaties**

Global treaties of importance to migratory birds are the Bonn Convention, CITES and the Ramsar Convention. Appendix II to the Bonn Convention lists migratory species in respect of which contracting parties are encouraged to conclude specific agreements for their conservation and management. As several families of birds are listed on this appendix in their entirety, the number of migratory bird species which may potentially be covered by agreements concluded under the convention probably exceeds one thousand.\textsuperscript{50}

The first meeting of the Conference of the Parties to the Bonn Convention, in October 1985, decided that the first agreements relating to appendix II migratory bird species should apply to the white stork, *Ciconia ciconia*, and to the Western Palearctic Anatidae. A draft agreement on the conservation of the white stork has now been prepared and a management plan for the species is under development. Further negotiations remain necessary, however, to finalize the agreement and its management plan. With regard to the Western Palearctic Anatidae, preliminary work on a draft agreement and management plan only started in 1988. It is hoped that a final draft will be ready for the third meeting of the Conference in 1991.

CITES lists only a relatively small number of migratory bird species on its appendices. Appendix I contains, in particular, certain birds of prey and cranes. Appendix II includes all birds of prey, whether diurnal or nocturnal, not already listed on appendix I, but only a few other true bird


\textsuperscript{49} July 17, 1987, available at I.U.C.N. Environmental Law Centre, TR 2863 (signed at Ottawa).

\textsuperscript{50} Included in appendix II to the Convention are all *Anatidae* (ducks, geese and swans), diurnal birds of prey (except for the non-migrant African secretary bird), nearly all waders, and all song birds belonging to the *Muscicapidae*, a very large family with more than 1000 species, many of which are migratory. Most of the 146 species of *Anatidae*, 280 species of diurnal birds of prey, and 153 species of waders are also migratory.
migrants. For instance, the black stork *Ciconia nigra*, the spoonbill *Platalea leucorodia*, all flamingoes, the red-breasted goose *Branta ruficollis*, and all cranes not listed on appendix I are included.

The Ramsar Convention provides for the protection of many important areas for migratory waterfowl, especially in the Western Palearctic region and in North and West Africa, where most of the States which are parties to that convention are located. These areas include the Waddensee, a very large zone of shallow waters shared by Denmark, the Federal Republic of Germany, and the Netherlands, the Camargue in France, Doñana in Spain, Ishkeul in Tunisia, Puerto Cansado in Morocco, the Banc d'Arguin in Mauretania, and the Djouj in Senegal, thus providing a considerable degree of protection to critical staging, moulting, and wintering habitats for ducks and waders along the Western Palearctic flyways.

In other parts of the world, in particular in the Eastern Palearctic, tropical Asia, Eastern and Southern Africa and tropical America, the smaller number of parties, as well as of sites listed by parties, make the convention less effective.

**European Bird Preservation Instruments**

Europe is the only part of the world where multilateral agreements specifically designed to protect birds, especially migratory birds, have been developed and adopted. As early as 1902, the Convention for the Protection of Birds Useful to Agriculture was signed to protect small song birds and certain owls. It is still in force although completely outdated and superseded by later agreements. The International Convention for the Protection of Birds of 1950
takes down the principle that all birds, with a small number of exceptions, must be protected. It requires parties to establish closed seasons for game birds, especially during the spring migration, regulates certain hunting methods, and encourages Parties to establish reserves. It does not contain a list of protected species. This convention, which is also still in force, was ratified by a relatively small number of countries and has been largely ineffective.

The main international instrument for the protection for European birds is now the Berne Convention. This convention provides for the strict protection of a large number of bird species and for the regulation of the harvesting of all other species in this class with a very small number of exceptions. Parties are also required to preserve the habitat of all listed species, whether harvestable or not. With regard to migratory birds, Parties have the obligation to coordinate their efforts for their protection and must "[s]eek to ensure that closed season and/or other procedures regulating exploitation are adequate and appropriately disposed to meet the requirements of game species" (article 10.3).

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The convention was concluded under the auspices of the Council of Europe and was primarily designed to apply to Member States of that organization. Out of 23 such Member States, 19 have now ratified it (as well as the EEC in its own right) and ratification by Belgium is expected to take place. Thus, the international protection of birds in Western Europe seems to be secured. Membership of the convention is not, however, restricted to Council of Europe States. It is open to any other State which may be invited to accede by the Committee of Ministers of the Council of Europe. Hungary has acceded in 1989 and it is very possible that other Eastern European countries will join in the not too distant future. Several countries in North and West Africa have also expressed their interest and Senegal was the first to accede officially in 1987. It is, therefore, quite possible that the convention will eventually apply to a large part of the Western Palearctic area as well as to many of the wintering regions of European migrants in Africa. In addition to the Berne Convention, several other instruments applicable to migratory birds have been developed by sub-regional European organizations.

The Benelux Convention on the Hunting and Protection of Birds provides for the full protection of all birds, except for a small number of game species, in the three countries concerned. A protocol to this convention regulates certain hunting methods. A short list of species which may be captured alive was adopted by the Benelux Council on August 30, 1972. Finally, the Benelux Convention on Nature Conservation and Landscape Protection requires from the three governments concerned that they develop criteria for the establishment of protected areas for migratory species. The Council of Ministers of the Benelux Union is empowered to decide on the establishment of such areas.

Of particular importance on the European scene is the EEC Council Directive on the Conservation of Wild Birds of April 2, 1979, which is applicable in all EEC Member States, including Greece, Portugal and Spain which have joined the Community after the directive came into force. The main objective of the directive is the maintenance of the populations of all bird species in the EEC at a level which corresponds to ecological, scientific and cultural requirements. For this purpose, the directive prohibits the harvesting of and trade in most species except for those listed as game. For those species listed on appendix I, many of which are migratory, Member States are required to take habitat protection measures in the form of the establishment of special conservation areas. Similar measures must be taken in respect to the habitat of all migratory

species even when they are not listed on appendix I. Member States must, in particular, avoid pollution of special conservation areas. They are also obliged to ensure that the introduction of exotic bird species does not affect indigenous species of wild animals or plants.

**Bilateral Bird Treaties in North America, Asia and the Pacific**

Nine bilateral treaties have been concluded so far between a small number of countries for the specific purpose of protecting migratory birds. The earliest one was the treaty signed in 1916 between the United States and Great Britain (acting for Canada). It was followed in 1936 by a treaty between the United States and Mexico,<sup>55</sup> a supplementary protocol to which was signed in 1972.<sup>56</sup> All the other bird treaties were concluded in the 1970s and 1980s. There are the treaties between the United States and Japan of 1972;<sup>57</sup> the USSR and Japan of 1973;<sup>58</sup> Australia and Japan of 1974;<sup>59</sup> the United States and the USSR of 1976;<sup>60</sup> China and Japan of 1981;<sup>61</sup> India and the USSR of 1984;<sup>62</sup> and Australia and China of 1986.<sup>63</sup> Thus, the United States and Japan are each a party to four of these bilateral treaties, the USSR to three, Australia and China to two, and Canada, India and Mexico to one. A treaty between the USSR and the United Kingdom was also envisaged at some time but was never formally adopted. There is no coordination mechanism between any of these treaties in spite of the fact that many of the species they deal with are the same.

The first of these treaties, the United States–Canada Convention of

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1916, merely prohibits the harvesting of non-game species and requires parties to establish a long closed season for the migratory birds which are listed as game. The United States–Mexico Convention of 1936 and its protocol provide full protection to a much larger number of species. It also includes a provision for the establishment of reserves. Most of the bird treaties concluded subsequently in the 1970s and 1980s are very similar. They generally prohibit the taking of species listed on an appendix except if an open season has been declared by the party concerned. The decision as to which species may be harvested is, therefore, left to the discretion of each party. Hunting is usually prohibited during the breeding season. Parties are encouraged to set up reserves for migratory birds. Generally there are also provisions regarding the control of the introduction of exotic animals and plants.

The convention concluded between the United States and the USSR in 1976 is different from all the others in that it requires its parties to identify breeding, wintering, feeding, and moulting areas of special importance to migratory birds which are under their jurisdiction and to protect those areas against pollution, detrimental alteration, and other environmental degradation. Parties must also list, by mutual agreement, areas of special importance for the conservation of migratory birds which are located outside their jurisdiction and take measures to ensure that persons under their jurisdiction will act in accordance with the principles of the convention in respect of these areas.

The International Protection of Birds in the Other Parts of the World

In Africa, apart from the African Wildlife Convention which lists a certain number of migratory bird species among those the taking of which must be prohibited or otherwise regulated by the parties, the only instrument which provides for the protection of birds is the Protocol on Protected Areas and Wild Fauna and Flora in the Eastern African Region of June 21, 1985. An annex to this protocol lists endangered species of birds, some of which are probably migratory, at least locally. Parties are required to strictly regulate and, where required, prohibit activities having adverse effects on the habitats, and in particular the critical habitats, of such species.

There are no treaties dealing specifically with the protection of birds in the greatest part of Asia and the Pacific, in Eastern Europe, the Middle East, and Central and South America. In South East Asia, when the

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64. The Western Hemisphere and Apia Conventions contain very general provisions on the conservation of migratory birds. There are, however, no specific obligations to preserve particular species. The appendices to the Western Hemisphere Convention do not list species that must be protected by all parties, as in other conservation conventions, but only species that each party has unilaterally agreed to protect.
ASEAN Convention comes into force, the parties will most probably adopt an annex listing endangered species. This list already exists in draft form. It contains several species of birds some of which are migratory. These species will benefit from full protection under the convention.

Marine Mammals
Marine mammals include sirenians, sea otters, polar bears, cetaceans, and seals.

Sirenians and Sea Otters
Sirenians and sea otters inhabit coastal areas and usually perform only local migrations. As most of these species are now endangered, they are generally protected by national legislation as well as by certain global or regional conservation treaties such as CITES and the African and European wildlife conventions. An exception is the dugong, whose local migrations in the Indian Ocean are sufficiently far ranging to justify its listing in appendix II to the Bonn Convention and on the migratory species appendix to the Protocol on Protected Areas and Wild Fauna and Flora in the East African Region.

Polar Bears
Polar bears are considered to be marine mammals because they spend a great part of their life on the Arctic ice pack on which they perform migrations. An Agreement on the Conservation of Polar Bears was concluded in 1973 among all the Range States of this animal: Canada, Denmark, Norway, the USSR, and the United States. The agreement prohibits the taking of polar bears with a certain number of exceptions. Domestic and international trade in polar bear skins is also prohibited. Parties must protect the ecosystems of which the bears form a part and in particular denning and feeding sites as well as migratory patterns. Polar bears are also protected by the Berne Convention. The species is listed on appendix II to the CITES Convention.

Cetaceans
Apart from the general provisions on cetaceans appearing in the Law of the Sea Convention, the main treaty dealing with this group of marine mammals remains the International Whaling Convention of 1946. This treaty is, however, ambiguous as to the species it covers, as it merely refers to “whales” without defining the term. Parties have tended to interpret this term in a restrictive way to include only baleen whales, the sperm whale and a few other species. Attempts to broaden this interpre-

tation to cover all small cetaceans have so far failed. The convention is the only global treaty dealing with a group of marine species.

The Bonn Convention lists a small number of endangered baleen whales on appendix I. The only species listed initially on appendix II was the white whale or belouga, *Delphinopterus leucas*. At its first meeting in 1985, however, the Conference of the Parties to the convention instructed the Secretariat to develop agreements under the convention for the North and Baltic sea populations of two species of porpoise: *Phocoena phocoena* and *Tursiops truncatus*. As a result, a draft agreement has now been prepared. It applies, however, to all small cetaceans in these two marine areas rather than just to the two species mentioned above. The reason for that is that it was felt that all face the same threats and would benefit from international cooperation efforts to conserve them.

As none of these species were listed on appendix II, the Conference of the Parties, at its second session (Geneva, 11 to 14 October 1988), added seven species of small cetaceans to that appendix. These species are: *Phocoena phocoena*, *Tursiops truncatus*, *Delphinus delphis*, *Grampus griseus*, *Globicephala melaena*, *Lagenorhynchus acutus*, and *Lagenorhynchus albirostris*. An eighth species, *Balaenoptera acutorostrata*, a baleen whale, failed to obtain the required majority. The Conference also adopted a resolution directing the convention’s Scientific Council “to give priority to a global review of the conservation status of small cetaceans, including fresh water species, to enable Parties to prepare proposals for additions to Appendix II at the Third Conference of the Parties.”

In Western European waters, cetaceans are also protected by the Berne Convention. Most European species are now listed on appendix II to this convention and, therefore, benefit from complete protection. In East African waters the blue whale and the humpback are protected under the Protocol on Protected Areas and Wild Fauna and Flora in the East African Region. In the Black Sea a ban on the taking of dolphins was established under the Black Sea Fishing Convention.

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67. Initially only four species of baleen whales (the right whale, the bowhead whale, the blue whale and the humpback whale) and three species of small cetaceans (*Delphinus delphis*, *Phocoena phocoena* and *Tursiops truncatus*) were listed on appendix II (which requires full protection). All other species of cetaceans were listed on appendix III (which only requires that harvesting be regulated). The Standing Committee of the Convention decided at its December 1987 session to transfer from appendix III to appendix II most of the European species of small cetaceans that are found in European waters.

Finally, international trade in cetaceans and their parts and derivatives is regulated by CITES. Endangered species of cetaceans are listed on appendix I. All other species are listed on appendix II. In the European Community, a Council Regulation of January 20, 198169 prohibits any import of cetacean products including meat and oil.

Seals

As most species of seals inhabit coastal areas, only a small number of them benefit from international protection measures. In the North Atlantic, the treaties concluded between Norway and the USSR70 and between Canada and Norway71 for the regulation of the harvesting of the harp seal and the hooded seal have lost much of their importance after the extension of national jurisdictional boundaries to 200 miles. In the North Pacific, the Interim Convention on the Conservation of North Pacific Fur Seals72 had been periodically renewed until 1984, but has now expired.73 In the Antarctic, seals are protected by two different instruments. The Agreed Measures for the Conservation of Antarctic Fauna and Flora prohibit the taking of all species of native mammals, and certain seal species are listed as specially protected species which may be taken only for scientific purposes. As the Antarctic Treaty, under which these Agreed Measures were taken, does not cover marine areas, the parties to that treaty decided to conclude a Convention for the Conservation of Antarctic Seals74 in anticipation of a possible resumption of commercial sealing in the region. The objectives of that convention, which covers all species of seals present in the region, are the protection, scientific study, and rational use of these species and the maintenance of a satisfactory balance within the ecological system. Certain species are fully protected.

Outside these three areas, seals are also protected under certain global or regional conventions. The Mediterranean monk seal, Monachus mon-

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73. This Interim Convention replaced an earlier convention concluded in 1911 between the four Range States of the seal: Canada, Japan, Russia and the United States. The 1911 convention brought to an end the fur seal dispute.

The United States has not ratified the latest protocol to the convention, signed in 1984, which was essentially designed to extend the validity of the convention for a period of four years ending in 1988. The reason for this would seem to be that the conservation status of the species is now believed to be again unfavorable as a probable consequence of the entanglement of seals in discarded nets and other plastic debris. Allowing harvesting would be therefore unsound under the circumstances. As a result, the convention has now expired.

achus, is listed on both appendices to the Bonn Convention, on appendix I to CITES, on appendix II to the Berne Convention, and on the list of fully protected species of the African Wildlife Convention. The walrus is protected by the Berne Convention and by the treaty concluded between Norway and the USSR of November 22, 1957 on sealing in the North East Atlantic.

At its 1985 meeting, the Conference of the Parties to the Bonn Convention decided to list on appendix II the populations of harbour seals and gray seals which occur in the North Sea and the Baltic. An agreement between Denmark, the Federal Republic of Germany, and the Netherlands for the preservation of the harbour seal population in the Waddensee has now been finalized and is expected to be adopted in the near future.

Under the Berne Convention, in addition to the monk seal, which is listed on appendix II, all other European seal species are listed on appendix III and their harvesting must, therefore, be regulated. Finally, a small number of species are listed on the CITES appendices and their trade is, therefore, prohibited or restricted.75

Sea Turtles

Sea turtles are marine migratory species which are now seriously threatened in the greatest part of their range. In spite of the fact that they are often exploited by different nations during their migratory cycle, there are still no international agreements to regulate their harvesting. An agreement concluded in 1969 between Costa Rica, Nicaragua, and Panama never came into force.

Two species of sea turtles are listed on appendix I to the Bonn Convention, and all seven species on appendix II. No agreement under the convention is, however, at present contemplated for their conservation and management. Five species are listed on appendix II to the Berne Convention and all species occurring in African waters are fully protected under the African Wildlife Convention. The Nairobi Protocol on Protected Areas and Wild Fauna and Flora in the East African Region also lists all species of sea turtles which inhabit the Indian Ocean. They are all listed as migratory species, which means that parties are required to coordinate their efforts for their protection. The form which this coordination should take is, however, not specified. Among the five species so listed, three are fully protected, whereas the other two, Chelonia mydas and Eretmochelys imbricata, are listed as harvestable threatened species. This is in contradiction with the African Wildlife Convention, to which many

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75. All monk seals and Arctocephalus townsendi are listed on appendix I. All other members of the genus Arctocephalus and all members of the genus Mirounga (elephant seals) are listed on appendix II.
parties to the protocol are also party, which gives full protection to all
sea turtles. Finally, all sea turtles are listed on appendix I to CITES.

Anadromous Species

Agreements on the conservation and management of anadromous fish
have been mainly restricted to salmon. In the North Pacific, the Con-
vention between Japan and the USSR concerning the High Seas Fisheries
of the North West Pacific Ocean\(^6\) provides for the adoption of joint
management measures on the high sea. Similarly, the International Con-
vention on the High Seas Fisheries of the North Pacific Ocean concluded
between Canada, Japan, and the United States\(^7\) as revised by a Protocol
of April 25, 1978,\(^8\) provides for cooperation between the parties in the
management of salmon stocks. In both cases there are no provisions for
the management of salmon in inland river habitat.

On the Pacific coast of North America, salmon runs spawning in Ca-
nadian rivers, such as the Fraser River, have to cross United States waters
on their way from the high sea. The resource is, therefore, shared by the
two countries concerned and the conclusion of treaties was required to
regulate its exploitation.

A first convention was signed between Canada and the United States
in 1930 to preserve the fishery.\(^9\) It was subsequently amended to cover
also the pink salmon by a protocol signed at Ottawa on December 28,
1956.\(^0\) This convention essentially organized the sharing of the resource
among the fishermen of the two nations through regulatory measures
taken by a Joint Commission at the time of the salmon runs. The Com-
mission also decided on the number of fish which should escape the
fishery and be allowed to ascend the river and reach their spawning
grounds. The convention applied to all internal waters and the territorial
seas of the two countries concerned as well as to the whole of the Fraser
River Basin.

In 1985, Canada and the United States concluded a new treaty covering
all salmon stocks originating in transboundary rivers, in order to bring
them under joint management.\(^1\) The 1930 convention is therefore now
superseded.

\(^6\) The treaty does not seem to have been registered with the United Nations. Available in 53
A.J.A.L. 763 (1956) and at I.U.C.N. Environmental Law Centre, TR 1866 (signed at Moscow,
May 15, 1956).


\(^8\) T.I.A.S. No. 9842.

\(^9\) Convention for the Protection, Preservation and Extension of the Sockeye Salmon Fishery


\(^1\) Treaty concerning Pacific Salmon, Jan. 28, 1985, available at I.U.C.N. Environmental Law
Centre, TR 2724 (signed at Ottawa).
In the North Atlantic, the Greenland salmon dispute was eventually resolved by the conclusion in 1982 of the Convention for the Conservation of Salmon in the North Atlantic Ocean. This treaty, which follows the provisions of article 66 of the Law of the Sea Convention, prohibits the taking of salmon in the high seas and in the EEZs of the parties, with some exceptions for Greenland and the Faeroe Islands. Regulatory measures, including emergency measures restricting, in the area of fishing jurisdiction of one party, the taking of salmon originating in the rivers of other parties, may be taken by the commissions set up under the convention.82

In South Eastern Europe, several commercially important anadromous species83 which migrate between the Danube and the Black Sea are covered by two separate treaties. The Convention concerning Fishing in the Waters of the Danube84 applies to the Danube and its tributaries. It establishes a joint commission to regulate the fishery. The Convention concerning Fishing in the Black Sea85 regulates, inter alia, marine fisheries for the species covered by the Danube Convention.

Highly Migratory Species

Among the species, other than cetaceans, listed as highly migratory in annex I to the Law of the Sea Convention, only tunas have been, so far, the subject of international agreements. Conventions regulating tuna fisheries have, however, only been concluded for two marine areas: the Eastern Pacific and the Atlantic Ocean as a whole.

The Inter-American Tropical Tuna Convention (IATTC)86 applies to yellow fin tuna and skipjack in the East Pacific Ocean. The Commission set up under the convention carries out scientific research and makes recommendations for joint action by parties. A new convention was concluded in 1983 between the United States, Costa Rica, and Panama, covering twelve species of fish belonging to the tuna family in the same geographical area as the earlier treaty.87 It establishes a Council empowered to make conservation recommendations. The agreement is intended to be interim, pending the conclusion of more comprehensive arrange-

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82. There are three Commissions: North-American, North-East Atlantic and West Greenland Commissions. The West Greenland Commission deals with the area where salmon stocks from European and North American origins intermingle.

83. These include four species of sturgeons, the Danube salmon, which is a species endemic to that river, and a local race of the Atlantic salmon.


ments that would replace the IATTC. Its main feature is that it provides for a system of international licenses for the fishing of tuna in the convention area as a solution to the conflicts that had arisen between the United States and several coastal States with regard to the legal status of highly migratory species in the EEZ.  

The International Convention for the Conservation of Atlantic Tunas applies to the whole of the Atlantic Ocean and its adjacent seas and to most species belonging to the tuna family. Contrary to most fishing conventions, it also applies to the territorial seas of the parties. The Commission established under the convention is empowered to make recommendations which become binding upon parties which have not lodged objections within a prescribed time limit.

Conclusion

This short review of the extent to which migratory species are covered by existing international agreements shows that there are still considerable gaps. Migratory birds are well covered only in Western Europe, North America, and, to a certain degree, in the Western Pacific. With regard to cetaceans, only the great whales are currently managed by the International Whaling Commission. Smaller species, although protected under certain regional conventions, are hardly ever the subject of specific agreements for their conservation and management.

Most species of seals which are or could be exploited by several States are covered by agreements in force. This is not the case for sea turtles, which, although protected by the Bonn Convention and several regional conservation treaties, have so far never been the subject of specific management agreements.

As far as anadromous fish are concerned, most of the species which are commercially exploited by two or several States seem to be covered. On the other hand, there are very few treaties organizing the conservation and management of highly migratory marine species. Existing treaties only deal with tunas in certain geographical areas. None of the other highly migratory species, although some seem to be heavily exploited, are at present covered by international conventions.

International Management Requirements for Migratory Species

Experience and disillusions show that if conservation measures provided by international instruments are to be effective, three conditions

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88. Letter from the President to the U.S. Senate (Apr. 8, 1983) (regarding submittal of the treaty).
must be fulfilled. The resource must be managed as a unit; exploitation, when allowed, should be rational; and all relevant ecological factors must be taken into consideration.

Unit Management
It stands to reason that the conservation and management of a migratory species, or of a discrete population thereof, must encompass the whole range of that species or population. In other words, a migratory species must be considered as a biological unit regardless of the jurisdictional area where its members happen to be at a given moment in time. Effective conservation, therefore, requires the cooperation of all the Range States of a species, including, as appropriate, those States whose nationals exploit the species on the high seas.

On the other hand, the principles of national sovereignty over natural resources and of the freedom of fishing on the high seas completely disregard the requirements of migratory species.

To counteract the effect of these principles, the conclusion of treaties for the management of particular species may not be sufficient as Range States cannot be compelled to accede to them. The only solution, therefore, appears to consist in the insertion of appropriate provisions in global treaties, creating a universal obligation for States to cooperate in the conservation and management of migratory species of which they are Range States. Provisions establishing some forms of obligations along these lines appear in both the Law of the Sea and the Bonn Conventions.

With regard to marine species, the United Nations Technical Conference on Fisheries, which met in Rome in 1965, had already noted that for a stock to be exploited in a manner compatible with its conservation, it was necessary for all States actively exploiting that stock to accede to the agreements made for its rational exploitations.91

This idea was taken up by the First United Nations Conference on the Law of the Sea in Geneva in 1968, and incorporated into the Convention on Fishing and Conservation of the Living Resources of the High Seas, which was adopted on that occasion.92 Article 1.2 of that convention provides that “[a]ll States have the duty to adopt or to cooperate with other States in adopting such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas.” In addition, the convention attempts to solve the problem of new entrants in an existing fishery by making the access to that fishery contingent upon the acceptance by the entrants of the conservation measures

already adopted by the States engaged in that fishery. Disputes could be submitted to a compulsory arbitration procedure.\textsuperscript{93} This procedure was, however, never used.

The new Convention on the Law of the Sea also contains certain provisions establishing an obligation for States exploiting the same stocks to cooperate in their conservation and management. This obligation is, however, relatively limited. First, it does not apply to internal waters and to the territorial sea. Second, with regard to stocks shared between adjacent EEZs or between an EEZ and the high seas, the obligation is not binding. The States concerned must merely "[s]eek to agree upon the measures necessary to coordinate and ensure the conservation and development of such stocks. . . ." (article 63.1). Moreover, in those cases where the same stock occurs both within the EEZ and the high seas, the conservation measures that must be jointly taken can only apply to the high seas. In the EEZ, the coastal State continues to have the right to take unilateral measures (article 63.2).

A binding obligation to cooperate exists only in respect to three categories of resources: marine mammals, highly migratory species, and anadromous and catadromous species. As many marine migratory species belong to these categories, however, it can be said that the new convention constitutes a major step forward in the development of the unit management concept. The obligations incurred under these provisions should be enforceable through the procedures provided by the treaty for the settlement of disputes.

With regard to the Bonn Convention, the sixth paragraph of the preamble clearly states that the conservation and effective management of migratory species requires the concerted action of all States within the national jurisdictional boundaries of which such species spend any part of their life cycle. This should be understood as providing for the first time a recognition by international law of the requirement for unit management. Unfortunately, article V, which deals with the conclusion of agreements under the convention for the conservation and management of particular species, falls short of this requirement as it does not make it mandatory for contracting parties which are Range States of a particular migratory species to cooperate in the conservation and management of that species. Article V, paragraph 2 of the convention merely states that each agreement should cover the whole of the range of the migratory species concerned and should be open to accession by all Range States of that species, whether or not they are parties to the convention. Early drafts of the convention were in that respect much stronger. A draft of

\textsuperscript{93} Optional Protocol of Signature concerning the Compulsory Settlement of Disputes, Apr. 29, 1958, 450 U.N.T.S. 169.
February 28, 1978, for example, provided that "[p]arties that are Range States of a migratory species listed in Appendix II shall cooperate with a view to concluding an agreement for the conservation of that species." This provision was, however, gradually weakened until it was reduced to soft law.\(^4\)

Although the Law of the Sea and the Bonn Conventions are the only ones which, at least, recognize the unit management requirement from the theoretical point of view, there are nonetheless several treaties where unit management has been achieved in practice inasmuch as all Range States, including States exploiting the species on the high seas, have become Parties to them. Examples are the International Whaling Convention, the North Pacific Fur Seal Agreement, and the Polar Bear Agreement.

These treaties, however, only apply to marine species. For fresh water species, apart from a number of bilateral treaties regulating fisheries in boundary waters, the best and perhaps the only example of unit management is that of the Danube and Black Sea Fisheries Conventions, which, if taken together, cover most of the range of the Danubian anadromous species. For terrestrial species, except for the Porcupine Caribou Agreement, which applies to a very small area, there are no examples of unit management. In particular, in spite of the many treaties dealing with migratory birds, unit management of bird populations has only been achieved when the parties to a bird Agreement are the only Range States of a particular species or population, a fairly rare event.\(^5\)

**Rational Management**

The purpose of rational management is to ensure the sustainable utilization of harvested species. This has, from the very beginning, been the main if not the only object of fisheries treaties, although in practice this has seldom been achieved as the example of the International Whaling Convention has, for instance, amply demonstrated.

The principle of rational management has been for the first time accepted as a rule of international fisheries law in the Geneva Convention of 1958 on Fishing and Conservation of the Living Resources of the High

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\(^4\) The draft submitted to the diplomatic Conference was already substantially weaker. It read: "Each Agreement shall, wherever possible, cover the whole of the range of the migratory species concerned and shall be open to accession by all Range States of that species." The Conference changed the "shall" into "shoulds."

\(^5\) It should be noted that the unit management problem is not confined to the international scene. It also arises in federal States when jurisdiction over wildlife is vested in the federated entities. Solutions are not always easy to find as States or provinces tend to resist attempts by the federal government to impose the unit management concept. As an example, Argentina enacted in 1981 a new Wildlife Act. The act, however, can only apply directly in the Federal District, i.e. Buenos Aires. To be effective in the provinces it has to be acceded to voluntarily by each of them. At the time of writing only two had done so, the Provinces of Mendoza and Córdoba.
Seas and was subsequently embodied in the new Convention on the Law of the Sea of 1982. The Geneva Convention provides that “all States have the duty to adopt, or cooperate with other States in adopting, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas” (article 1.2). Article 2 defines conservation “[a]s the aggregate of measures rendering possible the optimum sustainable yield from these resources.” The 1982 Law of the Sea Convention provides for the obligation for States to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield. This rule is applicable both in the EEZ (article 61.3) and in the high seas (article 119.1), but not in the territorial sea and internal waters.

Maximum sustainable yield is a biological concept which expresses “[t]he greatest harvest that can be taken from a self-regenerating stock of animals, year after year, while still maintaining a constant average size of the stock.” This may generally be achieved when the initial population of a stock has been reduced by 50 percent. Above this level the recruitment rate is smaller, and below, losses can no longer be compensated and the stock declines if harvesting continues at the same rate. The use of this concept must therefore be understood as a means to optimize the yield of a fishery through the concurrent maximization of recruitment and catch, thus preventing, at the same time, both under-exploitation and overfishing.

To establish, however, the level at which maximum sustainable yield can be obtained and the resulting total allowable catch, it is essential to have reasonably accurate estimates of the total biomass of a stock, of its recruitment, as well as of natural and fishing mortality. Research on population dynamics is, therefore, necessary. This research must, however, be based to a considerable extent on catch statistics, the reliability of which will often be open to question.

The maximum sustainable yield concept has been for many years severely criticized by scientists who objected, inter alia, that allowance should be made for unavoidable inaccuracies in statistical data, that provision should be made for a safety margin, and that the effects of the harvesting of one species on other species and on the ecosystem in general was not taken into consideration.

To achieve rational exploitation, fisheries conventions provide for a number of methods designed to reduce the catch below the level where overfishing would occur. Such instruments include the establishment of

minimum mesh sizes for nets, closed areas, closed seasons, and the imposition of overall quotas. Conventions do not, however, usually provide for limitations of access to the fishery or for the allocation of the catch among the participating States. Catch statistics must generally be provided by fishermen. Enforcement measures to control unlawful fishing practices, including boarding and inspection, are usually laid down. The political will to adopt regulatory measures consistent with the reproductive capability of the target species is, however, often absent and true rational management has in most cases, as a result, been impossible to achieve.

In addition, fishery regulations generally do not or cannot take into consideration the problems caused by the incidental take by other fisheries of the species they purport to preserve. Neither can they take into account, except in further limiting the catch, the accidental deaths of animals of such species as a result of pollution, entanglement in drifting debris such as discarded nets, or the ingestion of floating plastic material. To give an example, one of the most successful of all treaties dealing with the conservation and management of a marine migratory species has been the North Pacific Fur Seals Agreement, which provided for a well designed and easy to control system of sustainable exploitation. Yet, as we saw, after decades of stability, the stock is now declining, most probably as a consequence of the entanglement of seals in discarded plastic debris. Rational management under those conditions becomes illusory.

In contrast with marine species, the rational management of terrestrial migratory species is still in its infancy. The most probable reason for this is that marine species were until the recent extension of coastal States' jurisdiction almost exclusively fished in the high seas, where the requirement for cooperation did not conflict with problems of national sovereignty. Terrestrial species, on the other hand, are considered as national resources and harvesting restrictions designed to benefit other States along the same migration route would, therefore, be difficult to accept. Yet, certain migratory game birds have a very considerable economic importance, not for their market value but because they are essential to the pursuance of the multi-billion dollar waterfowl hunting industry. The rational management of duck and geese population would ideally require a yearly analysis of breeding success, on the basis of which a maximum harvesting limit could be determined and national quotas allocated to each Range State along the flyway concerned. Bilateral bird treaties, however, only provide for the requirement of a closed season and are completely silent on the question of overall or national quotas. Thus, overexploitation in one country will result in the reduction of the harvest in the other.

The only two countries which have, so far, albeit not under the terms of the bird treaty they have concluded in 1916, agreed on a management
plan for the waterfowl species they share, are Canada and the United States. The North American Waterfowl Management Plan, which was jointly adopted by these countries in 1985, provides that "[r]ecreational hunting will continue to be managed under existing regulatory processes in Canada and the United States. These processes will be subject to continuous review to ensure that they are compatible and consistent with waterfowl population needs on a continental basis." Thus, for example, if the breeding population index of mallards in the surveyed area of Canada and the United States falls below 6.5 million, the provinces of Alberta, Saskatchewan, and Manitoba and all states of the Pacific, Central, Mississippi, and Atlantic flyways should decrease harvest of the species by at least 25 percent.

The only other example of international rational management of a terrestrial migratory species is that of the Porcupine caribou herd under the treaty signed by Canada and the United States on July 17, 1987. This treaty provides for the establishment of an International Board empowered, inter alia, to make recommendation to the parties in respect of the total number of caribous which may be harvested as well as of the Canadian and United States quotas within that number.

The concept of rational management is not, however, ignored by the Bonn Convention. The guidelines for agreements which are listed in article V indeed specify that, when appropriate and feasible, each agreement should provide for measures based on sound ecological principles to control the taking of the migratory species concerned (article V.5.j). There remains to be seen how this very general clause will be incorporated into any future agreement concluded under the convention and be effectively implemented in practice.

Ecological Management

Ecological management may be defined as the taking into consideration, preferably within a comprehensive management plan, of all the factors which may affect the conservation status of a species and the integrity of the ecosystem of which this species is a part.

The only treaty, so far, which apprehends the ecosystem concept in its globality and endeavours to establish what has been called an "ecosystem approach" for the conservation and management of all species occurring in the area concerned is the Convention on the Conservation of Antarctic Marine Living Resources of 1980. This convention lays down the prin-

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97. This is not a treaty but a declaration of intent signed by the Canadian Minister of Environment and the Secretary of the Interior of the United States. Environment Canada and Canadian Wildlife Service, North American Waterfowl Management Plan (1986).
98. Id. at 2 (principle 7), 15.
ciple that any harvesting or associated activities in the area to which it applies shall be conducted in such a way as to prevent changes or minimize the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades (article II.3.c). In addition, the ecological relationships between harvested, dependent, and related populations of Antarctic marine living resources must be maintained (article II.3.b).

This latter requirement stems directly, it would seem, from similar provisions in the Law of the Sea Convention whereby parties, when taking conservation and management measures in their EEZ (article 61.4) or in the high seas (article 119.1.b), must also take into consideration the effects of these measures on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened. These unique and revolutionary provisions recognize, therefore, that marine species other than those of direct benefit to man, including even predators of commercially important species, have a right to exist and to be preserved from extinction caused by human activities. Unfortunately, in the absence of reliable scientific information on the status and ecology of associated and dependent species and, in particular, on the effects of different harvesting rates on the conservation status of non-target species and on the ecosystem as a whole, it is to be feared that these provisions will, for some time at least, hardly be more than pious ecological wishes.

Ecological management requirements, in a relatively few cases, where they are mentioned in international conventions, are, however, generally limited to those of the species covered by these treaties. The guidelines to agreements contained in the Bonn Convention (article V) provide a comprehensive list of these requirements. These include: research into the ecology of the species concerned; periodic reviews of their conservation status; the conservation of important habitats; the maintenance of a network of suitable habitats appropriately disposed in relation to the migration routes; the elimination of or compensation for activities and obstacles which hinder or impede migration; the control of exotic species detrimental to the migratory species concerned; and the prevention, reduction, or control of pollution of the species habitat.

Pending the conclusion of agreements under the Bonn Convention which, it is to be hoped, will incorporate some or all of these guidelines, a review of existing treaties dealing with the conservation of migratory species reveals that ecological factors have, so far, been taken into account in a relatively limited number of cases only.

With regard to habitat preservation, for instance, fisheries conventions generally completely ignore the necessity of preserving critical habitats.
such as spawning grounds and nurseries. Yet, many species of commercial importance use very vulnerable coastal habitats such as estuaries, lagunas or coastal marshes at a certain stage of their life cycle to spawn or to feed. The destruction or alteration of these habitats cannot but have serious consequences on the catch.

The only treaty providing for the elimination of obstacles to migration was the Fraser River Salmon Convention of 1930 (now superseded by the new Pacific Salmon Treaty of January 26, 1985), which empowered the International Pacific Salmon Commission to recommend to the parties the removing or otherwise overcoming of obstructions to the ascent of the fish.

In contrast with fisheries conventions, many conservation instruments provide for habitat protection measures, the establishment of reserves, and the control of exotic species. This is the case of most of the recent bird conventions, of the EEC bird directive and of the majority of regional conservation treaties, in particular the European and ASEAN Conventions. The Polar Bear Agreement provides for an obligation to protect the ecosystem of which these animals form a part, and in particular the denning and breeding sites of the bears. The Antarctic Seals Convention underlines in its preamble that one of the objectives of that treaty is to maintain a satisfactory balance within the ecological system (paragraph 7 of the preamble) and specifically provides for the establishment of seal reserves in the breeding areas of these animals (paragraph 5 of the annex to the convention).

The 1987 Agreement between Canada and the United States on the Conservation of the Porcupine Caribou Herd contains particularly innovative provisions relating to the general protection of the ecosystem in which this animal population migrates. In particular, the parties have the obligation to conserve the habitat of the herd, to avoid or minimize activities that would significantly disrupt migration or other important behavior patterns, and to carry out impact assessments of activities having a potential impact on the conservation of the herd or its habitat (article 3).

Finally, although the 1916 Bird Convention between Canada and the United States contains no provisions on the conservation of habitats, the two countries have now informally agreed, through the North American Waterfowl Management Plan of 1985, to strengthen and expand their efforts to provide better habitat preservation for these species. The plan lays down broad guidelines and sets a number of goals spanning the period 1986 to 2000, including the protection of more than five million additional acres of wetlands in the two countries as breeding, migration, or wintering habitats. Action plans for each habitat priority area for ducks,
geese, and swans will have to be developed in the future and shall concentrate on specific conservation objectives.\textsuperscript{100}

**Institutional Requirements**

Experience shows that treaties dealing with the conservation and management of wild animal populations cannot be truly effective when no appropriate institutions are provided to assist in their implementation. This is particularly the case of instruments pertaining to migratory species and other shared living resources, in view of the necessity of concerted action on the part of all Range States.

The most effective type of institution consists of statutory periodic meetings of the parties where the implementation of the convention may be followed, national reports received and discussed, information exchanged, and recommendations made to parties on measures required to enable them better to discharge their obligations. Administrative support in the form of a convention Secretariat is also necessary and so is the provision of adequate financing for the meetings of the parties and the operations of the Secretariat.

Most of the fisheries conventions provide for institutional arrangements of this kind. Commissions established under these treaties generally centralize research results and catch statistics, review the status of stocks and, in many cases, are empowered to adopt regulatory measures to control the harvesting of the resource by parties. The International Whaling Convention is a good example of this type of treaty. A provision along these lines appears in the more recent agreements (USSR-US; USSR-Japan; USSR-India; Japan-Australia; Japan-China).

Conservation conventions, in contrast, seldom provide for the establishment of institutions. This is the case, for instance, of all bilateral bird treaties, none of which provides for any implementation machinery other than, and only for some of them, mere consultations at the request of one of the parties.\textsuperscript{101} The situation is the same with regard to multilateral bird conventions. Neither the 1902 treaty nor the Convention of 1950 provide for any implementation mechanism. The EEC birds directive itself, comprehensive as it may be as regards conservation measures to be taken by EEC Member States, does not establish any special machinery

\textsuperscript{100} North American Waterfowl Management Plan (1986), supra note 96. In addition, on March 16, 1988, the directors of the wildlife conservation agencies of Canada, Mexico and the United States signed a Memorandum of Understanding for the Conservation of Migratory Birds and Wetlands. This agreement, which is again not a treaty, provides for the establishment of a tripartite committee to develop conservation strategies for migratory birds and their habitats that might lead to a coordinated management plan for the three countries (Department of the Interior, Fish and Wildlife Service, News Release, 5 April 1988).

\textsuperscript{101} There is an article providing for meetings of the parties at the request of any one of them in the more recent bilateral bird treaties (U.S.S.R.-U.S.A.; U.S.S.R.-Japan; U.S.S.R.-India; Australia-Japan; China-Japan).
for its implementation. Admittedly, however, the EEC Commission may and does play an important role in enforcement and has already submitted cases of non-compliance to the European Court of Justice.

Similarly, the Polar Bear Agreement provides neither for the establishment of a commission nor for periodic meetings of the parties. The same is true of many regional conservation conventions, particularly the earlier ones. Thus, no implementation mechanisms are provided by the Western Hemisphere Convention of 1940 and the African Convention of 1968.102 The Antarctic Agreed Measures do not establish any implementation mechanism other than the formal and infrequent Conferences of the Antarctic Treaty Powers. The South Pacific Convention only provides for consultations but secretariat services are to be performed by the South Pacific Commission. The only regional treaties which have instituted an implementation mechanism are the Berne Convention, the ASEAN Convention, the Convention on the Conservation of Antarctic Marine Living Resources and the Protocol on Protected Areas and Wild Fauna and Flora in the Eastern African Region. In addition, the Ramsar Convention, CITES, and the Bonn Convention all provide for regular meetings of the parties, a Secretariat, and joint financing. With regard to the Ramsar Convention, however, an amendment to the convention had to be adopted at an extraordinary meeting of the parties held at Regina, in Canada in 1987, as the initial text of the treaty did not provide for any such mechanism.

CONCLUSION

Migratory species as international resources do not have a legal status from which mandatory rules for their conservation and management by their Range States could be derived. Internationalization and nationalization cannot be applied to terrestrial species as they entail a limitation to the principle of national sovereignty over natural resources that few States, if any, would be prepared to accept. In the oceans, the triumph of nationalization, through the extension of fishery zones to 200 miles, has sounded the death knell of internationalization, but nationalization cannot, by the very nature of things, be extended to highly migratory species on the high seas. For those species, a combination of the two concepts may perhaps provide a solution. The Eastern Pacific Ocean Tuna Fishing Agreement of 1983 could, in this regard, constitute a valuable precedent.103

102. With regard to the African Nature Conservation Convention of 1968, this may be remedied in the future if the proposed amendments submitted to O.A.U. in 1984 are adopted and come into force.

103. The national status of the tunas in the EEZ is not affected by the agreement. Management is, however, internationalized in that it is an international authority which is empowered to issue fishing licenses, collect fees and adopt regulatory measures both in the high seas and in the EEZ.
The shared resources concept should be understood as implying a limited degree of internationalization of a migratory species among its Range States. It was accepted with little discussion by the Law of the Sea Conference with regard to fish stocks in adjacent EEZs. For terrestrial species, however, it is still meeting with nationalistic opposition, and, as a result, was not taken up by the Bonn Convention. The incorporation of the concept into the ASEAN Agreement should, however, be considered as a major breakthrough and, therefore, as an important precedent for future treaties, in particular for agreements to be negotiated under the Bonn Convention.

The coverage of migratory species by existing instruments remains very insufficient and considerable gaps continue to exist, especially with regard to sea turtles and birds. As far as the latter are concerned, there is an urgent need to conclude agreements covering entire flyways. So far, this has been achieved nowhere. The Bonn Convention provides a framework, both legal and institutional, for the conclusion of such agreements. Moreover, the guidelines for agreements listed in article V of the convention, although not mandatory, provide useful guidance as to the incorporation into agreements of essential rational, and ecological management requirements. It will be difficult, however, to achieve unit management as long as many States, some with very large territories, remain outside the convention. Priority should, therefore, be given to the resolution of the problems that have, so far, prevented these countries to accede. There is a serious risk, otherwise, that the convention will not be able to perform its functions, and, more importantly, that without the catalyzing effect the convention is designed to provide, very few new agreements for the conservation and management of migratory species will be concluded in the future.